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WORLD ACADEMIC CONGRESS OF EMERGENCY MEDICINE

October, 28 - 31

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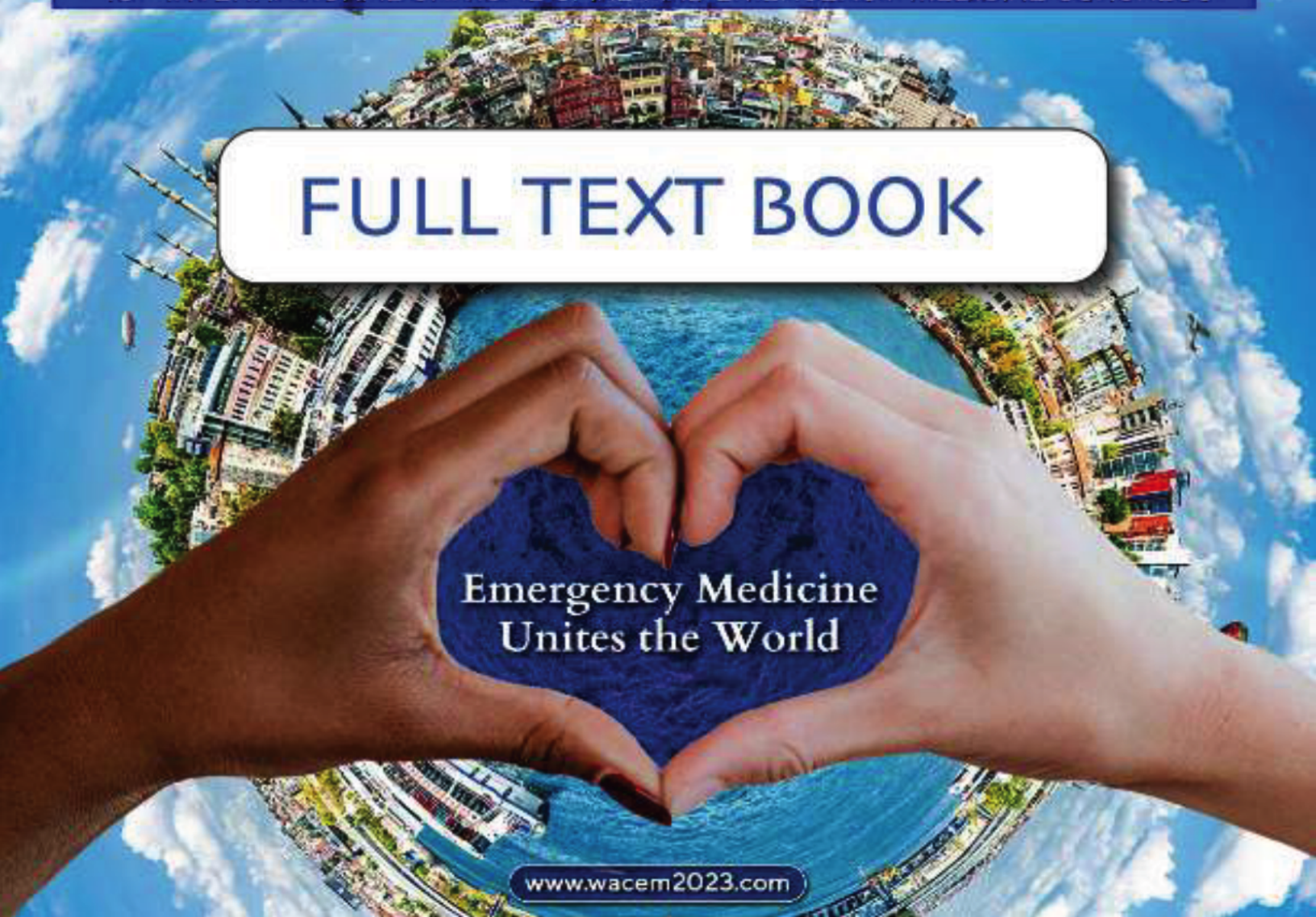
FULL TEXT BOOK



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Football Unites the World

Qatar 2022…We watched a very different world cup. For the first time, it was hosted in a different geography and a different culture. With the perfect organization, the games that broke the rating records all over the world created a storm of excitement until the last moment. Do you remember that a goal to be scored in extra time completely changed the teams that would leave the group at the last moment. The fact that it was Ronaldo and Messi's last world cup competition gave it a different meaning and excitement. Despite Ronaldo holding all the records, Messi was the most profitable player of the world cup.

The promotion started with Ronaldo and ended with Messi. Once again, we saw that the excitement of the World Cup is really different. It is much different and much more important than continental tournaments, including Europe. You get excited with Ecuador, you see Japan, Canada, Brazil, Argentina, USA and while the fact that everyone is there from Ghana to France, from Spain to Algeria to Tunisia makes this organization reach the climax, you realize that football has become a common language.

What about EMERGENCY

In our country, more than 400 million patients were examined in outpatient clinics last year and about 130 million of them were emergency. As they say, medicine is divided into two: Emergency and others. The situation is totally like that quantitatively. When we look at it in terms of quality, emergency is one of the most common points of everyone. Visits to the emergency room are not planned trips. For example, 112 brings the critically ill patient to the nearest unit. Therefore, everyone, whether rich or poor, bureaucrat or shepherd, is in the same situation in the ER. The patients are in one of the weakest moments of their lives. As in the past, even if you are the owner of university hospitals where the world's most respected professors work, you live the most critical moment of your life in a second level emergency room in case of an arrest. This is how Emergency unites people.

Emergency Unites the World

And here we come to that year. World Emergency Medicine Congress is in our country in 100 years. As in the World Cup, all world emergencies from Japan to Malaysia, from Ghana to Ecuador, from Italy to Canada, from New Zealand to the USA, from Russia to Ukraine are coming together at the meeting point of the world; in our country, in Istanbul and Antalya. We will all be working and trying to shine a light on the world from our country…to the 2023 congress of this huge organization WACEM -the largest academic network-. The world's most comprehensive emergency medicine organization has also a great importance for the promotion of our country.

This Year Is Very Different

Emergency Medicine Physicians Association of Turkey (EPAT) is an exemplary formation that is deeply rooted with its leadership aspect, which became more evident during the pandemic period. Its top-level position was followed with envy and such It is not affected by simple winds and does not change direction according to the wind. The gigantic organization that brings the world together at such a meaningful time, suits EPAT very well.

I wish this year to be a turning point for our country and for the World Emergency Medicine and invite to organize the biggest organization ever and to take a giant step for the future of emergencies where everyone comes together.

Let's all come together with all our might...

Prof. Dr. Başar Cander
Chairman of the Board of Directors

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Academic Director of WACEM

Pub No: OP-001

Patterns and Trends of Traumatic Fractures in Children and Adolescents Due to Falls: A 10-Year Study in Turkey

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Introduction: Falls are the leading cause of hospitalization and emergency department visits due to trauma in children aged 0 to 18 years
Aims: The aim of this study is to investigate the incidence and pattern of traumatic fractures (TFs) as a result of falls in a population of children and adolescents in Turkey
Materials and Methods: A retrospective review of medical records yielded data on 1417 patients with fractures due to falls.
Results: The male-female ratio was 2.9:1, with upper extremity fractures (57.6%) being most frequent, followed by lower extremity (27.3%) and craniofacial fractures (16.5%). High falls correlated with increased incidences of spinal, lower extremity, and craniofacial fractures, while low falls were associated with more upper extremity fractures. Notably, spine fractures prevailed in adolescents (15-18 years), and craniofacial fractures dominated in young children (≤3 years). Distinct gender differences emerged in fracture distribution. The study highlighted seasonal and temporal trends, with peak incidence in the fall and between 16:00 and 20:00. Nerve injuries were documented in 16.4% of cases, often linked to high-impact falls, spinal, and craniofacial fractures. Early complications/associated injuries (ASOIs) were found in 19.5%, while late complications/ASOIs occurred in 9.2% of cases.
Discussion: Falls from high correlated with a higher frequency of early complications/ASOIs. To mitigate the impact of fall-related fractures, preventative measures, targeted interventions, and education are vital. Recognizing risk factors and designing strategies tailored to different age groups and genders can improve patient outcomes.
Keywords: Complications, Falls, Pediatric emergency, Prevention strategies, Traumatic fractures.

Pub No: OP-003

Pericardial tamponade : 3 Case series

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Introduction:

Pericardial effusion is defined as fluid accumulation in the pericardial cavity due to various reasons. If the accumulated fluid increases the intrapericardial pressure and prevents cardiac filling and thus causes haemodynamic disturbance, cardiac tamponade is mentioned.

Pericardial tamponade is a clinical picture characterised by decreased ventricular filling volume and subsequent haemodynamic disturbance caused by fluid accumulation in the pericardial cavity. The most common causes of pericardial tamponade are malignancies, uremia and idiopathic pericarditis. Tachycardia, hypotension, decreased heart sounds, increased jugular pressure and pulsus paradoxus may be detected clinically. Electrocardiography (ECG) may show sinus tachycardia, decreased voltage and electrical alternans. The most commonly used laboratory method in the diagnosis of tamponade is echocardiography (ECHO). Two-dimensional echocardiography may show late diastolic right atrial collapse and early diastolic right ventricular collapse. Doppler echocardiography shows decreased mitral valve flow during inspiration. Tamponade is a life-threatening emergency and pericardiocentesis with definitive treatment should be performed as soon as possible.

In this case series, we will present three different cases of cardiac tamponade admitted to our Emergency Department on the same day

Case 1

An 85-year-old male patient was taken to an external centre by 112 emergency ambulance with the complaint of syncope and was electively intubated because his GCS (Glasgow Coma Score) was 3. He was referred to us because pericardial effusion was detected on tomography

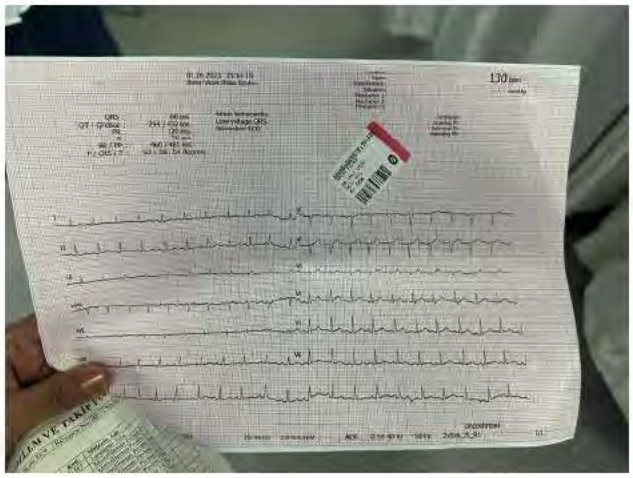


The patient's vital signs were fever: 36 C^0, pulse rate: 132/min, blood pressure: 60/30 mm/Hg, sp02: 98. The patient was interned to the Coronary Intensive Care Unit due to pericardial effusion and tamponade findings on bedside ECHO. Emergency pericardiocentesis was performed.



Case 2

A 50-year-old female patient was admitted to us with the complaint of shortness of breath for 4 days. The patient was receiving radiotherapy for neck swelling that started 3 months ago. She was being followed up because of suspicion of thyroid malignancy. The general condition of the patient was good, vital signs were as follows: temperature: 36.4 ^{0}C, pulse rate: 130/min, blood pressure: 100/70 mm/Hg and sp02: 94. Physical examination revealed bilateral neck venous congestion. ECG showed sinus tachycardia and decreased QRS voltage.



Massive pericardial effusion was detected in the bedside ECHO and the patient was interned to the Coronary Intensive Care Unit with the diagnosis of cardiac tamponade.



Case 3

A 62-year-old male patient was brought by emergency ambulance due to syncope. It was learnt that the patient was found unconscious on the floor by his relatives in the toilet at night. On examination, GCS: 15, general condition: moderate and cold sweating was present. Bilateral lung sounds were normal. Bilateral peripheral pulses were palpable and equal. Vital signs were as follows: temperature: 36.1 ^{0}C, pulse rate: 118/min, blood pressure: 100/60 mm/Hg, sp02: 96. ECG of the patient showed sinus tachycardia. It was learnt that the patient had aortic valve replacement operation and was discharged from the Cardiovascular Surgery service 2 days ago. A pericardial effusion of approximately 1.5 cm was detected in the bedside ECHO.



No dissection or aneurysm rupture was detected on CT angiography.



ECHO report at the discharge from the service revealed that the patient had no pericardial effusion. The patient was interned to the Cardiovascular Surgery Intensive Care Unit. During follow-up, it was learnt that the pericardial effusion reached 5 cm and the patient was operated.

Conclusion:

Rapid diagnosis of patients with pericardial tamponade is of vital importance. ECHO, which is used at the bedside in the diagnosis of these patients, has a critical importance because it is simple, rapid and non-invasive. Therefore, Emergency Medicine physicians should have the necessary and sufficient experience in this subject. We suggest that ECHO should be widely used in all Emergency Departments.

Pub No: OP-004

Electrocardiogram can record mechanical activity too!

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Title: Electrocardiogram can record mechanical activity too!

Introduction:

Electromechanical association (EMA) artifact or Aslanger's sign is produced when an arm electrode is placed on an artery and manifests on the 12-lead ECG as ST segment changes (elevation or depression) with bizarre T waves. A careful observation of the 12-lead ECG would show a single limb lead spared from these ST-T changes.

Case Report:

A 40-year-old male who is a known case of chronic kidney disease on medical management presented to our emergency department with complaints of generalized weakness, swelling of both legs, facial puffiness, and decreased urine output for the past one week. A 12-lead ECG (figure 1) was taken. The ECG showed a normal sinus rhythm with a heart rate of 90 beats per minute, a normal axis, diffuse ST-segment depression in leads I, II, aVL, aVF, V1-V6, and ST elevation in leads aVR. Abnormal bizarre T waves were also observed in leads I, II, aVL, aVF, and aVR. A diagnosis of electromechanical association (EMA) artifact was made,

and these changes disappeared when the 12-lead ECG was repeated after adjusting the right arm electrode placement.

Discussion:

Electromechanical association (EMA) artifact, also called arterial pulse tapping artifact, is produced when an arm electrode is placed on an artery. [1,2] It can also be seen if a chest electrode is placed precisely on the apical impulse.[3] This artifact is created by the mechanical tapping of the pulse or apical impulse on the ECG electrode and is synchronous with the cardiac cycle. It produces ST segment changes (elevation or depression) with bizarre T waves. A peculiar feature in EMA artifact is that a single limb lead is almost always spared from the bizarre ST-T changes. It is also known as Aslanger's sign, named after the person who first described it.

A lead on an ECG is derived by the voltage difference between two different anatomical electrodes. Leads I, II, and III are derived by measuring the voltage difference between the electrodes placed on the right arm and left arm, right arm and left leg, and left arm and left leg, respectively. In EMA artifact, one standard limb lead derivation which does not involve the culprit electrode placed on the artery will be completely free of abnormal appearance. Our patient did not have any ischemic symptoms, and limb lead III was spared from the bizarre ST-T changes (figure 2), which suggests that the culprit electrode was placed on the

right arm. The ST-T changes disappeared when the 12-lead ECG was repeated after adjusting the right arm electrode placement, as shown in figure 3.

The various causes of ST-segment elevation are shown in figure 4.[4,5] Emergency physicians should rule out non-biological and non-ischemic causes of ST-segment elevation before labeling it as ST-segment elevation myocardial infarction (STEMI). EMA artifact can rarely mimic ST-segment elevation and is recognized by noticing the limb lead, which is completely free of abnormal appearance.

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Figure legends:

Figure 1: Initial 12-lead ECG of the patient.

Figure 2: Highlighted images of the initial ECG demonstrating bizarre T waves (red arrows) with ST segment depression in leads I, II, aVL, aVF and ST segment elevation in lead aVR. Lead III waveform (blue box) is completely devoid of all these ST-T changes.

Figure 3: Repeat 12-lead ECG after adjusting the right arm electrode placement.

Figure 4: Various causes of ST-segment elevation. MI: myocardial infarction; LBBB – left bundle branch block; VPR – ventricular paced rhythm; RBBB – right bundle branch block; WPW – Wolff-Parkinson-White syndrome; LVH: left ventricular hypertrophy.

Pub No: OP-008

CHILDHOOD THORACIC TRAUMA RELATED TO MOTORCYCLE ACCIDENT; CASE PRESENTATION

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INTRODUCTION

Thoracic traumas include trauma to the rib cage, lungs and cardiovascular system and constitute 23-28% of trauma-related mortalities (1). The most common cause of trauma in the emergency department for children is traffic accidents (2). Trauma ranks first among the causes of childhood death in developing countries (2-4). In America, there are approximately over 1.5 million childhood traumas annually, and approximately 600,000 of them are hospitalized, and approximately 15,000 to 20,000 trauma-related child deaths occur each year (5).

Traffic accidents are a preventable cause that threatens the health integrity of children and poses a life risk (6). 28% of traffic accidents worldwide occur with 2- and 3-wheel motorcycles. Since the body is directly exposed to energy during the collision, the death rate in motorcycle accidents is 30 times higher than in other accidents (7). The fact that motor vehicles are available cheaply around the world and that the opportunity to obtain them becomes easier with easy credit opportunities, as well as the increasing presence of motorcycle couriers in daily life for fast service, are effective in the increase in motorcycle accidents (8).

Trauma is the most common cause of disability and mortality for children under the age of 15, after diseases. Thoracic traumas are not common among childhood traumas. However, it can have a wide range of consequences, from very simple trauma to death (9). Pediatric patients with blunt trauma stay in the hospital for longer periods than patients with penetrating trauma. In pediatric trauma patients, the presence of thoracic trauma increases the mortality rate between 5% and 25%, depending on age. Since the thoracic cavity in children is more flexible and compressible than in adults, energy may have been transferred into the thorax and lung injury may have occurred even if there was no external injury (10). In this case, we wanted to emphasize the causes of death other than head trauma after a motorcycle accident, the importance of protective equipment on motorcycles, and the need for more stringent regulation of legal regulations, especially in pediatric patients.

CASE PRESENTATION

A 12-year-old male patient was brought to our emergency department by 112 after a motorcycle accident. We learned that there were 3 people on the motorcycle at the time of the incident, that the patient was sitting in the front and only used a helmet as protective equipment. Arrival Vitals Temperature: 36 0C NB: 160 beats/min TA: Could not be obtained SPO2: 82% His general condition is poor. The patient was evaluated as GCS: 5-6. In the physical examination of the patient, light reflexes could be obtained directly and indirectly in

both eyes. The right lung tissue had come out. There was active bleeding. There was an open subcutaneous wound on the neck, starting from the lower 1/3 of the trachea and progressing towards the right hemithorax. There was a 5cm open wound on the right cheek. There was autorrhagia in the right ear. Brain CT, maxillofacial CT, cervical CT, thorax CT, and abdominal CT were performed.

In Biochemistry, Glucose: 294 mg/dL UREA: 63.3mg/dL Creatinine:1.07mg/dL, AST:137u/L, ALT:62 u/L, Amylase:137 u/L, Calcium: 8.8mg/dL, Total Bilirubin:0.42 mg/dL, Direct Bilirubin:0.11 mg/dL, Ck:298 u/L, Ck-Mb:221.6 u/L, Alkaline phosphatase:184 u/L, Crp:0, 5 mg/L, Ggt:13 u/L, Sodium:141.8 mmol/L, Potassium:4.59 mmol/L. In the hemogram, Wbc: 12.29K/uL, Hgb: 10.7g/dL, Hct:31.9%. Blood group and cross match were studied. As tomography comments; In thorax computed tomography, there is an approximately 1.5 cm thick pneumothorax area on the right side. There is approximately 2 cm thick fluid in the accompanying right hemithorax. (hematoma?, hemorrhage?) There is an alveolar infiltration area in the right lung upper lobe anterior and upper lobe posterior, and lower lobe superior segment. An air cyst with a diameter of approximately 1.5 cm was observed in the central zone of the superior lower lobe of the right lung. A nondisplaced linear fracture line was observed in the central section of the right clavicle. Air densities were observed under the skin in the right chest area. Maxillofacial CT: There is a displaced fracture line in the left part of the mandible anterior.

The patient was monitored. Our patient was sedated with dormicum in doses appropriate to his weight and intubated. Intubation site confirmed. Wet dressings were applied to open wounds. Tetanus was performed. Antibiotic treatment was started to cover Aerobe and Anaerob infections. Physiological saline was started depending on his weight. Inotrope support was started. Cardiovascular surgery, thoracic surgery and pediatric surgery were consulted. Erythrocyte suspension and fresh frozen plasma infusion were started. The patient was taken into emergency surgery by pediatric surgery, cardiovascular surgery and thoracic surgery.



Figure 1. Image of the patient with thoracic trauma

DISCUSSION

Since the body mass index and body area of pediatric patients are small, the whole body is affected in trauma (2, 11, 12). In some studies on child trauma, skeletal system injuries were observed most frequently, lower upper extremity injuries were observed most frequently in some studies, and head injuries were observed most frequently in some studies (2, 6, 13-16). In a study, they emphasized that thoracic cage, abdomen, pelvic and spinal cord injuries are the least common injuries in young patients (17). Our case was different in that it had a serious thoracic injury and a poor general condition.

Motorcyclists are the most vulnerable group of road users and have a 30 times higher risk of dying in a traffic accident than car passengers (18). Helmet is one of the most important protective equipment of motorcycle users. According to a study conducted in Taiwan, the type of helmet, which has all types of head protection, as well as types that are attached under the chin that leaves the face open, provides a difference in the protection rate. Helmet use reduces upper extremity trauma as well as head trauma (19). We do not know what type of helmet was used in our case, but we think that our patient did not have a full-closed helmet due to facial injuries, or that the protective feature was low, which increased the severity of the patient's upper extremity and rib cage trauma.

According to a study conducted in Iran comparing the mechanisms of injury and mortality rates between motorcycle drivers and passengers, motorcycle drivers are more injured than passengers (20). In our case, since the passenger was sitting in front of the driver and the accident occurred from the front, the passenger became a barrier between the driver and the high energy and protected the driver.

CONCLUSION

Due to the different anatomical structure in childhood, trauma should be evaluated comprehensively, and the patient may die due to thoracic trauma, especially in cases of direct blows to the rib cage, such as a motorcycle accident. Our physicians should be careful in this regard.

In order to prevent low-energy accidents and reduce morbidity and mortality, policies should be developed such as structuring vehicles that can reach maximum speeds, such as bicycles, and bicycle paths accordingly, rather than motor vehicles.

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Pub No: OP-009

Posttraumatic Pancreatitis Three Days after Car Accident

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Introduction and Purpose: Acute pancreatitis is frequently associated with gallstones or alcohol but it can also be seen after trauma. We herein present a case of posttraumatic pancreatitis 3 days after a car accident that caused pelvic fracture and retroperitoneal hematoma.
Case: A 26-year-old woman admitted to the emergency department (ED) with haematuria, bilateral flank, abdominal and pelvic pain. Vital signs of the patient was normal. It was mentioned that the patient had a traffic accident 3 days ago. In pelvic CT images, mild displaced fracture in right and left inferior pubic ramuses were observed. No other pathological findings related to trauma were found in CT imaging. There was no significant decrease in haemoglobin values, urine analysis was normal but liver enzymes were found high (AST: 252 U/L; ALT: 135 U/L) and the patient was hospitalised. The patient was discharged with the recommendation of outpatient follow-up upon regression of liver enzyme values 1 day before the second presentation to the ED. Physical examination revealed tenderness in the epigastric and pubic regions. The patient had urine and faecal output. Creatinine, AST and ALT values were in normal ranges but amylase and lipase values were found high (283 U/L and 541 U/L, respectively). In urine analysis, microscopic erythrocyte value was 726 and microscopic leucocyte value was 33. In abdominal CT imaging, increased density in fatty tissues in the peripancreatic area, especially in the neighbourhood of the head of the pancreas, and edematous changes in soft tissues in the retroperitoneum on the right were observed and acute pancreatitis was considered. Abdominal USG showed 8 mm thick free fluid in the pelvic region and millimetric sized free fluid in the neighbourhood of the inferior right kidney. Posttraumatic pancreatitis was considered and the patient was hospitalised for treatment. Antibiotherapy, analgesia and follow-up with urinary catheter during hospitalisation were administered. The patient was discharged after the urine analysis returned to normal, amylase and lipase values decreased and the clinical condition improved.
Results and Conclusion: Acute pancreatitis may also be caused by trauma due to increased pressure in the retroperitoneal region or inflammatory mediators released from injured tissues or haematomas.

Pub No: OP-011

Gastrointestinal Bleeding in a 56-Year-Old Male Patient with Down Syndrome

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Introductıon:

Acute gastrointestinal (GI) bleeding is one of the most common causes of adult emergency room admissions. Today, despite the improvements observed in diagnosis and treatment, especially with the introduction of endoscopic and angiographic methods, it still maintains a high mortality rate (1). It is more common in men than in women and its prevalence increases with age (2).

Gastrointestinal bleedings are classified by taking the border of Treitz ligament. Bleeding located proximal to the Treitz ligament is called upper GI bleeding and bleeding located distal to it is called lower GI bleeding (3).

The presentation and clinical course of patients with upper gastrointestinal bleeding covers a wide spectrum ranging from subclinical occult bleeding to subcutaneous bleeding, from anemia to hypovolemic shock (4). In the evaluation, history, physical examination, diagnosis and treatment should be initiated simultaneously and resuscitation and stabilization of the patient should be ensured according to the clinic (5). Down syndrome is caused by trisomy of the 21st chromosome. Down syndrome is the most common genetic etiology of intellectual disability (6).

More than 2/3 of individuals with Down syndrome have gastrointestinal alterations (6,7). These alterations may be structural or functional. Functional abnormalities may affect the surgical procedures required due to increased structural abnormalities in Down syndrome patients (7)

Key words: Down syndrome, gastrointestinal bleeding, upper gastrointestinal bleeding

Case report:

A 56-year-old man with Down syndrome was admitted with complaints of dyspnea, abdominal pain and restlessness. There was no known history of other comorbidities. Vital parameters: Blood pressure: 117/69 Pulse: 111 SpO2: 84 Temperature: 36.5°C

On examination, neurologically normal. Right side basal rales + in the lungs, distended abdomen, defense + , rectal touch normal stool smear, rest of the systemic examinations were normal.

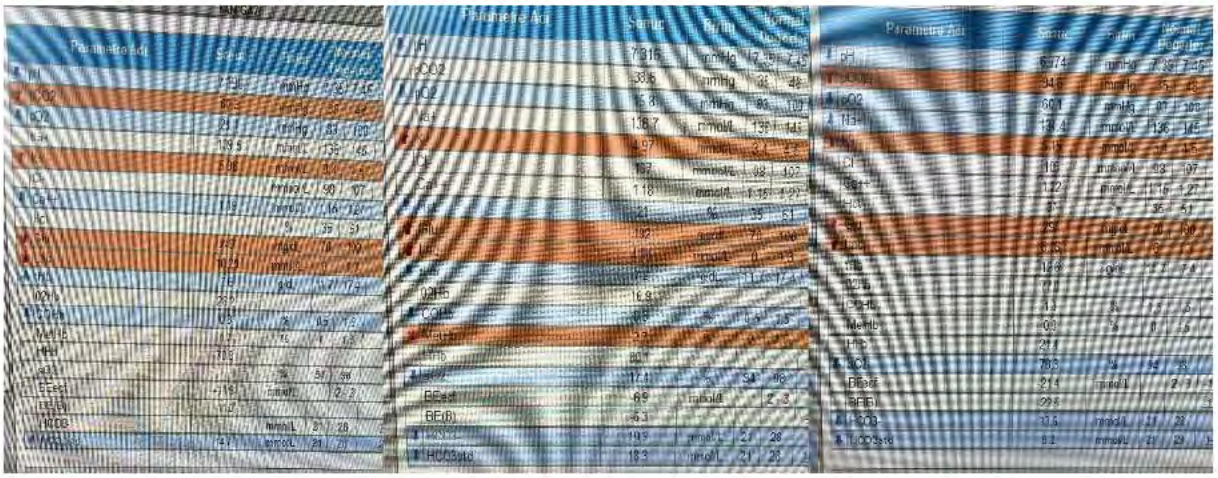
In the emergency department, oxygen and nebule treatments were given to relieve the patient's respiratory condition. An abdominal X-ray was performed for abdominal pain. Gas distension was remarkable on the x-ray.

There was marked respiratory acidosis and anemia in the blood gas. His blood gas improved with respiratory treatments but he did not respond to enema given for abdominal pain. Increased abdominal pain and agitation were observed during follow-up. He became hypotensive in terms of vital signs. Hematemesis was observed. Respiratory arrest followed by cardiac arrest developed immediately after he had a large amount of income. The patient was taken to the resuscitation room and effective CPR was performed for 10 minutes. Blood

replacement was started at this time. After CPR, circulatory response was obtained and the patient was continued to be followed up with inotropic agent support. He was then transferred to the intensive care unit of a tertiary hospital.

Gas appearance in the abdomen





First blood gas result

Blood gas result before intubation



Parametre Adı	Sonuç	Birim	Normal Değerler
WBC	28.13	K/uL	4.8 - 10.8
RBC	3.86	M/uL	4.2 - 6.1
HGB	6.3	g/dL	12 - 18
HCT	23.2	%	37 - 52
MCV	60.1	fL	80 - 100
MCH	16.3	pg	27 - 31
MCHC	27.2	g/dL	33 - 37
PLT	352	K/uL	130 - 400
RDW-SD	45.0	fL	37.4 - 51
RDW-CV	20.9	%	7.5 - 18.5
PDW	13.6	fL	9 - 16
MPV	10.2	fL	7.2 - 11.1
PCT	0.37	%	0.12 - 0.36
NEUT#	24.13	x10^3/µL	1.9 - 8
LYM#	2.03	x10^3/µL	0.8 - 5.2
MONO#	1.80	x10^3/µL	0.16 - 1.2
EOS#	0.03	x10^3/µL	0.00 - 0.5
BASO#	0.06	x10^3/µL	0.0 - 0.2
NEUT%	85.8	%	40 - 74
LYM%	7.2	%	19 - 48
MONO%	6.7	%	3.4 - 10
EOS%	0.1	%	0 - 7
BASO%	0.2	%	0 - 1

Parametre Adı	Sonuç	Birim	Normal Değerler
WBC	21.85	K/uL	4.8 - 10.8
RBC	5.54	M/uL	4.2 - 6.1
HGB	12	g/dL	12 - 18
HCT	41.6	%	37 - 52
MCV	75.1	fL	80 - 100
MCH	21.7	pg	27 - 31
MCHC	28.8	g/dL	33 - 37
PLT	303	K/uL	130 - 400
RDW-SD	74.1	fL	37.4 - 51
RDW-CV	26.5	%	7.5 - 18.5
PDW	13.7	fL	9 - 16
MPV	10.4	fL	7.2 - 11.1
PCT	0.32	%	0.12 - 0.36
NEUT#	20.34	x10^3/µL	1.9 - 8
LYM#	0.90	x10^3/µL	0.8 - 5.2
MONO#	0.52	x10^3/µL	0.16 - 1.2
EOS#	0.02	x10^3/µL	0.00 - 0.5
BASO#	0.07	x10^3/µL	0.0 - 0.2
NEUT%	93.1	%	40 - 74
LYM%	4.1	%	19 - 48
MONO%	2.4	%	3.4 - 10
EOS%	0.1	%	0 - 7
BASO%	0.3	%	0 - 1

First hemogram result

Hemogram result after blood



Parametre Adı	Sonuç	Birim	Normal Değerler	
Lipemik İndeks	-			
Glukoz	229	mg/dL	70	100
Hemolitik İndeks	-			
Üre	49	mg/dL	17	43
Kreatinin	1.28	mg/dL	0.67	1.3
İkterik İndeks	-			
eGFR	62	ml/dk/1.73	60	120
Alt	7	U/L	5	40
AST	12	U/L	5	50
Total Bilirubin	0.86	mg/dL	0.3	1.2
Direkt Bilirubin	0.43	mg/dL	0.1	0.4
Sodyum (NA)	141.4	mmol/L	136	145
Potasyum	5.33	mmol/L	3.5	5.1
Kalsiyum (CA)	9.1	mg/dL	8.6	10.6
Amilaz	36	U/L	25	100
CRP (TÜRBİDİMETRİK)	31.7	mg/L	0	6

KOAGÜLASYON

Parametre Adı	Sonuç	Birim	Normal Değerler	
PT	11.6	Sn	9.7	14.7
INR	0.95	%	0.78	1.22
PT %	107.2	%		
APTT	17.7	sn	21	36.5

Results of biochemical and coagulation parameters

Discussion:

The life expectancy of people with Down syndrome varies according to many factors. Advances in technology and medicine have increased life expectancy. In a study conducted by Wallace, the mean age of patients with Down syndrome was calculated as 37 (8). In another study by Carfi et al. the mean age of patients with Down syndrome was calculated as 35 in the USA (9).

Patients with Down Syndrome may have alterations related to many systems. In a study by Bermudez et al. 50.7% of 1207 patients included in the study had gastrointestinal changes(7). Looking at the world data, the most common GI anomaly was found to be Duodenal Atresia, and Anorectal Atresia and Hircshsprung's Disease were in the top 3 in varying order (10, 11).

In a study including the results of endoscopy performed in patients with suspected GI bleeding, it was reported that duodenal ulcer was found in 20.6% (12). It is still known as the most common cause of GI bleeding (12). The second most common cause is erosive gastritis (12).
In studies in the literature, blood transfusion is recommended as life-saving in patient groups with severe GI bleeding (13).

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Pub No: OP-012

A cross-sectional study on the February 6 earthquake

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Abstract:

Introduction and Purpose: Earthquakes are one of the most common and destructive natural disasters in the world. Despite advances in technology, it is not possible to predict when earthquakes will occur. Therefore, it is always important to be prepared for disaster management. The Kahramanmaraş earthquake, which occurred in Turkey on February 6, 2023 and affected many provinces, caused the deaths of more than 50,000 people. It has not been limited to the earthquake region and has affected the whole country both materially and spiritually. We investigated the earthquake victims who came to our hospital ED from the earthquake region.

Methods and Materials: We retrospectively investigated the records of a total of 275 earthquake victims who came to our ED

Results: 148 (53.8%) were female. The average age was 41.7±18.2 years. Of the patients, 88 (32.0%) had respiratory tract infections, 41 (14.9%) had abdominal pain, 35 (12.7%) had pain, 77 (28.0%) had trauma, and the remaining 34 (12.4%) had other diagnoses. 225 were discharged, while 50 were hospitalized. The hospitalization status of patients who underwent laboratory, imaging, and/or consultation was statistically significant compared to those who did not. The hospitalization status of patients who came for trauma was statistically significant compared to patients who came for other reasons.

Conclusion: Although our province was not in the earthquake zone, it was seen in the applications made to our ED that the number of earthquake victims came for trauma and/or other reasons was not negligible. This shows that the earthquake disaster is not limited to the earthquake region, but has interactions and consequences at the national and even international level. It is necessary to be prepared at the national level, not only in the affected region.

Keywords: Earthquake, Emergency Medicine, Emergency room, ED, Victims, Trauma

Introduction:

According to the definition of the Turkish Language Association (TDK), disaster is the cause of various natural events, about to cause destruction (1). According to the statement of the Disaster and Emergency Management Presidency (AFAD), in the definition of disaster in the dictionary of disaster management conditions, disaster is defined as a disaster that causes physical, economic and social losses in the whole or certain segments of the society, stops or disrupts the normal lives and activities that will continue, and constantly affects the units. The performance of cells as nature, technology or human-induced events that are insufficient to start. At the same time, AFAD defines a disaster as not an event itself, but as a result (2). Earthquake is one of the major natural disasters that occur widely around the world and has an updating power. Despite the developing technology, it is not possible to determine when earthquakes will occur. Therefore, one should always be prepared for disaster management.

On February 6, 2023, two earthquakes of magnitude 7.8 and 7.5, centered in Kahramanmaraş, caused severe destruction until 10 provinces were declared as a state of emergency region. Although the figures are not clear yet, tens of thousands of lives were lost and it was considered the disaster of the century in terms of financial losses (3).
Disasters are not limited to the region in which they occur, but cause effects on a national and/or international scale. The magnitude of the physiological/psychological impact of the earthquake that occurred on February 6 in our country is indisputable. We examined the citizens affected by the earthquake who came to our ED.

Methods and Materials:
In our study, we retrospectively examined the records of a total of 275 earthquake victims who came to the emergency department of our hospital affected by the February 6, 2023 earthquake. For review analysis, we used descriptive statistics and chi-square tests via IBM SPSS Statistics 27.0.

Results:
Demographic distributions and presentation-outcome distributions of the patients were presented in table 1. Of the 275 patients who applied to the emergency department of our hospital, 148 (53.8%) were women. The mean age was 41.7±18.2 years; Of these, 21 (7.6) were ≤17 years old, 228 (82.9) were 18-64 years old, and 26 (9.5) were ≥65 years old. 148 (53.8) of the patients were admitted to our ED from the Mediterranean, 24 (8.7) from the Eastern Anatolia, 74 (26.9) from the Southeastern Anatolia and 29 (10.5) from other regions. Incoming patients; 73 (26.5) had sore throat, 42 (15.3) had pain, 31 (11.3) had abdominal pain, 81 (29.5) had trauma, 20 (7.3) had shortness of breath. 88 (32.0%) of the patients had respiratory tract infection and 41 (14.9%) had abdominal pain, 35 (12.7%) were pain etiology, 77 (28.0%) were trauma etiology and the remaining 34 (12.4%) had other diagnoses. While laboratory tests were requested from 113 (41.1) of them. While imaging was performed on 142 (51.6) of them. While 63 (22.9) patients were consulted to relevant branches. While 225 (81.8) of them were discharged, 50 (18.2) of them resulted in hospitalization.

Variables	Groups	n	%
Gender	Female	148	53.8
	Male	127	46.2
Age (year)	≤17	21	7.6
	18-64	228	82.9
	≥65	26	9.5
Earthquake region	Mediterranean	148	53.8
	Eastern Anatolia	24	8.7
	Southeastern Anatolia	74	26.9
	Others	29	10.5
Complaint	Sore Throat	73	26.5
	Ache	42	15.3
	Stomach Ache	31	11.3
	Trauma	81	29.5
	Shortness of breath	20	7.3
	Others	28	10.2
Physical examination	Head-Neck	104	37.8

	Cardiovascular-respiratory	24	8.7
	Abdomen	32	11.6
	Musculo-Skeletal	89	32.4
	Others	26	9.5
Laboratory	Yes	113	41,1
	No	162	58.9
Imaging	Yes	142	51.6
	No	133	48.4
Consultation	Yes	63	22.9
	No	212	77.1
Diagnosis	Respiratory Infection	88	32.0
	Stomach Ache Etiology?	41	14.9
	Ache Etiology?	35	12.7
	Trauma Etiology?	77	28.0
	Others	34	12.4
Outcome	Discharged	225	81.8
	Hospitalization	50	18.2
Total		275	100

Table:1 Demographic distributions and presentation-outcome distributions of the patients

The hospitalization status of patients who underwent laboratory, imaging and/or consultation was statistically significant compared to those who did not. The hospitalization status of patients admitted for trauma reasons was statistically significant compared to patients admitted for other reasons (Table 2).

		Discharged	**Hospitalization**	**Total**	
Variables	**Groups**	**n (%)**	**n (%)**	**n (%)**	**p**
Gender	Female	117 (42.6)	31 (11.2)	148 (53.8)	0,260
	Male	108 (39.2)	19 (7.0)	127 (46.2)	
Age	≥17	17 (6.2)	4 (1.4)	21 (7.6)	<0,001*
	18-64	194 (70.5)	34 (12.4)	228 (82.9)	
	≤65	14 (5.1)	12 (4.4)	26 (9.5)	
Earthquake region	Mediterranean	118 (43.0)	30 (11.0)	148 (54.0)	0,435
	Eastern Anatolia	21 (7.6)	3 (1.1)	24 (8.7)	
	Southeastern Anatolia	64 (23.2)	10 (3.6)	74 (26.8)	
	Others	22 (8.0)	7 (2.5)	31 (10.5)	
Complaint	Sore Throat	71 (25.8)	2 (0.7)	73 (26.5)	<0,001*
	Ache	37 (13.4)	5 (1.8)	42 (15.2)	
	Stomach Ache	25 (9.1)	6 (2.2)	31 (11.3)	
	Trauma	58 (21.1)	23 (8.4)	81 (29.5)	
	Shortness of breath	11 (4.0)	9 (3.3)	20 (7.3)	
	Others	23 (8.4)	5 (1.8)	28 (10.2)	
Physical examination	Head-Neck	97 (35.3)	7 (2.5)	104 (37.8)	<0,001*
	Kvc-Rs	13 (4.7)	11 (4.0)	24 (8.7)	
	Abdomen	27 (9.8)	5 (1.8)	32 (11.6)	
	Musculo-Skeletal	66 (24.0)	23 (8.4)	89 (32.4)	
	Others	22 (8.0)	4 (1.5)	26 (9.5)	
Laboratory	Yes	73 (26.5)	40 (14.6)	113 (41.1)	<0,001*

	No	152 (55.3)	10 (3.6)	162 (58.9)	
Imaging	Yes	100 (36.4)	42 (15.3)	142 (51.7)	<0,001*
	No	125 (45.4)	8 (2.9)	133 (48.3)	
Consultation	Yes	28 (10.2)	35 (12.7)	63 (22.9)	<0,001*
	No	197 (71.6)	15 (5.5)	212 (77.1)	
Diagnosis	Respiratory Infection	82 (29.8)	6 (2.2)	88 (32.0)	<0,001*
	Stomach Ache Ety.	31 (11.3)	10 (3.6)	41 (14.9)	
	Ache Ety.	32 (11.6)	3 (1.1)	35 (12.7)	
	Trauma Ety.	54 (19.6)	23 (8.4)	77 (28.0)	
	Others	26 (9.5)	8 (2.9)	34 (12.4)	
Toplam		225 (81.8)	50 (18.2)	275 (100)	

$p<0.05$

Table 2: Statistical analysis of patients according to demographic-presentation-outcome status

Discussion and Conclusion:

Earthquakes are devastating natural disasters that have caused more than one million deaths in the last few decades (4-8). In addition to the high number of people injured in earthquakes, the buildings of health institutions that will treat these injured people are also damaged and become unusable, causing the health service to be provided to be disrupted (9,10). In addition, the chaos experienced after the earthquake and the insufficient number of medical personnel due to injuries and deaths cause the disruption in the healthcare service to deepen. Treatment of earthquake victims exposed to severe trauma requires a multidisciplinary approach. The impact of the earthquake on healthcare personnel, the need to transport a large number of patients at the same time, traffic and logistics problems, as well as the disruption of the communication system between health centers and damage to other administrative buildings in the settlement cause the negative effects of the earthquake to increase further (9,10).

As a result, although our city is not in the earthquake zone, it is seen in the applications made to the emergency department of our hospital that there are a significant number of earthquake victims suffering from trauma and/or other reasons. Earthquake injuries are one of the important problems of our country (11). Staying under debris for a long time may cause the extremities and the body to be under general pressure, causing limb loss and even death (12,13). Compartment syndrome is when increased tissue pressure within a closed osteofascial compartment blocks capillary blood flow, causing ischemia in muscle and nerve tissues, and resulting in permanent loss of function (14). Crush syndrome was first described by Bywaters et al. It was used by A.D. after patients trapped under post-war rubble died due to acute renal failure (15). Crush syndrome may also occur after massive injuries such as earthquakes, mining accidents, or after severe muscle necrosis due to being crushed under heavy loads for a long time under the rubble of collapsed buildings (12,13).

This means that the earthquake disaster is not only limited to the earthquake region, but also has interactions and consequences on a national and even international scale. We need to be prepared for earthquakes not only in the affected region but also nationally. In case of a disaster, our plans must be ready and put into practice immediately.

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Pub No: OP-016

Analysis of the myocardial infarction dataset using the regularized class association rules

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ABSTRACT

Introduction and Purpose: Myocardial infarction, commonly known as a heart attack, occurs when coronary vessels, responsible for heart muscle oxygen supply, are blocked or narrowed, interrupting blood flow to the heart. The aim of this study is to classify the risk of having myocardial infarction with the associative classification method, which classifies according to association rules.

Method: The dataset used in the study includes demographic and clinical information about individuals with a high and low chance of having a myocardial infarction. The Regularized Class Association Rules (RCAR) algorithm was used to classify the chance of having a myocardial infarction. The performance of the created model was evaluated with accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-score, MCC, and G-mean metrics.

Results: The performance metrics, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-score, MCC, and G-mean values obtained from the RCAR model are 99.3, 99.3, 98.6, 100, 100, 98.7, 99.3, 98.6, and 99.3, respectively. The rules (96.9%) by which an individual is most likely to have a myocardial infarction are age=[29.54.5), CA=0, and thal=Reversable Defect.

Conclusion: When the prediction performance of the RCAR classification model was examined, the constructed model performed well. It can be said that the probability of having a myocardial infarction is very high in patients with an age range of 29 to 54.5, with 0 blood vessels colored by fluoroscopy, and with a reversible defect of a blood disease called Thalassemia.

Key Words: Associative classification, Myocardial infarction, Regularized Class Association Rules.

INTRODUCTION

Cardiovascular diseases (KVH), which have an important place in chronic diseases, are the most important cause of morbidity and mortality worldwide and in our country. In the presence of risk factors such as advanced age, obesity, smoking, hypertension, hypercholesterolemia, and diabetes mellitus, the risk of developing KVH increases further. According to data from the World Health Organization (WHO), 17.9 million individuals died in 2019 due to cardiovascular diseases. According to the data of the Turkish Statistical Institute (TUIK), in 2019, 36.8% of the causes of death in our country are circulatory system diseases, 18.4% are tumors, and 12.9% are respiratory system diseases. It is reported that 39.1% of deaths caused by circulatory system diseases are ischemic heart diseases, 22.2% are cerebrovascular diseases, and 25.7% are other heart diseases (1). Cardiovascular diseases are a group of disorders of the heart and blood vessels, such as coronary artery disease, peripheral vascular diseases, cerebrovascular diseases, congestive heart failure, rheumatic heart diseases, and arrhythmias. It is very important to detect and prevent risk factors for cardiovascular diseases. Modifiable risk factors include smoking, dyslipidemia, hypertension, diabetes, obesity, sedentary lifestyle, and diet. It was stated that the unchangeable risk factors were age, gender, and family history (2). Myocardial infarction, which is the most common cardiovascular disease and called heart attack, is a condition in which blood flow to the heart muscle is interrupted due to obstruction or excessive narrowing of the coronary vessels responsible for the oxygen and nutritional support of the heart. The diagnosis of myocardial infarction can be made based on the results of physical examination and tests such as creatinine kinase, troponin, myoglobin, and electrocardiography (ECG) (3). Today, the diagnosis of the disease is made only by doctors. With the concept of health informatics, information systems, which have started to take more place in the medical world, can be expected to help physicians in this regard.

Data mining is the extraction of implicit, unclear, previously unknown but potentially useful information from available data. In recent years, a new data mining method has emerged that classifies according to association rules (4). The rules in this method, called associative classification, are labeled and classified, and interpreted more easily by the user. Along with this newly created method, a new algorithm has also emerged. The proposed algorithm is called classification based on association rules (CBA). The working logic of the algorithm consists of three stages: Rule creation with data is the first stage. The pruning of weak rules is the second

stage. The final step is to obtain the best classification rules. In this analysis, association rules state that events occur with certain probabilities (5).

The primary objective of this research is to employ the relational classification technique in order to categorize the likelihood of experiencing a myocardial infarction. Additionally, the study seeks to uncover the correlation patterns responsible for the occurrence of these potential outcomes.

MATERIAL AND METHODS

Dataset

In order to classify the risk of myocardial infarction and determine the associated risk factors, the dataset named "Heart Disease Dataset" obtained from the address "https://www.kaggle.com/datasets/johnsmith88/heart-disease-dataset" was used. This data set includes age, gender, chest pain type, resting blood pressure, serum cholesterol, fasting blood sugar, resting electrocardiographic results, maximum heart rate achieved, exercise-induced angina, depression induced by exercise relative to rest, the slope of the peak exercise ST segment, number of major vessels (0-3) colored by fluoroscopy, and thal parameters.

Regularized Class Association Rules algorithm for classification (RCAR)

A new association classification algorithm called RCAR, Regularized Class Association Rules, searches a set of class relational rules according to a predetermined minimum support and confidence threshold (s, c), then applies Lasso penalized Regularized Logistic Regression in the rule space. Afterwards, meta-rules, which are one-way relationships between the rules determined in the model, are determined. Depicting metarules permits to cluster rules and disclose the redundancy and overlap between them. An optional pruning step can be made based on the meta-rules discovered as well as the subject knowledge (6).

RESULTS

The performance metrics of the RCAR classification algorithm used to classify the risk of myocardial infarction and the 95% confidence intervals for these metrics are given in Table 1.

Table 1. The metrics of the RCAR model classification performance and 95% confidence intervals

Metric	Value (%)	95% Confidence Interval
Accuracy	99.3	98.8-99.8
Balanced Accuracy	99.3	98.8-99.8

Sensitivity	98.6	97.1-99.4
Specificity	100	99.3-100
Positive Predictive Value	100	99.3-100
Negative Predictive Value	98.7	97.3-99.5
F1-Score	99.3	98.8-99.8
MCC	98.6	97.9-99.4
G-mean	99.3	98.8-99.8

According to the findings of performance metrics, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-score, MCC, and G-mean values obtained from the RCAR model are 99.3, 99.3, 98.6, 100, 100, 98.7, 99.3, 98.6, and 99.3, respectively. Among the association rules produced using the RCAR classification algorithm, those with a confidence level above 85% are given in Table 2. When age=[29,54.5), ca=0, thal=Reversable Defect are considered, the probability of an individual more chance of myocardial infarction is about 96.9%. Similarly, as age=[29,54.5), fbs=Absent, ca=0, thal=Reversable Defect are taken into account the probability of an individual more chance of myocardial infarction is about 96.7%, and when age=[29,54.5), thalach=[148,202), thal=Reversable Defect are regarded, the probability of an individual more chance of myocardial infarction is about 94.3%. In contrast to the above rules, as cp=0, thalach=[71,148) and oldpeak=[0.75,6.2) are reckoned, the probability of an individual less chance of myocardial infarction is about 93.3%. Other rules generated from the RCAR model can be interpreted using Table 2, similar to the rules described previously.

Table 2. Association rules used to construct the RCAR Model

Left-hand side rules	**Right-hand side rules**	**Support**	**Conf.**	**Freq.**
{age=[29,54.5),ca=0,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.213	0.969	218
{age=[29,54.5),fbs=Absent,ca=0,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.201	0.967	206

{age=[29,54.5),thalach=[148,202),thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.227	0.943	233
{trestbps=[107,143),chol=[126,274),ca=0,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.22	0.941	225
{cp=0,thalach=[71,148),oldpeak=[0.75,6.2)}	{target=Less Chance of Heart Attack}	0.231	0.933	237
{slope=2,ca=0,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.205	0.933	210
{thalach=[148,202),exang=No,ca=0,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.227	0.925	233
{cp=0,thal=3}	{target=Less Chance of Heart Attack}	0.249	0.924	255
{sex=Male,cp=0,oldpeak=[0.75,6.2)}	{target=Less Chance of Heart Attack}	0.221	0.923	227
{trestbps=[107,143),thalach=[148,202),ca=0,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.223	0.923	229
{oldpeak=[0,0.75),ca=0,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.215	0.913	220
{fbs=Absent,oldpeak=[0.75,6.2),thal=3}	{target=Less Chance of Heart Attack}	0.208	0.91	213
{sex=Male,cp=0,thalach=[71,148)}	{target=Less Chance of Heart Attack}	0.216	0.909	221
{chol=[126,274),exang=No,oldpeak=[0,0.75),thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.203	0.908	208
{oldpeak=[0.75,6.2),thal=3}	{target=Less Chance of Heart Attack}	0.245	0.903	251
{thalach=[71,148),exang=Yes}	{target=Less Chance of Heart Attack}	0.215	0.898	220
{cp=0,exang=Yes}	{target=Less Chance of Heart Attack}	0.247	0.894	253

{trestbps=[107,143),chol=[126,274),thalach=[148,202),ca=0}	{target=More Chance of Heart Attack}	0.213	0.893	218
{trestbps=[107,143),thalach=[148,202),exang=No,ca=0}	{target=More Chance of Heart Attack}	0.232	0.891	238
{chol=[126,274),fbs=Absent,thalach=[148,202),ca=0}	{target=More Chance of Heart Attack}	0.228	0.89	234
{age=[29,54.5),thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.259	0.889	265
{restecg=Slow,exang=No,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.215	0.88	220
{chol=[126,274),slope=2,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.21	0.878	215
{exang=No,oldpeak=[0,0.75),thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.248	0.876	254
{fbs=Absent,exang=No,oldpeak=[0,0.75),ca=0}	{target=More Chance of Heart Attack}	0.22	0.872	225
{thalach=[148,202),exang=No,slope=2,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.218	0.868	223
{sex=Male,oldpeak=[0.75,6.2),slope=1}	{target=Less Chance of Heart Attack}	0.214	0.866	219
{slope=1,thal=3}	{target=Less Chance of Heart Attack}	0.207	0.865	212
{thalach=[148,202),exang=No,oldpeak=[0,0.75),thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.204	0.864	209
{sex=Female,thal=Reversable Defect}	{target=More Chance of Heart Attack}	0.212	0.861	217

{trestbps=[107,143),exang=No,ca=0}	{target=More Chance of Heart Attack}	0.287	0.86	294
{sex=Male,thalach=[71,148),slope=1}	{target=Less Chance of Heart Attack}	0.202	0.859	207
{age=[29,54.5),chol=[126,274),oldpeak=[0,0.75)}	{target=More Chance of Heart Attack}	0.208	0.859	213

DISCUSSION

Myocardial infarction (MI), commonly known as a heart attack, exhibits a propensity to rise in occurrence with advancing age and displays a higher prevalence among males compared to females. Those affected by MI frequently encounter symptoms such as chest pain, accompanied by breathlessness, along with additional manifestations like nausea, vomiting, weakness, palpitations, and even syncope. The onset of myocardial infarction is typically perceived by patients as an abrupt and life-threatening event, instigating a considerable surge in stress levels. Numerous studies have underscored that the occurrence of myocardial infarction is often intertwined with subsequent emotional ramifications, including stress, anxiety, and depression. Furthermore, this cardiac event tends to evoke heightened levels of death-related apprehension. The confluence of these psychological responses can contribute to a complex interplay of emotional distress, potentially affecting the overall well-being and quality of life of individuals who have experienced a myocardial infarction (7, 8).

Multiple studies within the literature have been undertaken with the objective of identifying biomarkers and risk elements that hold the potential to serve as predictive indicators for assessing the likelihood of a heart attack occurrence (9-11). In this particular research endeavor, a comprehensive assessment was conducted to evaluate the effectiveness of the association rules employed within the RCAR model method, devised for the purpose of categorizing the risk associated with myocardial infarction. The study involved a meticulous examination of various performance metrics, including accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-Score, G-mean, and the Matthews Correlation Coefficient (MCC). Remarkably high performance results were obtained, with accuracy, balanced accuracy, and MCC values standing at an impressive 99.3%, demonstrating

the model's exceptional precision and consistency. Sensitivity and specificity values, both at 98.6%, further underline the model's ability to appropriately identify positive and negative cases. The positive predictive value and negative predictive value were found to be 100%, highlighting the model's robust capability in predicting true positive and true negative instances. Additionally, the F1-Score and G-mean values at 99.3% underscore the model's harmonious balance between precision and recall.

Taken together, these findings shed a positive light on the myocardial infarction risk classification performance of the model, affirming its robustness and competence in accurately predicting and categorizing the associated risks.

CONCLUSION

The RCAR-generated model exhibits a unique attribute in accurately classifying the severity of myocardial infarction based on performance metrics. This trait is expected to greatly facilitate risk estimation for myocardial infarction, leveraging the association rules derived from the model, which boasts a notably high accuracy value.

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Pub No: OP-017

An aortic abscess associated with psoas abscess: A case report

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Introduction

A psoas abscess is an accumulation of inflammation in the iliopsoas muscle.[1] It can occur primarily or secondary. It may present with nonspecific symptoms such as abdominal pain, fever, loss of appetite, weight loss, and limping.[1,6,7] The most common pathogens detected in the abscess fluid are Staphylococcus aureus (88.4%), Streptococcus (4.9%), and Escherichia coli (2.8%). [6] The best diagnostic method is computed tomography. [1, 7-10] After the diagnosis of an abscess is confirmed, the best treatment method is drainage of the abscess and then initiation of antibiotic therapy. A psoas abscess may rarely cause aortic rupture. Its prognosis is quite poor.[11]

In this article, we report a case in which a psoas abscess opened into the aneurysmatic abdominal aorta and abscess formation was observed in the aortic lumen containing a stent.

Case Report

A 57-year-old male patient presented to the emergency department with a complaint of abdominal pain. During the abdominal examination of the patient, tenderness and defense were detected in the right lower quadrant. No significant pathology was observed in other system examinations.

It was learned that the patient had a history of prostate malignant neoplasm, coronary artery disease, diabetes mellitus, hypertension, three percutaneous coronary interventions (PCI), one coronary artery bypass grafting (CABG), and one year ago, stenting of the abdominal aorta and both main iliac arteries with Endovascular Aneurysm Repair (EVAR). His medications were Sitagliptin+Metformin 50/1000 mg, Nebivolol hydrochloride 5 mg, Pentoxifylline 400 mg, Bicalutamide 50 mg, Perindopril arginine+Amlodipine 10/5 mg, Acetylsalicylic acid 150 mg, Alfuzosin 10 mg.

The patient's vital signs were as follows: arterial blood pressure 100/65 mm Hg, heart rate 84 beats/min, respiratory rate 16 breaths/min, oxygen saturation 96%, body temperature 37.7 °C. In the blood tests of the patient, hemoglobin: 8.55 g/dl (13-17), (control Hb after 2 hours: 8.95 g/dl), lymphocyte: 0.32 10^3/mm3 (1-5), platelets: 109x103/mm3 (150-500), CRP:8.86 (0-0.5), except for complete blood count, blood glucose level, liver function tests, renal function tests, were within the normal reference ranges, including highly sensitive cardiac troponin-I.

Contrast-enhanced computed tomography (CT) angiography of the abdominal aorta was ordered because the patient had a history of previous stenting and right lower quadrant deficiency. CT angiography imaging of the abdominal aorta revealed stent images in both main iliac arteries after bifurcation in the abdominal aorta. There was also a 110x96 mm suspicious penetrating area with multiple air images around the external iliac artery on the right. In the right iliopsoas muscle, there was an increase in size suggestive of abscess

formation with air densities. The diameter of the ascending aorta was 44 mm. At the level of the descending thoracic aortic bifurcation, an aneurysmatic appearance was noted in a segment of approximately 140 mm extending to the proximities of both main iliac arteries, and USG showed air in the wall in the aneurysmatic section and mural wall thickening with thrombus. The images were compared with the images taken one year ago **(Figures 1&2&3).**

Blood and urine cultures were obtained, and Ceftriaxone 2x1 gr and Moxifloxacin 1x400 mg were started empirically. Since the patient had an intra-abdominal abscess, general surgery and infectious diseases were consulted for drainage and antibiotherapy. Cardiovascular surgery was consulted because air image and thrombus were observed in the aneurysmatic section at the level of the abdominal aortic bifurcation. General surgery and cardiovascular surgery did not consider emergency surgery.
The patient was consulted to infectious diseases for antibiotherapy. Urine and blood cultures were sent with the recommendation of infectious diseases, and Piperacillin-tazobactam 4x2.25 gr was started empirically. Urine and blood cultures grew Escherichia coli. Due to deterioration in the patient's general condition, he was asked to be re-evaluated by infectious diseases for a change in antibiotherapy. Piperacillin-tazobactam treatment was stopped, and meropenem 2x500 mg, levofloxacin 750 mg loading dose, and maintenance 500 mg every 48 hours were recommended. After three days, the patient underwent percutaneous abscess drainage by interventional radiology. A 14F drainage catheter was applied to the abscess pouch, fistulizing into the aorta from the right lower quadrant lateral section. The next day, the patient's oxygen saturation decreased to 70. There was no response to Noninvasive Mechanical Ventilator. The patient was intubated. He was transferred to the intensive care unit. After one day of intensive care unit follow-up, he died.

Discussion

A psoas (or iliopsoas) abscess is an accumulation of pus in the iliopsoas muscle compartment.[1] It can occur due to contiguous spread from adjacent structures or hematogenous spread from a distant site. The incidence is low, but the use of computed tomography has increased the frequency of this diagnosis, with most cases diagnosed postmortem.[2]
Iliopsoas abscess (IPA) can be classified as primary or secondary. Primary IPA results from an organism's hematogenous or lymphatic spread from a distant site. Risk factors include diabetes, intravenous drug use, human immunodeficiency virus (HIV) infection, renal failure, and other forms of immunosuppression. [1,2] Secondary IPA occurs when a nearby infectious/inflammatory process extends directly into the iliopsoas. [3,4] Secondary psoas abscess occurs due to the direct spread of infection from a neighboring structure into the psoas muscle. It may be unclear whether the involvement of a neighboring structure is a cause or a consequence of the psoas muscle abscess.[5]
In this case, diabetes mellitus, history of malignant prostatic neoplasm, and previous EVAR (2 years ago) were considered personal risk factors for IPA. Symptoms and signs of psoas abscess include abdominal pain, back or flank pain, fever, groin mass, anorexia, limping, and weight loss.[1,6,7] Common pathogens of primary psoas abscess are Staphylococcus aureus (88.4%), Streptococcus (4.9%), and Escherichia coli (2.8%). [6] Computed tomography (CT) is the most appropriate radiographic modality to evaluate a psoas abscess, but sensitivity may be limited early in the disease [1,7,8,9,10] In most cases, the abscess is apparent; other findings may include a focal hypodense lesion, infiltration of surrounding fat, and a level of gas or air-fluid within the muscle[9,11] Primary psoas abscess has a better prognosis with a mortality rate of

2.4%. Mortality in untreated cases is 100%.[1] The association of the psoas abscess and the abdominal aortic aneurysm is infrequent. When aortic rupture occurs, the prognosis of aortic infection secondary to psoas abscess is very poor. Immediate abscess drainage following correct diagnosis and arterial reconstruction before aortic rupture is mandatory.[11]
In our case, Escherichia coli was grown in a blood culture. It was thought to have progressed to the aorta by direct dissemination. Contrast passage was observed in the stent of the EVAR procedure in the aorta, but the diffuse gas image and air-fluid level were observed in the actual lumen of the aorta surrounding the stent. Our case was mortal despite drainage and antibiotherapy.

Conclusion

The association of psoas abscess and aortic rupture is infrequent. It can be rapidly fatal due to acute hemorrhage after rupture. In this case, although the abscess eroded the aneurysmatic aortic wall, acute bleeding did not develop due to the presence of a stent. We wanted to share the rare image on computed tomography (massive air-fluid level around the stent in the aortic lumen), especially in our case with the medical literature. We should remember that this association, which is very rare even in the world of medical literature, has a high mortality rate in emergency departments, we should remember what we should do when we encounter it.

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Figures



Figure 1. A non-contrast abdominal CT scan one year ago showed an aneurysmatic aorta, mural thrombus in the lumen, and a stent image of the EVAR procedure. No prominent infective findings were detected.

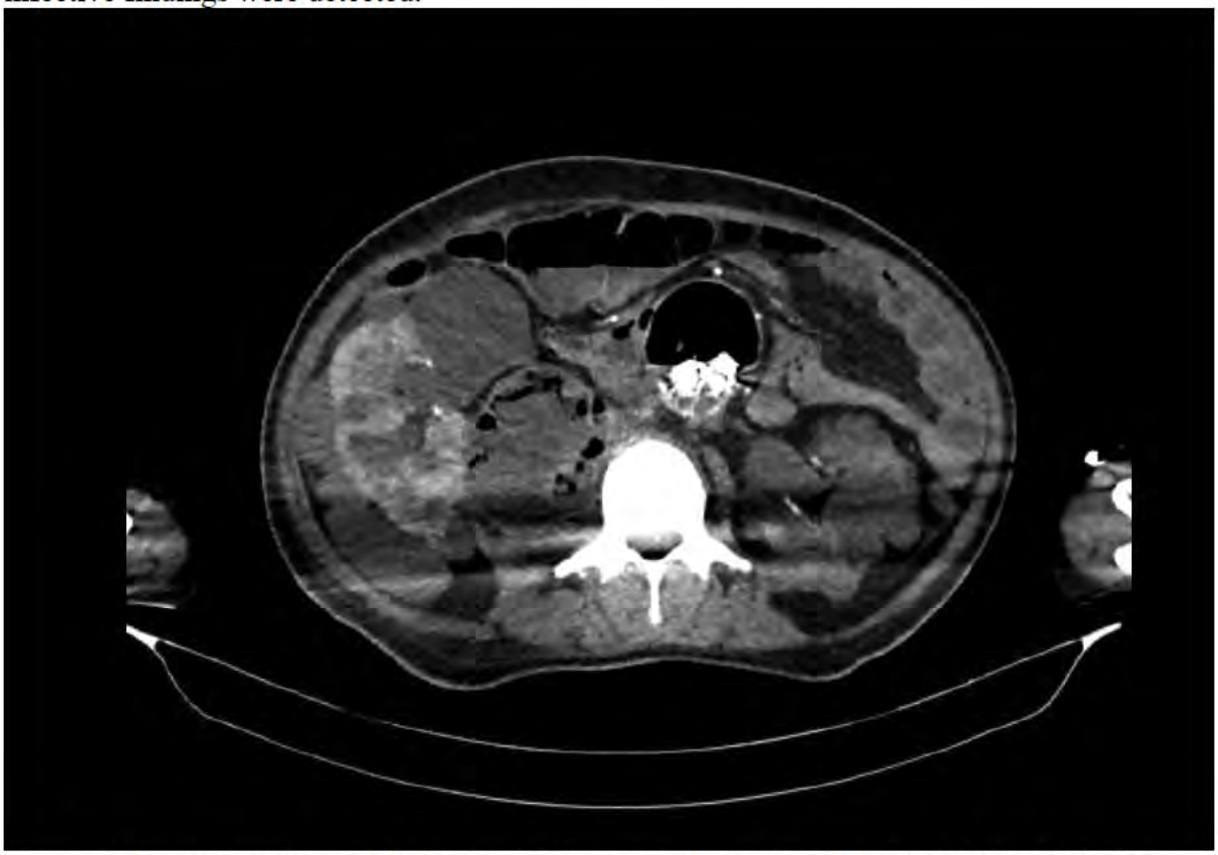

Figure 2. Contrast-enhanced abdominal CT scan performed at the patient's last admission revealed abscess formation in the right psoas and massive air and fluid level in the true lumen of the aorta.

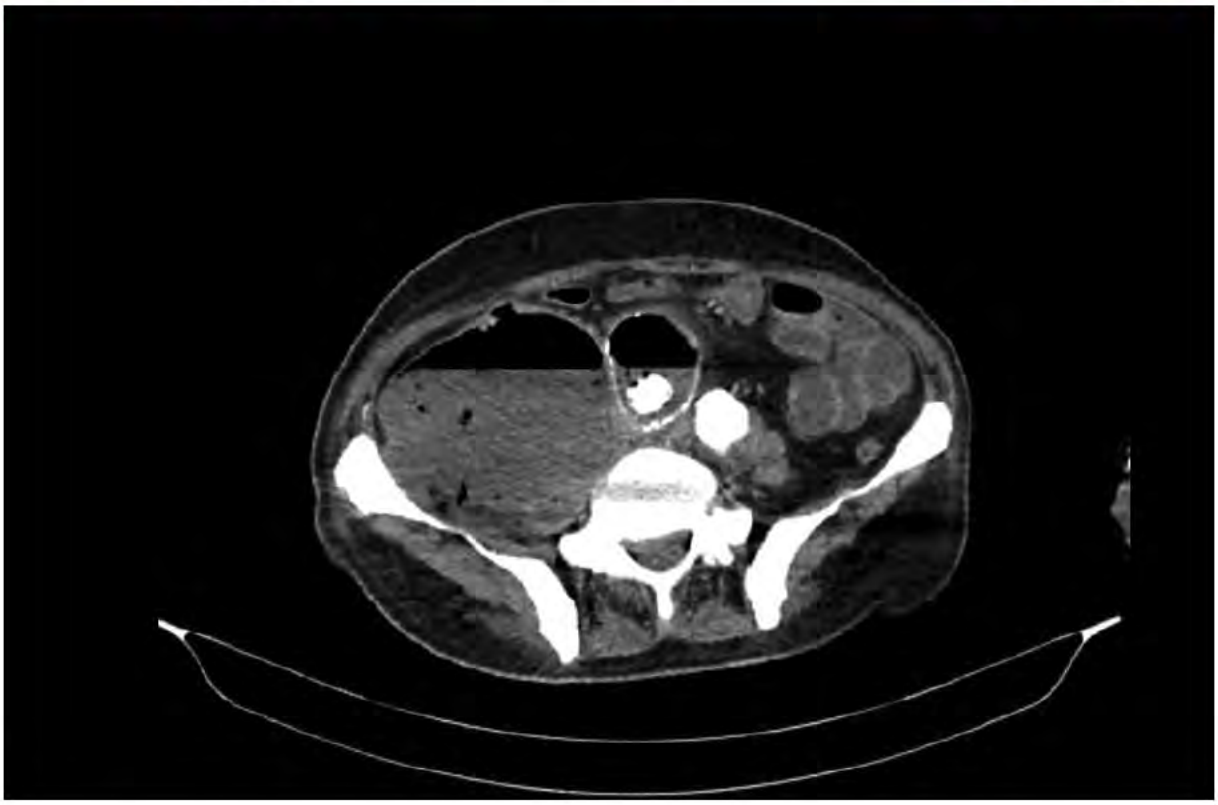

Figure 3. Contrast-enhanced abdominal CT scan performed at the patient's last admission showed massive air and fluid level in the lumen of the aortic true lumen and right iliac artery due to abscess in the right psoas.

Pub No: OP-021

Acromioclavicular joint dislocation

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ENTRANCE:

The acromioclavicular (AC) joint is located at the distal end of the clavicle and forms a joint with the acromion of the scapula. The acromioclavicular (AC) joint is affected in 9 to 12 percent of shoulder injuries. It occurs most often in men in their 20s, often during contact sports (eg football, ice hockey, rugby). Typically the history includes direct trauma to the upper or lateral part of the shoulder; examination reveals focal tenderness of the AC joint, pain in shoulder abduction and cross-body adduction, and deformity with more serious injury; and plain radiographs or ultrasound reveal elevation of the clavicle and abnormal joint spacing for all but the mildest (Type I) injuries. The normal width of the AC joint in adults is 1 to 3 mm.

CASE:

A 45-year-old male patient applied to us with the complaint of his right shoulder. He fell on his right arm while working at work. He does not use any medicine for any known disease. Developing vitals are stable. On examination, there is tenderness and limitation of movement in the right shoulder. Neurovascular examination is normal. There is a right acromioclavicular joint dislocation in the direct X-ray, and the fracture line was not seen. The patient was consulted to the orthopedic clinic and was interned for emergency operation.



CONCLUSION:

AC joint dislocation is a relatively rare form of injury in shoulder traumas. It is necessary to be careful in terms of AC joint dislocation during imaging performed in patients with pain,

deformity and limitation of movement presenting with shoulder trauma. Although the pathology is not noticed at the first examination, especially in mild dislocations, a comparative shoulder radiograph should be evaluated in the presence of doubt.

KEYWORDS: acromioclavicular joint dislocation, fall, shoulder pain

Pub No: OP-024

Paraplegia Due to Spontaneous Aortic Dissection: A Case Report

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Introduction:

Aortic dissection; It is an emergency clinical condition with high mortality when it is not diagnosed or diagnosed late. If left untreated, the mortality rate increases by 1-2% every hour. Patients may present with a wide clinical spectrum, ranging from severe chest pain with a predatory nature to the back, neurological disorders such as syncope, hemiparesis, hemiplegia, acute myocardial infarction and acute renal failure. We present a patient who was thought to have motor sensory defect due to lumbar disc herniation in an external center and was referred to us with the need for lumbar MRI and was diagnosed with aortic dissection as a result.

Case presentation:

A 59-year-old male patient was brought to our emergency department by 112 with complaints of right leg pain and weakness in the right leg. It was learned that the patient's complaints started about six hours ago when he got up to the sink. He stated that the pain started in his hip, spread to the leg and was very severe. The patient had no previous history of trauma or chronic low back pain. After these complaints developed, she applied to the external center emergency service. Due to the presence of plegia in the right lower extremity in the physical examination performed in an external center, he was sent to our emergency department with a prediagnosis diagnosis of cauda equina syndrome. When the patient came to our clinic, his vital signs were heart rate 95/min, fever 36.5°C, and respiratory rate 14/min. While the blood pressure was 160/73 mmHg in the left arm, blood pressure could not be obtained from the right arm. On physical examination, there was coldness in the right lower extremity. Right dorsalis pedis, right politeal, right femoral, right radial, right brachial, right axillary pulses could

not be palpated. In the infrared measurement on the right tibia, the temperature was 32.8°C, while it was 36.2°C on the left tibia. Capillary refill time in the right lower extremity was 6 seconds (Normal range: 1-3 seconds). There was loss of sensation and sensation in the entire right lower extremity compared to the left. Deep tendon reflexes were normal, there were no pathological reflexes. There was no physical examination finding suggestive of lumbar disc herniation in the patient. Other system examinations were completely normal. Thorax and Abdominal CT angiography was performed with the prediagnosis of aortic dissection and arterial embolism, since the patient had significant blood pressure difference in both arms, pulse deficit in the lower extremities, loss of sensation and sensation, and significant temperature difference. On CT Angiography: a double lumen view starting from the ascending aorta was observed. (Figure-1) Subsequently, the double lumen appearance was progressing to the thoracic aorta. The double lumen view extended to the proximal part of the abdominal aorta. (Figure-2). (Stanford type A dissection) The described double lumen view also showed extension to the left subclavian artery, left carotid communis and left brachiocephalic artery (Figure-3). The patient was started on antihypertensive and analgesic treatment in the emergency room. He was consulted to the cardiovascular surgery clinic. The patient, who was also evaluated as type 1 aortic dissection by cardiovascular surgery, was operated.

Discussion:

Acute aortic dissection is a rare condition that requires urgent diagnosis and treatment, and has a high mortality. The incidence of aortic dissection in emergency departments is 5-30 cases per million. In-hospital mortality rates are approximately 30%. Although the complaints of patients with aortic dissection are similar, there may be patients presenting with atypical complaints. The most important symptom in acute dissections is sudden onset of continuous pain.(1) Patients may present with a wide clinical spectrum, ranging from severe chest pain with a predatory nature to the back, neurological disorders such as syncope, hemiparesis, hemiplegia, acute myocardial infarction and acute renal failure. Our case was a young male patient with no known disease. We tried to present our case in which we suspected aortic dissection due to the lack of pulse in the right lower extremity, a difference of 3.4°C in the

right and left lower extremities, and a significant difference in blood pressure in both arms in physical examination. In aortic dissection, findings such as paresis and plegia can be seen due to impaired nutrition of the spinal canal or peripheral nerves (2). It should be kept in mind that many neurological conditions can occur after acute aortic dissection, from low back and back pain to progressive myelopathy, anterior spinal cord syndrome, paraplegia and quadriplegia. (3) Patients presenting to emergency clinics without typical pain are significant. In patients who present to the emergency services with atypical complaints but have high pulse pressure values, especially those with pulse or blood pressure difference in both arms, as well as pulse and temperature difference in their extremities, dissection should be alerted. (4) In our case, there was a temperature difference in the right and left lower extremities. Extremity temperature measurement can be a guide in considering aortic dissection and other vascular pathologies, which have a very high mortality rate, especially in patients with findings suggestive of aortic dissection in their physical examination. More studies are needed to numerically determine the significant temperature difference in the lower extremities.

In this case, we aimed to present a patient who was referred to the emergency department with the complaint of plegia due to lumbar disc herniation and then aortic dissection was the underlying cause. Many patients are admitted to emergency services with lumbar disc herniation and its complications. Aortic dissection should be kept in mind in the differential diagnosis of these patients. Right-left blood pressure and temperature measurement can help the physician in this regard.

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Pub No: OP-026

Investigating Dynamics Of Ambulance Calls During COVID-19 Pandemic In Kazakhstan

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Abstract

Introduction and Purpose COVID-19 outbreak has been a major concern for the healthcare system as a whole, particularly for emergency medical services (EMS). There is little information available about impact of pandemics to emergency medical services (EMS). The aim of the study: to assess the frequency of calls at an ambulance station in Kazakhstan in the period 2019–2021.

Materials and methods: Retrospective analysis was conducted to estimate the incidence of cases of emergency assistance in the period of 2019-2021. Study design: descriptive, population-based cross-sectional study of EMS work in the Republic of Kazakhstan. All data provided by the ambulance stations of 16 regions of the Republic Kazakhstan. Financing. The work was carried out within the framework of the project: "IRN AP14871609 "Optimization of the structure and improvement of the efficiency of the service of emergency medicine in Kazakhstan by conducting training of persons without medical education (medical technicians)", financed by the Ministry of Health of the Republic of Kazakhstan.

Results and conclusion Calls were made more frequently daily in 2021 compared to 2019 and 2020 ($p<0.001$). Similarly, during the period prior to the pandemic (2019) and the peak of the epidemic in 2021, the rate of calls per 1,000 individuals grew sharply ($p<0.001$) (2020). In comparison to 2019/2020, there were considerably more consultations and fulfilled calls in 2021 ($p<0.001$). This study shows decreasing trends in routine daily calls for EMS during first wave of COVID-19 which followed by increasing trends during second and third wave of pandemic in Kazakhstan.

Keywords: COVID-19, emergency, ambulance service

Pub No: OP-027

Toxic Hepatitis Due to Shepherd's Purse Grass Use

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Introduction and Purpose: The liver is one of our essential organs that metabolizes and eliminates medications and various exogenous substances. as a result, liver toxicity is commonly encountered due to microbial, natural, industrial toxins, medications, and metals. The preliminary diagnosis of toxic hepatitis should prompt an investigation into the chemicals, medications, herbal remedies, or supplementary medical products that individuals have been exposed to at home or work, if they present with jaundice or abnormal liver function values.

Case: We received a referral from an external center regarding a 52-year-old female patient diagnosed with hypertension, who had been directed to us due to elevated ast, alt, and bilirubin levels. in her medical history, she had been experiencing jaundice, nausea, and vomiting for 10 days and sought care at the external center in january 2023 for pneumonia, where she was admitted to the pulmonology department. It was discovered that she was taking isoniazid and prednisolone for tuberculosis prophylaxis. She reported consuming shepherd's purse herb infusion for 2 days. Her vital signs were stable, and physical examination revealed good general condition with clear consciousness and cooperation. There was tenderness in the epigastric region. Laboratory test results showed wbc: 6630, ast: 784, alt: 395, alp: 571, ggt: 564, total bilirubin: 15, direct bilirubin: 8.3.

Hepatitis serology at the external center revealed negative anti-hbs ag, negative anti-hbc igm, negative hbs ag, negative anti-hbc igg, and positive anti-hav igg results. Contrast-enhanced abdominal tomography did not indicate acute pathology or obstructive jaundice. follow-up showed increased ast and alt levels.

The patient was consulted with the gastroenterology department due to a preliminary diagnosis of toxic hepatitis linked to herbal product use. Nac infusion was initiated, hydration and analgesia were provided, and the patient was admitted to the gastroenterology service with the preliminary diagnosis of toxic hepatitis.

Results and Conclusion: In patients with elevated liver function tests, the importance of medical history and physical examination cannot be underestimated. in our country, the use of regional herbal remedies is quite common, especially among the elderly population. Patients' use of medications and concomitant herbal products should be thoroughly investigated.

Keywords: Herbal Product, Shepherd's Purse Herb, Toxic Hepatitis

Image1:



Pub No: OP-028

WERNICKE-KORSAKOFF SYNDROME DUE TO ANOREXIA NERVOSA: A CASE REPORT

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Abstract

Introduction: In this case report; we aimed to present our patient with Wernicke-Korsakoff Syndrome who was brought to the emergency department with complaints of nausea, dizziness and decreased oral intake.

Case: A 20-year-old female patient admitted to the emergency department with complaints of nausea, dizziness and decreased oral intake. It was stated by her relatives that she had anorexia nervosa and epilepsy. On admission the patient's vital signs were blood pressure was 71/47 mmHg, pulse rate was 88/min, fever was 36°C, respiratory rate was 12/min and saturation in room air was 97%. At first appearance, the patient was cachectic, lethargic and dehydrated. Decreased turgor was detected. In the neurological system examination, the patient's person orientation was preserved but her orientation to time and place was distorted. There was no neck stiffness. The pupils were isochoric, the light reflex was preserved bilaterally, but the left gaze was limited in both eyes. There was horizontal nystagmus. No neuromotor deficit was detected. The Glasgow coma score was 12. Other system examinations were within normal range. Her ventricles were observed to dilated on cranial computed tomography imaging. Neurosurgery, neurology and psychiatry consultations were requested to the patient. In the contrast-enhanced cranial magnetic resonance imaging report taken after the neurology consultation, extensive T2-FLAIR signal increases in the periventricular interstitium suggesting transependymal cerebrospinal fluid transudation in the periventricular interstitium was reported. There are diffusion limitations characterized by ischemia. There are occasional leptomeningeal enhancements in the cerebral hemispheres, especially in the third and lateral ventricles. Contrast increases are observed on the ependymal faces on the surface. As a result of these findings, Wernicke-Korsakoff syndrome was considered. Intravenous thiamine therapy was started as soon as possible in accordance with therapeutic doses. The patient was hospitalized in the neurology intensive care unit.

Conclusion: Wernicke-Korsakoff syndrome, which is rare, should be considered among the differential diagnoses in patients presenting to the emergency department with complaints of nausea, dizziness, decreased oral intake and those with nystagmus, ocular plegia and mental status changes on neurological examination.

Key words: Anorexia nervosa, hydrocephalus, nystagmus, Wernicke-Korsakoff syndrome

INTRODUCTION

In this case report, we aimed to present our patient with Wernicke-Korsakoff syndrome who was brought to the emergency department with complaints of nausea, dizziness and decreased oral intake.

CASE

A 20-year-old female patient admitted to the emergency department with complaints of nausea, dizziness and decreased oral intake. It was stated by her relatives that she had anorexia nervosa and epilepsy diagnoses. On admission, the patient's vital signs were blood pressure was 71/47 mmHg, pulse rate was 88/min, fever was 36°C, respiratory rate was 12/min and saturation in room air was 97%. At first appearance, the patient was cachectic, lethargic and dehydrated. Decreased turgor was detected. In the neurological system examination, the patient's person orientation was preserved but her orientation to time and place was distorted. There was no nuchal rigidity. The pupils were isochoric, the light reflex was preserved bilaterally, but the left gaze was limited in both eyes. There was horizontal nystagmus towards the gaze direction. No neuromotor deficit was detected. The Glasgow coma score was 12. Other system examinations were within normal range. Her ventricles were observed to dilated on cranial computed tomography imaging (CT). There was 7 mm shift in midline structures in the cranial CT (Figure 1). Neurosurgery, neurology and psychiatry consultations were requested to the patient. In the contrast-enhanced cranial magnetic resonance imaging (MRI) report taken after the neurology consultation, extensive T2-FLAIR signal increases in the periventricular interstitium suggesting transependymal cerebrospinal fluid transudation in the periventricular interstitium was reported (Figure 2). There are diffusion limitations characterized by ischemia. There are occasional leptomeningeal enhancements in the cerebral hemispheres, especially in the third and lateral ventricles. Contrast increases are observed on the ependymal faces on the surface. As a result of these findings, Wernicke-Korsakoff syndrome was considered. Intravenous thiamine therapy was started. 500 milligrams of thiamine were given intravenously 3 times a day for the first two days. Then 250 milligrams of thiamine were given once a day every day for 5 days. The patient was hospitalized in the neurology intensive care unit. On the 2nd day of the patient's hospitalization, the glaskow coma score regressed and the pupils were fixed and dilated. The patient was intubated. Neurosurgery consultation was requested. External ventricular drainage procedure was performed by neurosurgery. Cardiology consultation was requested due to the development of tachycardia. The patient's alanine aminotransferase (ALT) and aspartate aminotransferase (AST) values increased. In the bedside echocardiography, the ejection fraction was found to be severely reduced. As the patient developed hypotension and failed to respond adequately to fluid resuscitation, vasopressor therapy was initiated. The patient's ALT and AST values continued to increase (AST: 1715 U/L ALT: 541 U/L) was consulted to gastroenterology. Ischemic hepatitis was considered. Nephrology consultation was requested to the patient who developed metabolic acidosis during the follow-ups. Her treatments were

revised. The patient, who had cardiac arrest on the 14th day of hospitalization, did not respond to cardiopulmonary resuscitation and died.



Figure 1. 7 mm shift in midline structures in the cranial computed tomography imaging.



Figure 2. Periventricular signal increases are seen in the cranial MRI.

DISCUSSION

Wernicke-Korsakoff syndrome is a condition caused by vitamin B1 (thiamine) deficiency. Patients classically present with a clinical triad of ophthalmoplegia, mental status change and ataxia (1). In our case, there was a change in mental status and ophthalmoplegia in the examination at the time of admission.

Wernicke's encephalopathy is more common in men than in women (male-female ratio 1.7 to 1) (2). There was a difference at this point in that our case was a woman.

At the onset of Wernicke's encephalopathy, approximately 19% of patients do not have any of the classic triad symptoms, but one or more symptoms usually occur in the course of the disease. Other emerging symptoms may be stupor (mainly related to damage to the thalamus);

hypotension and tachycardia caused either by a defect in the efferent sympathetic outflow or by coexisting cardiovascular beriberi; hypothermia resulting from involvement of the posterior hypothalamic regions; epileptic seizures caused by excessive glutamatergic activity; and progressive hearing loss, possibly due to thalamus involvement (2). In our case, there was hypotension in the emergency room and tachycardia was developed in the intensive care follow-up. It is compatible with the literature in terms of the development of wet beriberi in the patient.

Digestive system diseases and surgery are other important causes of thiamine deficiency. In particular, bariatric surgery (including gastric bypass, sleeve gastrectomy, and duodenal switch) is by far the most important cause of vitamin B deficiency (mainly thiamine deficiency) (3). Our case did not have a history of previous surgery. Thiamine deficiency was developed due to eating disorder the patient had.

Wet beriberi is present when the cardiovascular system is involved. The heart fails to function, leading to edema and fluid retention. The key reason for heart dysfunction is an overuse injury. Wet beriberi is a medical emergency and, without treatment, can lead to death within days. Thiamine can slowly help with recovery, but most patients require intense supportive measures in an ICU setting (4). In our case, heart failure and subsequent death occurred as a result of these reasons.

CONCLUSION

Wernicke-Korsakoff syndrome, which is rare, should be considered among the differential diagnoses in patients presenting to the emergency department with complaints of nausea, dizziness, decreased oral intake and those with nystagmus, ocular plegia and mental status changes on neurological examination.

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Pub No: OP-031

Cause of Atypic Pain of the Ankle Osteoid Osteoma of the Talus

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Osteoid osteoma is a painful, solitary and benign lesion of bone. It was first described by Jaffe in 1935 as a painful cystic lesion of the bone (1). Osteoid osteoma accounts for 10-20% of all benign bone tumors. Foot placement is the case in 4% of these (2,3). Osteoid osteoma is approximately 1 cm in diameter and consists of a radiolucent middle and sclerotic, osteoid, osteoblast and fibrovascular stroma called nidus (4). The male/female ratio is approximately 4:1 and it is more common in childhood and young adulthood (2,3). Patients describe pain that increases especially at night and is relieved with salicylates or nonsteroidal anti-inflammatory drugs (5). The best method for the diagnosis of osteoid osteoma is shown to be CT(6).

In this presentation, a case of osteoid osteoma located in the neck of the talus is evaluated.

Case Report

A twenty-one-year-old female patient applied with the complaint of pain in her right foot. The patient had applied to various centers with the same complaint for approximately 4 years. The patient was diagnosed with edema and tendinitis and received conservative treatment. Especially the pain increased at night.

On physical examination, the patient had pain on palpation over the talus. No infectious pathology was detected in blood tests.

No pathological findings were detected on plain radiography (Figure 1,2).

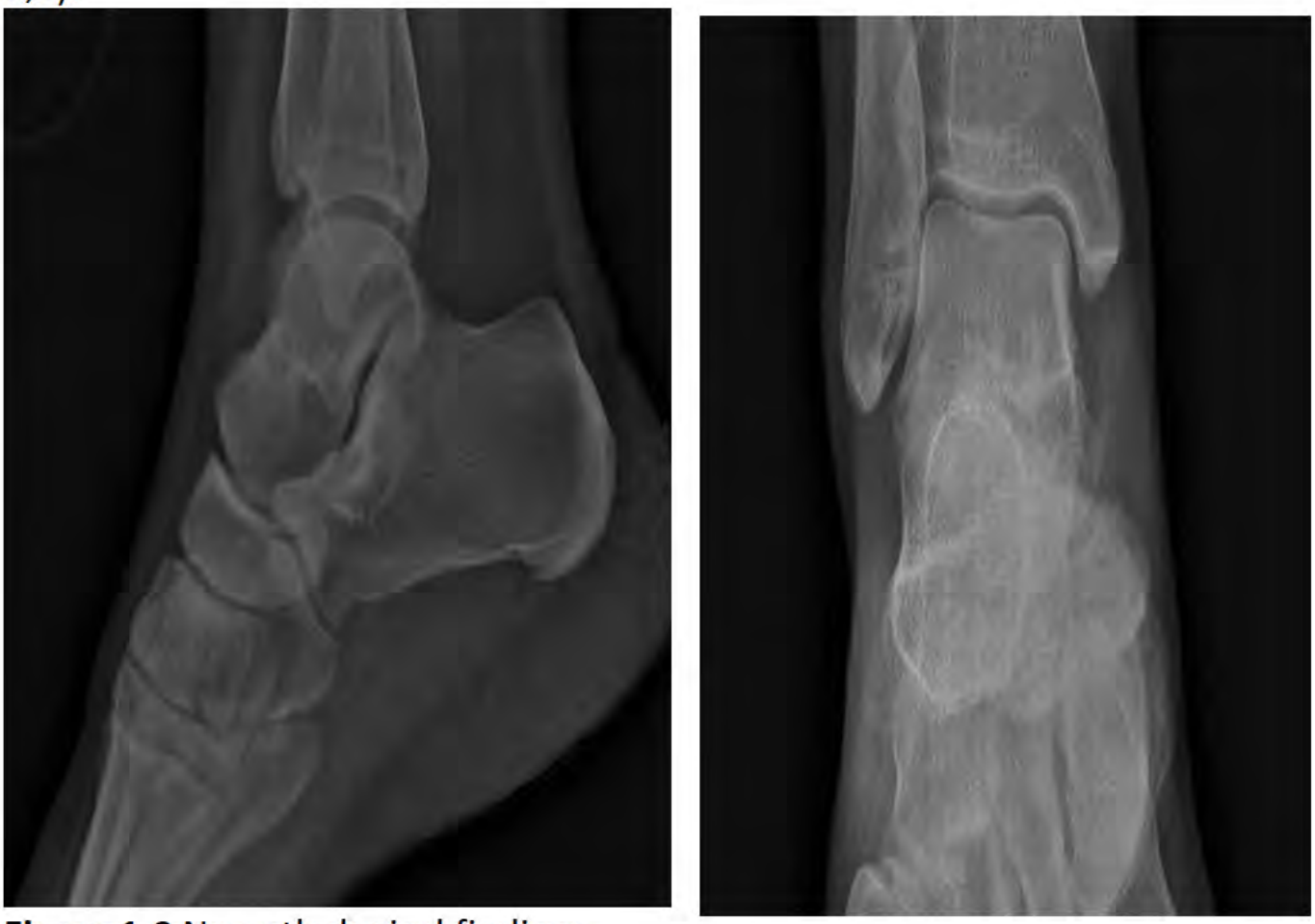

Figure 1-2 No pathological findings were detected on the patient's preoperative radiography.

Magnetic resonance (MR) imaging was performed in an external center and was evaluated in favor of edema. Computed Tomography (CT) revealed a lesion compatible with the nidus in the anterior talus (Figure 3). With these findings, the patient was diagnosed with osteoid osteoma.



Figure 3. Nidus image in sagittal section on the patient's ankle tomography

It was decided to treat the tumor with surgical excision. The surgery is performed by minimally invasive entry from the anterior ankle. It was seen to be located anteriorly in the talus neck (Figure 4).



Figure 4. Surgery photo showing the lesion in the talus

It was excised under scopy guidance. A graft was taken from the iliac crest and grafted to the excised area (Figure 5,6).



Figure 5-6. Grafting image of the patient during surgery and postoperative x-ray

He was kept in a short leg splint for 3 weeks. The patient started partial weight bearing in the 1st postoperative month and achieved full weight bearing in the 6th week. As a result of the pathology of the mass taken from the patient, it was determined that it was compatible with osteoid osteoma. At the patient's second month follow-up, he stated that his pain was completely gone.

Discussion

Only 4% of osteoid osteoma, which constitutes approximately 10% of all benign bone tumors, is located in the foot (7). It is difficult to diagnose osteoid osteoma in the foot, and cases with late diagnosis have been reported (2). In the differential diagnosis, diseases such as arthritis, ligament injury, tarsal spur, stress fracture, and osteomyelitis make diagnosis difficult (8). In our case, the diagnosis was made after 4 years. Although widespread edema on MRI may suggest osteoid osteoma, detecting the nidus on CT is an effective

diagnostic method. Definitive diagnosis is made by histopathological examination.

In the treatment of osteoid osteoma, the aim is to completely remove the nidus. Percutaneous radiofrequency ablation is a minimally invasive technique that can also be applied in cases involving the foot bones (9). In our case, we performed excision because we had no experience.

Results

We should not forget osteoid osteoma in the anamnesis of patients who come to the hospital with complaints of recurrent ankle pain, especially when they describe pain that increases at night.

Osteoid osteoma should be considered in the differential diagnosis of patients whose diagnosis cannot be made by direct radiography and MRI examinations, and we should re-evaluate with CT.

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Pub No: OP-034

EVALUATION OF THE EFFECTIVENESS OF TRANSTHORACIC ECHOCARDIOGRAPHY AND ULTRASOUND (ECHO-US) IN THE EXCLUSION OF PULMONARY EMBOLISM IN THE EMERGENCY DEPARTMENT

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INTRODUCTION

Pulmonary embolism (PE) is a clinical, pathological and physiological syndrome in which the pulmonary arteries are blocked by various endogenous or exogenous emboli, manifesting in most cases as pulmonary circulatory dysfunction. Studies show that 1 in 1000 hospitalized patients suffers from PE, and if left untreated, the mortality rate is as high as 25-30% (1,2). Pulmonary embolism (PE) is a common cardiopulmonary emergency that has a mortality rate of 30% if left untreated, but

its mortality decreases to 2-8% when treated appropriately. The diagnosis of pulmonary embolism requires an urgent clinical probability assessment (3).

PURPOSE

Diagnosing pulmonary embolism quickly and practically in the emergency department is important on mortality and morbidity. The aim of this study is to evaluate the effectiveness of ECO-US in excluding pulmonary embolism and to investigate the power of ECO-US in diagnosing pulmonary embolism in patients with suspected pulmonary embolism.

MATERIALS AND METHODS

Non-pregnant patients over the age of 18, who were suspected of having pulmonary embolism and whose d-dimer, troponin, pro-bnp and arterial blood gas tests were taken in the emergency department, were included in our study. No additional blood tests were taken after the patients were included in the study. 52 patients were included in the study. The patients included in our study were evaluated at the bedside with emergency room ultrasound in a double-blind manner, together with the researcher and the cardiologist who took the basic and advanced USG course. While echocardiographic findings of pulmonary embolism were evaluated with ultrasound, peak velocity measurement, right ventricular free wall thickness, McConnel sign, right ventricle/left ventricle ratio were measured and recorded using Doppler mode on the tricuspid valve from the apical four-chamber view in the supine position. D sign and right ventricle/left ventricle ratio were measured from the parasternal short axis view using ultrasound. Vena cava diameters and collapsibility index were recorded. In addition, deep vein thrombosis was detected in the patients by ultrasound and compression from 3 different points from the femoral vein to the popliteal vein.

RESULTS

50% of the cases included in the study are men and 50% are women. The median age of the male cases included in the study was 66 (min-max = 36-86); The median age of the female cases included in the study was determined as 55.5 (min: 18-max: 91).

When the distribution of the type of embolism in those diagnosed with pulmonary embolism was examined, 20% of those diagnosed with pulmonary embolism (n = 20) were main pulmonary and lobar (n = 4); 10% main pulmonary, lobar and segmental (n=2); 5% main pulmonary and segmental (n=1); 30% were lobar (n=6); 30% were segmental (n=6); 5% were found to be subsegmental (n=1).

When the distribution of ECG, current ECHO, CUS and CT findings of the cases according to their PE diagnosis is examined; A statistically significant difference was found between the groups in terms of tricuspid regurgitation jet flow velocity height, RV/LV (PSSA), RV/LV (A4), D-shape, McConnel, DVT (CUS) and CT RV/LV (PSSA) findings ($p < 0.05$). There was no statistically significant difference between the groups in terms of other variables (>0.05).

Table 1:Distribution of ECG, current ECHO, CUS and CT findings according to the diagnosis of PE

	PE	Not PE	Total	X^2	p
	n (%)	n (%)	n (%)		
LV infarct ECG	0 (0)	6 (18,8)	6 (11,5)	4,239	0,071
RV infarct ECG	1 (5)	0 (0)	1 (1,9)	1,631	0,385
s1q3t3 ECG	2 (10)	0 (0)	2 (3,8)	3,328	0,143
High tricuspid jet flow velocity (≥2.5m/s)	12 (60)	6 (18,8)	18 (34,6)	9,253	***0,002***
VCI Collapsibility index (<50%))	18 (90)	25 (78,1)	43 (82,7)	1,213	0,454
RV/LV (PSSA) (>0,90)	15 (75)	3 (9,4)	18 (34,6)	23,419	***<0,001***
RV/LV (A4) (>0,90)	15 (75)	3 (9,4)	18 (34,6)	23,419	***<0,001***
D-shape	12 (60)	1 (3,1)	13 (25)	21,233	***<0,001***
McConnel	7 (35)	0 (0)	7 (13,5)	12,942	***0,001***
RV thickness (>5mm)	12 (60)	10 (31,3)	22 (42,3)	4,168	***0,041***
DVT + (CUS)	6 (30)	2 (6,3)	8 (15,4)	5,333	***0,043***
CT pneumoniae	3 (15)	11 (34,4)	14 (26,9)	2,348	0,125
CT cardiogenic edema	2 (10)	7 (21,9)	9 (17,3)	1,213	0,454
CT RV/LV (PSSA) (>0,90)	14 (70)	3 (9,4)	17 (32,7)	20,557	***<0,001***

Pearson Chi-Square, Fisher's Exact test

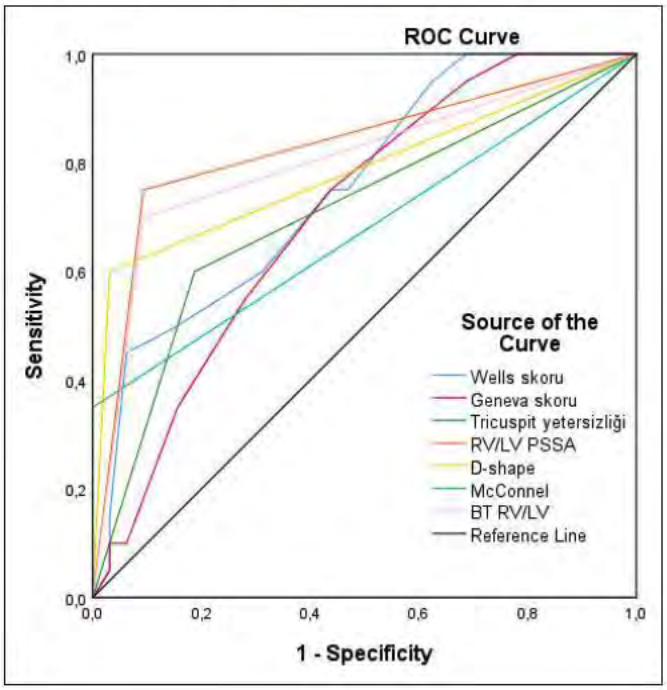
When the Wells and Geneva scores of the cases, the ROC analysis results for the power of ECG, ECHO, CUS and CT findings to diagnose PE were examined; Cut-off values calculated for Wells and Geneva scores; The AUC values calculated for the power of tricuspid regurgitation jet flow velocity height, RV/LV (PSSA), D-Shape, McConnel findings on current ECHO and CT

RV/LV ratio findings to diagnose PE were found to be statistically significant ($p<0.05$). . The ROC analysis curves of the data with significant AUC values are shown in Figure 1. As can be seen in the graph and table, the parameter with the highest specificity was determined to be RV/LV.

Table 2:Results of ROC Analysis for the Diagnostic Power of Wells and Geneva Scores, ECG, ECHO, CUS and CT Findings for PE

	Cut-off	Sensitivity	95% CI	Specificity	95% CI	AUC	95% CI	p
Wells	>4	45,0	23,1-68,5	93,8	79,2-99,2	0,755	0,616-0,863	***<0,001***
Geneva	>5	75,0	50,9-91,3	56,3	37,7-73,6	0,705	0,563-0,824	***0,004***
LV infarct ECG		100,0	83,2-100,0	18,8	7,2-36,4	0,594	0,449-0,728	0,233
RV infarct ECG		5,0	0,1-24,9	100,0	89,1-100,0	0,525	0,382-0,665	0,766
s1q3t3 ECG		10,0	1,2-31,7	100,0	89,1-100,0	0,55	0,406-0,688	0,553
High tricuspid jet flow velocity (≥2.5m/s)		60,0	36,1-80,9	81,3	63,6-92,8	0,706	0,564-0,824	***0,008***
VCI Collapsibility index (<50%)		90,0	68,3-98,8	21,9	9,3-40,0	0,559	0,415-0,697	0,463
RV/LV (PSSA)		75,0	50,9-91,3	90,6	75,0-98,0	0,828	0,698-0,919	***<0,0001***
D-shape		60,0	36,1-80,9	96,9	83,8-99,9	0,784	0,648-0,886	***<0,001***
McConnel		35,0	15,4-59,2	100,0	89,1-100,0	0,675	0,531-0,798	***0,033***
DVT+ (CUS)		30,0	11,9-54,3	93,8	79,2-99,2	0,619	0,474-0,750	0,155
CT pneumoniae		85,0	62,1-96,8	34,4	18,6-53,2	0,597	0,452-0,731	0,224
CT cardiogenic edema		90,0	68,3-98,8	21,9	9,3-40,0	0,559	0,415-0,697	0,463
CT RV/LV (PSSA) (>0,90)		70,0	45,7-88,1	90,6	75,0-98,0	0,803	0,669-0,900	***<0,0001***
D-dimer		100,0	83,2-100,0	3,1	0,08-16,2	0,516	0,373-0,657	0,850
Troponin		35,0	15,4-59,2	71,9	53,3-86,3	0,534	0,391-0,674	0,680
BNP		30,0	11,9-54,3	75,0	56,6-88,5	0,525	0,382-0,665	0,764
Lactate		30,0	11,9-54,3	71,9	53,3-86,3	0,509	0,367-0,651	0,910
HCO3	>23,6	20,0	5,7-43,7	62,5	43,7-78,9	0,52	0,377-0,660	0,811
PO2		90,0	68,3-98,8	31,3	16,1-50,0	0,606	0,461-0,739	0,177
PCO2		65,0	40,8-84,6	43,8	26,4-62,3	0,544	0,400-0,683	0,596

Figure 1:ROC Curves Plotted for Variables Found Significant in ROC Analysis for the Power of Wells and Geneva Scores, ECG, ECHO, CUS and CT Findings to Diagnose PE



DISCUSSION

Right ventricular (RV) function is an important determinant of long-term outcome in patients with acute PE. In these conditions, the right ventricle (RV) is subjected to abnormal and increased loading that varies in timing, magnitude, and duration. In conclusion, RV dysfunction is variably present at the initial presentation of acute PE. Pruszczyk, P. et al. (2014) found in their study that the RV/LV ratio in PE was significantly higher on ECHO. (4) Akhoundi et al. (2019) found the CT RV/LV ratio in PE to be significantly higher in their study. The results of our study are also compatible with the literature. (5)

In our study, a statistically significant difference was found between the groups in terms of D-shape, and the D-shape finding in PE is compatible with the literature. Grifoni et al. (2000) found that McConnell's sign was the most prominent echocardiographic finding in patients with APE. (6) The results of our study are compatible with the literature.

Tricuspid regurgitation, high jet flow velocity (≥2.5m/sec) is one of the echocardiographic findings that direct the clinician to pulmonary embolism in research. In a study conducted by Cheriex et al. (1994) on patients diagnosed with pulmonary embolism, they found it to be high in 44 of 46 patients. (7) In our study, tricuspid regurgitation and high jet stream velocity were found to be significant and are compatible with the literature.

Pulmonary embolism may cause an increase in right ventricular wall thickness as it increases right ventricular afterload by increasing pulmonary artery pressure. In our study, an increase in right ventricular wall thickness was detected and was found to be compatible with the literature.

CONCLUSION

According to the results of our research, in patients diagnosed with Pulmonary Embolism; echocardiography is easily obtained and can help diagnose PE by showing right ventricular (RV) dysfunction, CT RV/LV ratio is significantly higher, D-shape and McConnell sign are the most prominent echocardiographic findings identified in patients with APE, Tricuspid It was determined that the high jet flow velocity of the insufficiency was significant.
Echocardiography is a non-invasive, easily accessible, radiation-free diagnostic tool, and as a result of our study, although it was not successful in excluding the diagnosis of pulmonary embolism, it was found effective in diagnosing pulmonary embolism.

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Pub No: OP-035

The calls to 112 command and control center and evaluation of use of the Emergency Ambulance Service in Denizli

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INTRODUCTION

We live in a country where emergency illnesses, accidents, injuries, natural disasters like earthquakes and floods, and incidents of terrorism are frequently encountered. Therefore, the organizational structure and practices of emergency healthcare services are of great importance on a national level (1).

Developments in ambulance services in Turkey began in the late 1980s. In 1986, ambulance services were initiated in three major cities (Ankara, Istanbul, Izmir) under the name "Hızır Emergency Service," primarily for patient transport. In 1994, a new system named "112 Emergency Aid and Rescue" was introduced. Starting from that year, teams consisting of general practitioners, nurses, and drivers began to serve in ambulances for the first time. Currently, health professionals with training in emergency interventions, such as paramedics and emergency medical technicians, have also been added to these teams (2).

The Command Control Center (CCC) operates under the authority of the provincial ambulance service chief physician (3). These centers are established with an adequate number of personnel, technical equipment, software infrastructure, and suitable physical facilities, depending on the population of the province, the number of emergency health calls, station numbers, and the characteristics of the province (4). The CCC should have the capability to manage all ambulances, as well as to have communication with other centers, hospital emergency departments, and intensive care units.

The aim of this study is to investigate the calls made to the 112 CCC in our province and the use of Emergency Health Services (EHS) in order to gain information about the functioning of emergency health services.

MATERIALS AND METHODS

For this study, written approval was obtained from the XXX Provincial Directorate of Health. The study data were obtained from the head physician of 112 CCC. A retrospective descriptive study was conducted by evaluating the records of a total of 2,361,145 applications to 112 EHS in XXX province for the years 2012-2013. The study variables were determined based on the existing data in the records and are listed below.

Age, gender, the reason for the emergency call (medical illnesses, traffic accidents, occupational accidents, other accidents, trauma, suicide, fire, health precautions, protocols, and other reasons), non-medical calls, ambulance dispatch rates for calls, response times of ambulances to the scene, preliminary diagnoses of cases (cardiovascular system diseases, respiratory system, neurological, gastrointestinal system, psychiatric, genitourinary system, women's health and obstetrics, metabolic, infectious diseases, neonatal, poisonings, trauma, and other causes), outcomes of cases (on-site intervention, transfer to hospital, inter-hospital transfer, transfer for medical examination, home transfer, deceased, transfer refusal, other outcomes, mission cancellation, transfer by another vehicle, waiting at the scene, other), distribution by the hospitals they were taken to (XXX State Hospital, Servergazi State Hospital, XXX University Faculty of Medicine Hospital (XXXTF), Private Hospitals, District Hospitals, Hospitals outside the province).

During the study period, the numerical rates of applications to 112 emergency healthcare services for help and unnecessary calls made to 112 healthcare services were examined in XXX province in 2012-2013. The following data were obtained from calls related to actual illnesses within the applications:

1. Ambulance dispatch rates for calls
2. Distribution of cases by gender
3. Distribution of cases by age
4. Analysis of response times
5. Analysis by preliminary diagnoses of illnesses
6. Distribution of cases by reasons for the call
7. Distribution of cases by outcomes
8. Distribution of hospitals visited by cases

In the data prepared using the SPSS 17 statistical system, T-Test was used to determine urban transport rates. Mann-Whitney U Test was used to determine rural and overall transport rates. Pearson chi-square test was used to determine the distribution of cases by age and gender, seasonal analysis, analysis by reasons for the call, distribution by outcomes, and distribution by the hospitals cases were taken to.

RESULTS

During the two-year study period, it was determined that there were a total of 2,361,145 applications recorded in 112 EHS. Of these applications, 94.3% (n=2,226,672) were non-medical unnecessary calls. When all medical calls and the rates of ambulance dispatches for these calls were examined, it was found that ambulances were dispatched for medical calls at a rate of 87.6% (the number of cases with ambulance dispatch was 117,881). The reasons for dispatching ambulances for medically related calls are presented in Table 1.

Table 1: Medical reasons for ambulance dispatch and their frequencies
Reason for Call

When the age distribution of cases to which ambulances were dispatched was examined, it was determined that services were provided mostly to individuals aged 18-64 (58.2%), while pediatric (0-17) and elderly (65 and older) patient groups accounted for 11.3% and 30.5%, respectively.

The response time of ambulances to cases was 6.7 minutes in urban areas and 15.4 minutes in rural areas (average 8.8 minutes). It was found that there was no statistically significant difference in ambulance response times by month, both in urban and rural areas (p=0.09).

Among the reasons for medical calls for which ambulances were dispatched, medical emergencies were the most common (Table 1). When the analysis of cases with ambulance dispatches according to preliminary diagnoses was examined, it was found that trauma cases (22.7%) constituted the largest patient population, followed by cardiovascular diseases and psychiatric illnesses (Table 2).

Table 2: Distribution of ambulance dispatches by preliminary diagnoses
Diagnoses

The distribution of outcomes of ambulance dispatches was investigated. It was determined that the majority of patients were transferred to a hospital (n=..., 63%).

Table 3: Distribution of outcomes of ambulance dispatches
Outcome of Dispatch

Finally, it was investigated to which hospitals the 112 ambulances transported patients throughout the province. It was determined that in 2013, the number of patients transported increased compared to the previous year (2012: 32,910, following year: 35,171). XXX State Hospital was the hospital where cases were most frequently transported in the province (32.4%, n=22,048). This was followed by the university hospital and private hospitals (15.7%, n=10,667; 9.3%, n=6,330, respectively). When comparing 2012 and 2013, a significant difference was observed in the hospitals to which cases were transported ($p<0.001$). This difference was particularly observed in XXX State Hospital and private hospitals.

DISCUSSION:

In recent years, positive developments have been observed in ambulance services in major cities in Turkey, including Denizli; however, there has been a significant increase in the use of emergency call services by patients of all age groups. During the study, the total number of calls for Denizli Provincial Health Directorate's 112 Emergency Services was close to 2.5 million. The annual call rate is consistently above one million. Excluding non-medical calls, the total number of medical calls in 2012 was around 66,000, and in 2013, it was approximately 68,000. When these numbers are adjusted for the population, they amount to around 7% of the total population. In a study conducted by Benli and colleagues in Karabük in 2013, the total number of applications was approximately 22,000, which corresponds to about 10% of the Karabük population. In a study by Kapçı and colleagues covering the first six months of 2013, the total number of calls to 112 Emergency Services was approximately 6,000. When the annual application rate for Isparta is considered to be 13,000, the call rate corresponds to about 3% of the population. Based on these results, it can be said that the call rate in Denizli is moderate compared to other provinces. Oktay and colleagues found an increase of 33% in calls to Tekirdağ Emergency Health Services between 2001 and 2002, and a 27% increase between 2002 and 2003. Zenginol and colleagues' study on 112 emergency ambulances in Gaziantep between 2006 and 2008 showed that the number of ambulance dispatches increased each year. Our study also found an increase in call numbers over the years. In addition to the population growth in Denizli, increased public awareness of using 112 emergency health services may have contributed to these results. In Europe, the use of emergency health services has been increasing over the years. A study conducted in the UK in 2006 comparing ambulance calls between 1997 and 2002 showed an increasing trend each year.

From our hospital's information system, it was determined that approximately 10% of patients who applied to the PAU Medical Faculty Hospital Emergency Department in 2012 and 8% in 2013 were brought in by 112 emergency ambulance services. In a study by Zenginol and colleagues in Gaziantep in 2011, 1.3% of cases were brought to Ministry of Health hospitals by ambulance, and 3.6% to university hospitals. In a study by Kapçı and colleagues in 2014, approximately 6% of patients who applied to the emergency department were brought in by ambulance. According to these results, it can be said that the rate of patient transfers by 112 in our university hospital emergency department is higher compared to other provinces.

In a study conducted by Demirkan and colleagues in 2013, an analysis of 330 patients diagnosed with Acute Coronary Syndrome (ACS) found that only 29% of these patients were brought in by ambulance. In a study by Türkdoğan and colleagues in Isparta covering the year 2011, the ambulance usage rate was 3%. In a study conducted by Önge and colleagues in Adana between December 1, 2009, and December 31, 2010, the annual ambulance usage rate was found to be 0.5%. In a study by Kıdak and colleagues in 2004 in İzmir, the frequency of using 112 ambulance services was determined to be 0.14%. Ambulance usage among elderly individuals aged 65 and over was found to be 3.7 times higher than in other age groups. In a national-level study conducted in the United States in 2003, it was found that 14% of the 114 million people who applied to emergency departments for various reasons used ambulances. The ambulance usage rate in London in 2002 was reported to be 14%. In Northern European countries, the annual ambulance usage rate varies between 77 and 101 per thousand. The ambulance usage rate is quite low in our country. Factors such as the education level of the public, expectations, per capita income, the economic status of patients, and whether or not they have health insurance play determining roles in the usage of ambulance services. In recent years, especially in metropolitan municipalities, there have been improvements in both quantitative and qualitative aspects of ambulance services; however, the usage of ambulance services in Turkey lags behind developed countries.

During the study, it was determined that calls to 112 Emergency Call Center were most frequent during the summer months. When the total applications to the PAU Medical Faculty Hospital Emergency Department were examined, it was found that most applications occurred in the autumn in both years. However, it was observed that applications to our emergency department by ambulance were more frequent during the summer months. In the study by Kıdak and colleagues, cases mostly used 112 services in the summer (27%) and least in the winter (24%). In the study by Önge and colleagues, when the arrival times of cases brought by 112 ambulances were examined seasonally, it was determined that they mostly arrived in the summer

months (June, July, August) (29.5%). All of this data supports that 112 health services are most frequently used during the summer months in our country. However, significantly different results have been found in similar studies conducted in our country. In a study conducted by Benli and colleagues covering the year 2013, it was determined that the use of emergency health services was most frequent in the winter months. Nur N. and colleagues found no seasonal differences in the use of emergency health services in geriatric patients, but they pointed out that the use of emergency health services increased in the winter months. In a study by Dündar and colleagues investigating the use of emergency departments by geriatric patients, it was found that the highest ambulance call rate was in the winter months.

In our study, it was determined that the rate of non-medical (unnecessary) calls among all calls made to 112 Call Center in 2012 was 97%, and in 2013, it was 94%. It was also found that these unnecessary calls increased mainly during the summer months. It was reported that approximately 70% of calls made to 112 Call Center in Afyon were unnecessary. These results indicate that a significant portion of calls made to 112 in our country are for non-health reasons. Similar results have been obtained in studies conducted abroad, which support that the United States, Sweden, and the UK, it has been reported that 40-50% of total ambulance use is inappropriate. Snooks and colleagues reported that the high discharge rate from the emergency department for patients brought to the hospital by ambulance is one of the criteria for inappropriate ambulance use. A study conducted by Kawakami and colleagues in Yokohama, Japan, showed the impact of socioeconomic factors on medically unnecessary ambulance calls. In 2004, it was found that 60% of total ambulance calls in Yokohama resulted in discharge from the emergency department without hospitalization. The results of this study showed that various demographic and socioeconomic factors influence the decision to call an ambulance. The same study reported that gender, age, car ownership, living alone, and whether or not an ambulance was used were effective factors in calling an ambulance. We could not access the sociodemographic information of the callers in our study. However, we believe that these factors are also influential variables in calling an ambulance in our country.

In our country, the inappropriate use of emergency ambulance services is one of the significant problems that need to be addressed in the healthcare system. The inappropriate use of ambulances not only increases the workload of 112 command centers and emergency departments but also adds an extra burden to the country's economy in terms of cost. Additionally, in cases of emergencies, if the ambulance of the nearest station is in service, an ambulance from a more distant center is dispatched, which can lead to longer response times. Due to the misuse of

emergency ambulance services, false alarms are made. In 2014, a law was enacted that included false alarms to 112 emergency ambulance services under the scope of penalties. This aimed to minimize false alarm numbers and prevent the inappropriate use of 112 emergency services. During our study, it was determined that 88% of medical calls to 112 in Denizli resulted in ambulance dispatch.

This rate is indeed higher than what we might have expected. For comparison purposes, it's worth noting that there isn't readily available data on this specific topic in our country. It would be essential to conduct more extensive research to determine how many of these ambulance dispatches are for genuine emergency cases. Further studies could shed light on the nature of these calls and whether they indeed correspond to real emergencies, helping healthcare authorities and providers better allocate resources and respond to genuine urgent situations effectively.

In our study, when patients using emergency health services were examined by gender, no significant difference was observed. However, studies conducted in our country often indicate that males tend to use emergency health services. In Kapçı et al.'s study covering the first half of 2013, it was found that 55% of cases arriving at the emergency department by ambulance were male. Similarly, Benli et al.'s study in Karabük found that 56% of calls were made by males. These results are in line with the observation that males tend to use emergency health services more frequently in various studies conducted both in Turkey and abroad.

In our study, when the distribution of cases by age group was examined, the age groups were categorized as 0-17 years, 18-64 years, and 65 years and older. The age group that used 112 emergency health services the most was the 18-64 age group (58%), while the proportion of cases in the 65 years and older group was 30%. There was no statistically significant difference in the age group distribution in our study conducted over two years. Several studies have shown that age is an important factor affecting ambulance use, with older individuals more likely to call for an ambulance.

Response time to reach the intervention area in pre-hospital care is crucial. The American Heart Association has set the response time for advanced cardiac life support ambulances at eight minutes. Experts have emphasized that timely and efficient emergency assistance services can save at least 20% of those who would otherwise have lost their lives. In our study, when response times by year were examined, it was determined that in urban areas, 89% of cases reached the scene within 6.5 minutes in 2012 and 87% within 6.9 minutes in 2013. In rural areas, in 2012, 94% of cases reached the scene within 15.2 minutes, and in 2013, 94% reached the scene within 15.5 minutes. The average response time of ambulances to cases

was 8.6 minutes in 2012 and 9.1 minutes in 2013. These response times indicate that the ambulances in the study achieved acceptable levels of response time.

Overall, the results of our study suggest that the utilization of ambulance services in our region is in accordance with acceptable standards, and gender and age distribution align with general trends observed in similar studies both in Turkey and abroad.

When the analysis was conducted based on the preliminary diagnoses of cases, our study found that the largest group of patients was comprised of trauma cases. In 2012, trauma cases accounted for 23.3% of the total cases, while in 2013, they made up 22.2%. Following this, cardiovascular system diseases and psychiatric illnesses were the next most common categories. According to the Annual Report of the General Directorate of Basic Health Services based on 2006 data, trauma ranked first among preliminary diagnoses of emergency cases nationwide in Turkey at 25.7%, with cardiovascular system diseases coming second at 19.5%. In the same year, in Izmir, the most frequent preliminary diagnoses were trauma (24.3%), cardiovascular system diseases (20.6%), and neurological diseases (10.7%) (Turkish Ministry of Health, General Directorate of Basic Health Services, 2007).

When we look at most studies conducted in our country, trauma tends to be the leading preliminary diagnosis. For instance, in a study conducted by Oktay et al. in Tekirdağ, trauma was the primary preliminary diagnosis at 33%, followed by cardiovascular system diseases at 18.5%, neurological diseases at 14%, and psychiatric illnesses at 14.5% (Oktay İ. et al., 16). In a study by Önge et al. in Adana, when analyzing the preliminary diagnoses made by ambulance teams, trauma calls ranked first at 28%, followed by neurological diseases at 16%, and cardiovascular diseases at 14% (Önge T. et al., 21). In Zenginol et al.'s study in Gaziantep, when categorized by preliminary diagnoses, trauma (32%), cardiovascular diseases (15%), and neurological cases (9%) were the top three (Zenginol M. et al., 17). Kapçı et al. reported the order of preliminary diagnoses as trauma, cardiovascular diseases, psychiatric illnesses, neurological diseases, and pulmonary diseases (Kapçı et al., 15). In Benli et al.'s research, trauma (26%) was the most common preliminary diagnosis, followed by cardiac diseases (19%), and then psychiatric illnesses (15%) (Benli et al., 14). In Özata et al.'s study, trauma ranked first among preliminary diagnoses, followed by cardiovascular system diseases (Özata et al., 44).

Some studies conducted in Turkey's 112 emergency healthcare services have shown that non-trauma-related issues tend to dominate preliminary diagnoses. For instance, in a study by Dündar et al. in Samsun, the most common preliminary diagnoses were

cardiac diseases (40.5%), followed by neurological diseases (17%), respiratory diseases (10.5%), and then trauma (7%) (Dündar et al., 24). In a study by Yurteri et al. in Bursa, the most common disease group among preliminary diagnoses was cardiovascular diseases, followed by cerebrovascular system diseases, and traffic accidents (Yurteri et al., 31). In a study by Kıdak et al. in Izmir, about 1/5 of the preliminary diagnoses made by ambulance teams were related to cardiovascular issues, 1/6 to respiratory system diseases, and trauma-related conditions ranked third (Kıdak et al., 2). In approximately 25% of the cases, no specific diagnosis or classification could be made by the ambulance teams (Kıdak et al., 2).

In our research, it was observed that in both years, the majority of cases resulted in hospital transfers. In 2012, this rate was 64%, and in 2013, it was 63%. When looking at the results of Oktay et al.'s study in Tekirdağ, it can be seen that hospital transfers decreased over the years (from 74.4% to 68.4%), while on-site interventions increased (from 9.1% to 18.4%) (Oktay İ. et al., 16). Kapçı et al. also reported that a significant portion of cases resulted in hospital transfers (Kapçı et al., 15). In Zenginol et al.'s three-year study in Gaziantep, 62.5% of cases ended with hospital transfers, and 13.5% received on-site interventions (Zenginol M. et al., 17). Kıdak et al. found that 52% of cases in their Izmir study were transferred to the hospital, while 19% received on-site interventions (Kıdak et al., 2). In Dündar et al.'s study in Samsun, 73.7% of cases resulted in hospital transfers, while 18.4% received on-site interventions (Dündar et al., 24). In Özata et al.'s study in Konya, a significant portion of cases also ended with hospital transfers (Özata et al., 44). Yurteri et al.'s study in Bursa also reported that the majority of cases were taken to the hospital (Yurteri et al., 31).

Every year in the UK, many emergency ambulance calls do not result in hospital transportation (Hipskind et al., 45). In a study by Hipskind et al. in the USA, 30% of ambulance responses resulted in patients refusing transportation, and these patients were often asymptomatic individuals between the ages of 11 and 40 who had been involved in motor vehicle accidents (Hipskind et al., 46). In the UK and Wales, it was found that 17% of patients were not transported to the hospital after an emergency ambulance call (Hipskind et al., 45). In a study in the USA, it was reported that 7 out of 10 patients resulted in hospital transfers (Hipskind et al., 47). When evaluating the results of all these studies, it becomes evident that a significant proportion of cases result in hospital transfers, and many of the patients brought to the hospital are eventually discharged from the emergency department. This suggests that unnecessary ambulance usage is a global issue, and large-scale studies should be conducted in Turkey to reduce it, with healthcare policies developed based on the results.

Limitations:
Due to the classification of patients' ages in the KKM as pediatric (0-17), geriatric (65 and older), and others, the age group classification was made in this manner.

RESULTS:

The results of this study are promising in terms of the development of 112 emergency health services in our province. However, the high rate of unnecessary calls to the 112 Emergency Call Center (ECC) (95.5%) is a serious issue that needs to be addressed in terms of service quality. These calls, which unnecessarily occupy the 112 ECC and delay the response time for genuine emergencies, necessitate public awareness campaigns and the broadcasting of public service announcements to educate the public on this matter.

In pre-hospital emergency health services, the goal is to provide immediate intervention to individuals in accidents, injuries, and illnesses, and to transport them to a hospital environment quickly and efficiently. In our study, it was determined that the response times of ambulances affiliated with Denizli 112 ECC in urban and rural areas were at an acceptable level. However, in the future, the increase in population and traffic density in large city centers like our province may negatively impact these response times. Vehicle drivers should be educated about ambulance priority and right of way in traffic.

The predominance of trauma cases among cases transported by ambulance highlights the importance of pre-hospital trauma care. Training programs should be planned to enhance the knowledge and experience of 112 personnel in trauma care.

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Pub No: OP-040

Diagnostic accuracy of the HEART score in predicting acute myocardial infarction and 30-day MACE in patients presenting to the emergency department with chest pain: a prospective observational study in South India

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Abstract:

Background

Chest pain is a very common presenting symptom in the emergency department. Risk stratification of such patients is extremely important. A risk stratification tool should promptly identify all patients with acute myocardial infarction, but should also allow early discharge of low-risk patients. Currently, HEART score is the most widely used tool. But there are no studies as yet from the Indian population.

Methods

We enrolled patients aged 25-70 years who presented to the emergency department with at least 5 minutes of chest pain. The study did not include patients who had obvious reasons for admission, like ST-elevation myocardial infarction (STEMI), arrhythmias, or cardiogenic pulmonary edema. Based on the HEART score, patients were divided into HEART positive (4-10) and HEART negative (0-3) groups. High-sensitive troponin levels were measured at 0 and 6 hours, and a diagnosis of acute myocardial infarction at the index visit was made as per the third universal definition of myocardial infarction. Patients were also followed up for 30 days to identify major adverse cardiac events (MACE). The diagnostic accuracy of the HEART score in identifying acute myocardial infarction at the index visit and 30-day MACE was evaluated.

Results

A total of 350 patients were enrolled. 97 of the 350 patients (27.7%) were classified into HEART negative group, and none of them had acute myocardial infarction at the index visit or 30-day MACE. Thus, the HEART score showed 100% sensitivity and 100% negative predictive value (NPV) for identifying acute myocardial infarction at the index visit and 30-day MACE. The specificity and positive predictive value (PPV) of the HEART score in predicting acute myocardial infarction at the index visit were 37% and 34.8%, respectively. The specificity and PPV of the HEART score in predicting 30-day MACE were 44.9% and 52.8%, respectively.

Conclusion

The HEART score can be adopted for risk stratification of Indian patients presenting to the emergency department with chest pain. If the HEART score is adopted with point-of-care troponin, over a quarter of the patients presenting to the emergency department with chest pain could be discharged immediately.

Introduction

Chest pain is a very common presenting symptom in the emergency department (ED). Only <10% of patients presenting to the ED with chest pain have acute coronary syndrome (ACS), which includes unstable angina (UA), non-ST-elevation myocardial infarction (NSTEMI), and ST-elevation myocardial infarction (STEMI).[1] The acceptable threshold for missed ACS is not clearly defined, but most emergency physicians consider <1% as acceptable in practice.[2] In an attempt to keep missed MI rate low, lot of patients are admitted to rule out ACS. This leads to ED overcrowding and unnecessary investigations. Risk stratification of such patients is extremely important. Until 2008, emergency physicians used their clinical gestalt based on history and ECG to rule out acute coronary syndrome (ACS) subjectively.

There was a clear need for an objective risk stratification score to rule out ACS in the ED. A few risk stratification scores like TIMI and GRACE were available, but did not satisfy emergency physicians since their focus was primarily on ruling in ACS rather than ruling it out.[3,4] Besides, both the risk scores were originally developed as prognostic tools in patients with confirmed unstable angina/NSTEMI, and neither of them includes the patient's history. In 2008, the HEART score was developed by Six et al. to rule out non-ST-elevation ACS (nSTE-ACS), which includes unstable angina (UA) and non-ST-elevation myocardial infarction (NSTEMI).[5] HEART score identifies not only acute myocardial infarction at the index visit but also short term MACE. HEART score is based on contemporary troponin tests, which are widely available. Modified risk stratification tools incorporating high-sensitive troponin assays, are not widely available.

The HEART score stratifies patients into low-risk, intermediate-risk, and high-risk. The percentage of low-risk group patients developing major adverse cardiac events (MACE) is negligible; hence, they can be discharged immediately. Intermediate-risk group need observation and/or admission in the ED for further evaluation, including serial troponin assays. High-risk group need admission for early invasive strategies. So, the HEART score allows immediate decision based on history, ECG and initial troponin alone. It serves as a rule-out tool and reduces the number of unnecessary investigations in the ED. In 2010 and 2013, multicenter validation of the HEART score was performed in the Netherlands.[6,7] However, there are no data regarding the performance of the HEART score in India. Hence, this prospective observational study was conducted to evaluate the diagnostic accuracy of the HEART score in a tertiary-care hospital in South India (JIPMER, Pondicherry).

Methods

Study design and participants:

We conducted a prospective observational study between January 2019 and June 2020 at Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER) after approval by the Institutional Review Board. Patients aged 25-70 years presenting with at least 5 minutes of chest pain were included in this study. Patients who presented with symptoms other than chest discomfort were not included. Patients who had obvious reasons for admission like ST-elevation myocardial infarction (STEMI), significant arrhythmias, shock and heart failure were not included. Pregnant patients and patients with other medical conditions requiring admission like chronic kidney disease (CKD) requiring dialysis were not included in the study. Significant arrhythmias include new-onset atrial fibrillation, atrial flutter, sustained supraventricular tachycardia, sustained or recurrent ventricular arrhythmias, second degree or complete heart block. Written informed consent was obtained from patients before enrolment.

Sampling:

The sample size calculated was 350 to identify acute myocardial infarction with a sensitivity of 97%, a 4% margin of error on either side, an alpha of 0.05, a power of 80%, and a MI prevalence of 20%. A consecutive sampling technique was used.

Study procedure:

A detailed history was collected from all patients, including chest pain characteristics and risk factors for acute myocardial infarction. Risk factors included currently treated diabetes mellitus, current or recent (<90 days) smoker, diagnosed and/or treated hypertension, diagnosed hypercholesterolemia, family history of coronary artery disease, obesity (body mass index > 25 kg/m^2),[8] and a history of atherosclerotic

disease (coronary revascularization, myocardial infarction, stroke, or peripheral arterial disease). Baseline ECG was recorded. The venous blood sample was collected for point-of-care troponin T. Point-of-care troponin T was processed using the Roche Cobas h 232 POC (Point-of-Care) system. The measuring range was 40–2000 ng/L and the test was considered positive if the level was > 50 ng/L. For the troponin (T) scoring element in the HEART score, levels ≤50, 51–149, and ≥150 (ng/L) were assigned a score of 0, 1, and 2, respectively. We also collected 0- and 6-hour samples and stored at -80°C for later analysis using high-sensitive troponin T. This was used only for diagnosing acute myocardial infarction at the index visit, and not for HEART score calculation. Samples collected and stored for high-sensitive troponin T were processed later using the Roche Elecsys®2010 Cobas e 411 immunoassay analyzer. The high-sensitive troponin T measuring range was 3–10000 ng/L, with limit of detection of 5 ng/L and upper reference limit (99th percentile) of 14 ng/L.

Repeat ECG and point-of-care troponin T were done if needed at the discretion of the treating clinician. All patients were managed as per the treating clinician's decision based on clinical gestalt and contemporary troponin assay (40–2000 ng/L measuring range). Neither the HEART score nor the high-sensitive troponin T level was used to decide patient management. All patients were retained in the hospital under observation or after admission based on the treating clinician's decision for at least 6 hours to enable the collection of the repeat venous blood sample at 6 hours. The HEART score (table 1) was calculated for all the patients.

Table 1: The HEART score[7]:

History	Slightly suspicious	0
	Moderately suspicious	1
	Highly suspicious	2
ECG	Normal	0
	Non-specific repolarization disturbance	1
	Significant ST depression	2
Age	≤45 years	0
	45–65 years	1
	≥65 years	2
Risk factors	No risk factors known	0
	1 or 2 risk factors	1
	≥3 risk factors or history of atherosclerotic disease	2
Troponin	≤normal limit (≤50 ng/L)	0
	>1 to <3x normal limit (51 – 149 ng/L)	1
	≥3x normal limit (≥150 ng/L)	2

The diagnosis of acute myocardial infarction at the index visit was made as per the third universal definition of myocardial infarction using 0 and 6-hour high-sensitive troponin T levels as quoted below[9]:

"Detection of a rise and/or fall of cardiac biomarker values (preferably cardiac troponin) with at least one value above the 99th percentile upper reference limit (URL) and with at least one of the following:

- Symptoms of ischemia.
- New or presumed new significant ST-segment-T wave changes or new left bundle branch block (LBBB).
- Development of pathological Q waves in the ECG.
- Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality.
- Identification of an intracoronary thrombus by angiography or autopsy."

Patients were followed up for 30 days to identify major adverse cardiac events (MACE),[7,10] which included:

1. Acute myocardial infarction (AMI), according to the third universal definition of myocardial infarction, also due to an ischemic imbalance, as in the case of tachydysrhythmia.
2. Percutaneous coronary intervention (PCI)
3. Coronary artery bypass graft (CABG)
4. Conservative therapy: the presence of known significant coronary stenosis

thought to be the cause of chest pain, but revascularization was withheld because of co-morbidity, high risk of complications, patient refusal, or resolution of symptoms after resolution of a contributory cause, such as tachydysrhythmia.

5. Death due to any cause

From the collected data, patients were divided into positive HEART score (4-10) and negative HEART score (0-3) groups. These groups are referred to as HEART positive group and HEART negative group respectively. The diagnostic accuracy of the HEART score in predicting acute myocardial infarction at the index visit and 30-day MACE was evaluated.

Statistical analysis:

Data were analyzed using SPSS version 19.0 (IBM Corp. Released 2010. IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp). The distribution of continuous variables was tested for normality using Kolmogorov-Smirnov (K-S) test and expressed in terms of mean with standard deviation (SD) or median with interquartile range (IQR) based on the normality. The distribution of categorical variables was expressed in terms of frequency and percentage. The chi-square test was used to determine a significant difference in categorical variables between groups. We used the independent student t-test or Mann-Whitney U test to look for a significant difference in continuous variables between groups. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of HEART score in predicting acute myocardial infarction at the index visit and 30-day MACE were calculated using two by two tables. All statistical analyses were carried out at a 5% level of confidence.

Results:

The mean age of our study patients was 53.3±10.3 years. 227 (64.9%) were males, and 123 (35.1%) were females. The most common risk factors were diabetes mellitus (44%), and hypertension (43.7%). 64 (28.2%) patients had a history of either current or recent (<90 days) smoking and all of them were males. The baseline

characteristics of the study patients are shown in table 2. Patients who had AMI at the index visit were older (56.5±9.2 vs 52.2±10.4); they were more likely to have diabetes (67% vs 36%) or hypertension (53% vs 41%) as compared with those who did not have AMI at the index visit. There were no other significant differences between the groups in the baseline characteristics. The mean HEART score in our study was 4.82 (±2.21). The mean HEART score in patients who had AMI at the index visit was significantly higher as compared to those who did not have AMI (6.1±1.2 vs 4.4±2.3).

Table 2: Baseline characteristics of the study participants

Variable	AMI at index visit		p value
	Yes	No	
N (%)	88 (25.1%)	262 (74.9%)	
Age (years), mean±SD	56.5±9.2	52.2±10.4	0.001
Male gender, n (%)	59 (67%)	168 (64.1%)	0.619
Diabetes mellitus, n (%)	59 (67%)	95 (36.3%)	<0.001
Hypertension, n (%)	47 (53.4%)	106 (40.5%)	0.034
Obesity, n (%)	19 (21.6%)	69 (26.3%)	0.375
Family history of CAD, n (%)	14 (15.9%)	51 (19.5%)	0.458
Current or recent (<90 days) smoker, n (%)	17 (19.3%)	47 (17.9%)	0.772
Diagnosed hypercholesterolemia, n (%)	7 (8%)	35 (13.4%)	0.177
History of MI, n (%)	23 (26.1%)	52 (19.8%)	0.214

History of stroke, n (%)	3 (3.4%)	4 (1.5%)	0.374
History of PCI, n (%)	1 (1.1%)	5 (1.9%)	1.000
History of CABG, n (%)	0	3 (1.1%)	0.575
History of MI and stroke, n (%)	1 (1.1%)	0	0.251
HEART score, mean±SD	6.1±1.2	4.4±2.3	<0.001

HEART score to predict acute myocardial infarction at the index visit:

HEART score of 4 to 10 was considered positive and a score of 0 to 3 is considered negative. Out of the 350 patients enrolled in our study, 253 patients had a positive HEART score and 97 had a negative score (72.3%vs 27.7%). These groups are referred to as HEART positive group and HEART negative group respectively.

Out of the 350 patients, acute myocardial infarction at the index visit occurred in 88 patients. All these patients were in the HEART positive group and none of them were in the HEART negative group. Thus, HEART score had a 100% (95% CI: 95.9% to 100%) sensitivity and a 100% (95% CI: 96.3% to 100%) negative predictive value for predicting acute myocardial infarction at the index visit.

Out of 253 patients in the HEART positive group, 88 patients (34.8%) had acute myocardial infarction at the index visit. Thus, the positive predictive value (PPV) of the HEART score in predicting acute myocardial infarction at the index visit was 34.8 % (95% CI: 29% to 41%). The specificity of the HEART score to predict acute myocardial infarction at the index visit was 37% (95% CI: 31.2% to 43.2%).

Table 3: The HEART score in predicting acute myocardial infarction at the index visit

	Acute myocardial infarction at the index visit		Total
	Present	Absent	
HEART positive group	88	165	253
HEART negative group	0	97	97
	88	262	350

* p value < 0.001 calculated by chi-square test

HEART score to predict MACE within 30 days:

Out of the 350 patients, 30-day MACE occurred in 133 patients. All these patients were in the HEART positive group and none of them were in the HEART negative group. Thus, HEART score had a 100% (95% CI: 97.3% to 100%) sensitivity and a 100% (95% CI: 96.3% to 100%) negative predictive value for 30-day MACE. One patient in the HEART positive group was lost to follow up.

Out of 253 patients in the HEART positive group, 133 patients (34.8%) developed MACE within 30 days. Thus, the positive predictive value of the HEART score in predicting 30-day MACE was 52.8% (95% CI: 46.4% to 59.1%). The specificity of HEART score to predict 30-day MACE was 44.9% (95% CI: 38.2% to 51.8%).

HEART score performed as an excellent triage tool, correctly identifying all patients with AMI at index visit as well as all patients with 30-day MACE, giving a sensitivity and a NPV of 100% for both the outcomes. The specificity and PPV were only modest for both the

outcomes but that is the inevitable trade off to achieve 100% sensitivity and NPV. The negative likelihood ratio of the HEART score for predicting 30-day MACE was 0, once again confirming that it is an excellent rule-out tool for patients presenting to ED with chest pain.

Table 4: The HEART score in predicting 30-day MACE

	30-day MACE		Total
	Present	Absent	
HEART positive group	133	119	252
HEART negative group	0	97	97
	133	216	349

* p value < 0.001 calculated by chi-square test

Coronary angiography was performed based on the clinical gestalt and contemporary troponin results. Neither the HEART score nor the high-sensitive troponin T values was used to decide the need for coronary angiography. Coronary angiography (CAG) was performed in 144 (41.1%) of the 350 patients at 30-day follow-up. The proportion of patients who underwent CAG and who had significant CAD in each group is shown in table 5. None of the patients who underwent CAG in the HEART negative group had significant CAD.

Table 5: Coronary angiography details of our study patients*

	HEART positive AMI at index visit present (n = 88)	HEART positive AMI at index visit absent (n = 165)	HEART negative AMI at index visit absent (n=97)
CAG done within 30 days	57/88 (64.8%)	70/165 (42.4%)	17/97 (17.5%)
Significant CAD on CAG	49/57 (86%)	45/70 (64.3%)	0/17

*None of the patients in the HEART negative group had AMI at the index visit

Looking at the HEART score in another way, we divided patients into 3 groups – low (0-3), intermediate (4-6), and high (7-10) risk. 27.7% belonged to low-risk, 49.4% belonged to intermediate-risk, and 22.9% belonged to high-risk group. The incidence of AMI at the index visit in low, intermediate and high-risk groups was 0, 35.3%, and 33.8%, respectively. The incidence of 30-day MACE in low, intermediate and high-risk groups was 0, 42.8%, and 73.8%, respectively.

Table 5: Incidence of acute myocardial infarction at the index visit and 30-day MACE in our study

HEART score risk group	Acute myocardial infarction at the index visit	30-day MACE
HEART score 0-3 Low-risk (n=97; 27.7%)	0	0
HEART score 4-6 Intermediate-risk (n=173; 49.4%)	61 (35.3%)	74 (42.8%)
HEART score 7-10 High-risk (n=80; 22.9%)	27 (33.8%)	59 (73.8%)

Discussion:

The mean age of our patients was 53.3±10.3 years, which is a few years younger compared to other studies. We excluded patients above 70 years; also Indians develop CAD a decade earlier compared to the Western population.[11,12] Two-thirds of our patients were men. None of the women were smokers in our study, a well-known cultural feature of Indian women.[13] In our study, nearly half the patients had diabetes mellitus. The prevalence of diabetes mellitus is much higher in India and occurs at an earlier age with lower BMI as compared to the Western countries.[14]

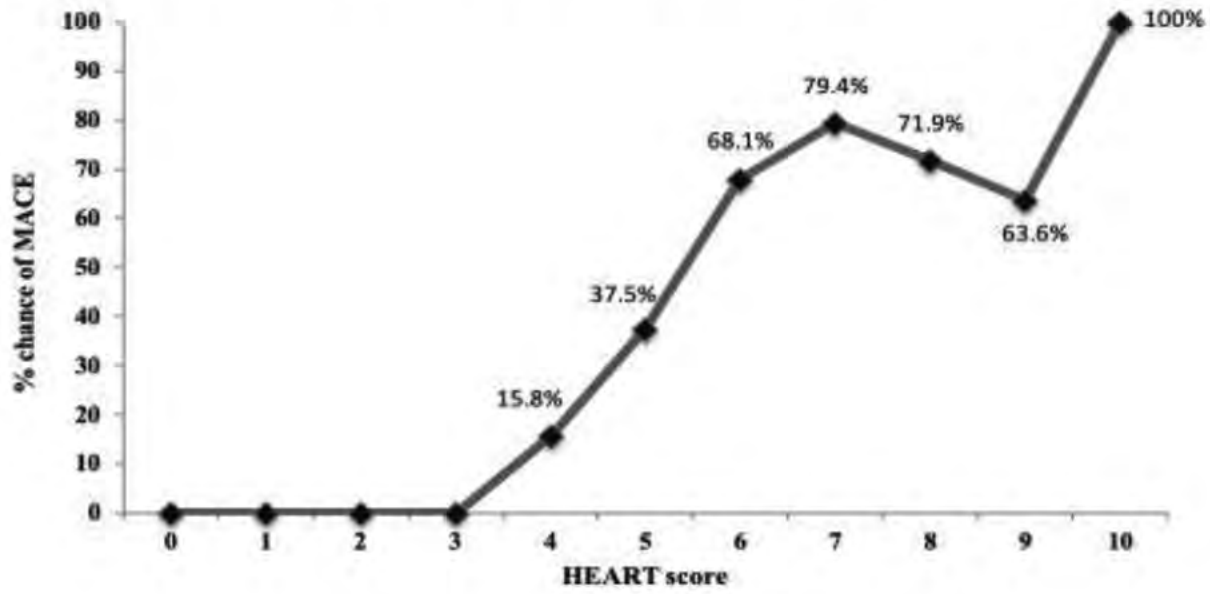
The mean HEART score in our study was 4.82 (±2.21) similar to the findings in other studies.[6,7] Patients in the HEART negative group had neither AMI at the index visit nor 30-day MACE. None of the previous studies have reported the diagnostic accuracy of the HEART score for identifying AMI at the index visit. The sensitivity and NPV of 100% for 30-day MACE in our study was comparable to several other studies.[10,15–18] In a meta-analysis

by Laureano-Phillips et al., the pooled sensitivity was 96% (95% CI: 93%–98%), and the pooled NPV was 99% (95% CI: 98%–99%) for short-term MACE.[19]

30-day MACE occurred in 133 of the 252 patients (38.1%) in the HEART positive group in our study (excluding one patient who lost to follow-up).

The incidence of 30-day MACE in each positive HEART score follows an almost linear relationship except in HEART scores 8 and 9 (figure 1). This is because of the smaller number of patients in those HEART scores.

Figure 1: Incidence of 30-day MACE in each HEART score group



In contrast to other studies, none of the patients in our study died during the 30-day follow-up for MACE.[5–7,10] This is because we excluded non-ST-elevation ACS patients with complications such as significant arrhythmias and cardiogenic pulmonary edema, which contribute to mortality in them.[20–22] Also, patients were included in the study only if they had

chest discomfort. Patients with atypical symptoms without chest pain, were not included in the study, and are known to have a worse prognosis than those who present with chest pain.[23,24] The specificity of the HEART score in predicting 30-day MACE in our study was 44.9% (95% CI: 38.2% to 51.8%), which was comparable to other studies (table 5). The meta-analysis by Laureano-Phillips et al. also reported a pooled specificity of 42% (95% CI: 36%–49%).[19] The PPV in our study was 52.8% (95% CI: 46.4% to 59.1%), which is comparatively higher than that of the other studies (table 5). The pooled PPV reported by Laureano-Phillips et al. was only 19% (95% CI: 14%–24%).[19] This is because ours was a recent study conducted between 2019 and 2020, and we had the privilege of using high-sensitive troponin to identify acute myocardial infarction at the index visit, which is also a major adverse cardiac event (MACE). It is well known that the diagnostic accuracy for acute myocardial infarction significantly increases with high-sensitive troponin assays than with conventional ones.[25] A recent study in 2019 using high-sensitive troponin I by Torralba et al. showed a higher PPV (54%) similar to our study.[26]

Table 6: Diagnostic accuracy of the HEART score in predicting short-term MACE in our study compared with other studies

Diagnostic accuracy measure	Comparison of various studies					
	Our study (2019)*	Patnaik et al.[18] (2017)[$]	Santi et al.[10] (2016)*	Bolvardi et al.[17] (2016)*	Baugh et al.[16] (2016)*	Mahler et al.[15] (2015)*
Sensitivity (%)	100	100	100	100	100	100
NPV (%)	100	100	100	100	100	100
Specificity (%)	44.9	40	44	14	60	50
PPV (%)	52.8	26	24	27	10	11

* 30-day MACE; $ 45-day MACE

The incidence of 30-day MACE in the intermediate and high-risk groups was 42.8% and 73.8%, respectively, which is much than that reported in other studies. As explained earlier, high-sensitive troponin used in our study to identify AMI at the index visit, which is also a MACE, has improved the diagnostic accuracy and hence the increased incidence of 30-day MACE compared to other studies (table 6). Torralba et al. reports a similar higher incidence of 30-day MACE in the intermediate and high-risk groups (table 6) using high-sensitive troponin.[26]

Table 7: Comparison of incidence of MACE in our study in each HEART score risk group with other studies

HEART score risk group	Incidence of MACE (%)				
	Studies which used high-sensitive troponin		Studies which used contemporary troponin		
	Our study (2019)*	Torralba et al.[26] (2019)*	Backus et al.[7] (2013)$	Backus et al.[6] (2010)$	Six et al.[5] (2008)#
Low-risk	0	3.1	1.7	0.9	2.5
Intermediate-risk	42.8	46.2	16.6	11.6	20.3
High-risk	73.8	93.7	50.1	65.2	72.7

* 30-day MACE; $ 45-day MACE; # 90-day MACE

Strengths:

We followed up all the patients for 30 days from the index visit to identify MACE. The prospective nature, use of serial high-sensitive troponin levels to identify MI at the index visit, and 30-day follow-up for MACE are the major strengths of our study. Very few studies in India evaluated the performance of the HEART score. Ours is the only Indian study that used high-sensitive troponin to identify acute myocardial infarction at the index visit.

Limitations:

Ours was a single-centre study conducted in a tertiary care referral hospital which limits the generalizability of results. Patients were included in the study only if they had chest discomfort. Patients with atypical symptoms without chest pain, which is more common in the elderly, were not included in the study. This is a major drawback as these patients are known to have a worse prognosis than those who present with chest pain.

Conclusion:

350 patients presenting to the emergency department with chest pain of at least 5 minutes were enrolled in our study. None of the 97 patients in the HEART negative group had acute myocardial infarction at the index visit or 30-day MACE. The HEART score showed 100% sensitivity and 100% NPV for acute myocardial infarction at the index visit as well as 30-day MACE. Thus, our study suggests that if the HEART score were adopted for risk stratification of patients presenting to the emergency department with chest pain, over a quarter of the patients could be discharged immediately.

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114:795–802.

Pub No: OP-043

Evaluation of the relationship of hemogram parameters with prognosis in older adults with acute abdominal pathologies

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INTRODUCTION

The increasing older adults across the world affects hospital systems, discharge rates, and health-related costs. Elective or emergency surgery should be carefully evaluated in older adults. Among patients over 65 years, emergency presentations mostly due to neurological dysfunctions are more common than outpatient clinic presentations. In this patient population, approximately 40% of gastrointestinal operations requiring surgical care occur after emergency presentations (1,2). However, emergency surgical interventions cause a three- to five-fold increase in mortality compared to elective surgery (2,3).

Although comorbidities, medications used, communication difficulties, and insufficient information about a patient's health history are known problems for older adults, the importance of prognostic factors increases with surgical diseases due to the possibility of operation.

Acute abdominal pathologies are a frequent reason for admission in older adults. It is important to evaluate the effects of these parameters on the prognosis separately in all older adults, as well as in operated and non-operated older adults, in terms of operation decision.

In this study, we aimed to investigate the effects of hemogram parameters, comorbidities, and findings on the short-term mortality of older adults with acute abdominal pathologies. Secondly, it was aimed to investigate the effect of hemogram parameters on mortality in operated and non-operated patients.

MATERIAL AND METHOD

Study Design

This retrospective observational study was conducted in the emergency medicine clinic of Ümraniye Training and Research Hospital between June 1, 2019, and June 1, 2020. Our hospital is a tertiary education and research institute with 836 beds, and it receives 2.8 million presentations per year.

Study Population

Patients over 65 years who presented to our emergency department with acute abdominal pathologies were screened from the hospital computer-based data system (Health Information System [HIS]).

Data collection

All the patients were examined in terms of demographic data, including age, gender, comorbidities,symptoms and findings at the time of emergency presentation, diagnoses at the time of hospitalization, hemogram parameters (WBC, neutrophil (NEU), lymphocyte (LYM), HGB, HCT, MCV, and RDW), neutrophillymphocyte ratio and clinical outcomes (hospitalization, intensive care admission, referral to an external center, death in the emergency department, and discharge). The relationship between hemogram parameters and mortality in all older adults with a prediagnosis of acute abdomen was investigated. Our patient group was divided into two as operated and nonoperated patient groups. The correlation of comorbidity, operation history, symptoms, findings and hemogram parameters with mortality in both groups were evaluated separately.

RESULTS

A total of 744 patients, 391 (52.6%) female, were included in the study. Of all the patients, 114 (15.32%) died. The median age was 77.5 (66–98) years for the mortality group and 77 (66–105) years for of the surviving patients, with no significant difference between the two groups (p=0.389). (Table.1)

Eighty-three (11.2%) of the patients underwent surgery during their follow-up in our hospital. Thirteen (11.4%) of the operable patients died either after hospitalization (n=8; 61.5%) or after admission to the intensive care unit (n=5; 38.5%). There was a significant difference between the operable and non-operated groups in terms of clinical outcomes (p<0.001).

In the non-operable group, there was a statistically significant relationship between patients diagnosed with gastrointestinal bleeding (p=0.001), mesentery ischemia (p=0.013), pancreatitis (p=0.001), decubitus ulcer (p=0.005), Biliary colic (p=0.012), Malignancy (p<0.001) and mortality. There was a significant relationship between WBC (p<0.001; p=0.001, respectively), NEU (p<0.001; p=0.001, respectively), NLR (p<0.001; p=0.002, respectively) and mortality in both operable and non-operable groups. There was statistical significance between HGB (p=0.008) and HTC (p=0.024) and mortality only in the non-operable group.

Table 1. Relationship between the demographic characteristics, comorbidities, symptoms, findings of the older adults surgery patients and their mortality status

	Total	Survivor	Mortality	p
Age (mean,+)	77 (66-105)	77 (66-105)	77.5 (66-98)	0.389
Gender (n,%)				0.228
Female	391 (52.6)	337 (53.5%)	54 (47.4%)	
Male	353 (47.4%)	293 (46.5%)	60 (52.6%)	
Comorbidities (n,%)				
HT	365 (49.1%)	307 (48.7%)	58 (50.9%)	0.673
DM	188 (25.3%)	158 (25.1%)	30 (26.3%)	0.78
CAD	255 (34.3%)	210 (33.3%)	45 (39.5%)	0.204
CKD	68 (9.1%)	54 (8.6%)	14 (12.3%)	0.206
CVD	57 (7.7%)	44 (7%)	13 (11.4%)	0.103
Asthma	3 (0.4%)	3 (0.5%)		0.607
Malignancy	142 (19.1%)	115 (18.3)	27 (23.7%)	0.175
COPD	75 (10.1%)	58 (9.2%)	17 (14.9%)	0.063
History of operation (n,%)	219 (29.4%)	190 (30.2%)	29 (25.4%)	0.309
Symptoms (n,%)				
Abdominal pain	319 (42.9%)	287 (45.6%)	32 (28.1%)	0.001
Fever	53 (7.1%)	50 (7.9%)	3 (2.6%)	0.043
Vomiting	192 (25.8%)	151 (24%)	41 (36%)	0.007
Diarrhea	42 (5.6%)	34 (5.4%)	8 (7%)	0.49
Constipation	107 (14.4%)	95 (15.1%)	12 (10.5%)	0.202
Syncope	12 (1.6%)	4 (0.6%)	8 (7%)	<0.001
Chest pain	19 (2.6%)	17 (2.7%)	2 (1.8%)	0.557
Headache	7 (0.9%)	6 (1%)	1 (0.9%)	0.708
Fatigue	87 (11.7%)	69 (11%)	18 (15.8%)	0.139

Findings (n,%)				
Abdominal tenderness	283 (38%)	249 (39.5%)	34 (29.8%)	0.05
Abdominal guarding	73 (9.8%)	65 (10.3%)	8 (7%)	0.276
Abdominal rebound	17 (2.3%)	14 (2.2%)	3 (2.6%)	0.735
Hematochezia	74 (9.9%)	62 (9.8%)	12 (10.5%)	0.822
Hematemesis	11 (1.5%)	1 (0.2%)	10 (8.8%)	<0.001
Melena	8 (1.1%)	6 (1%)	2 (1.8%)	0.445

Chi-square test was used. HT, hypertension; DM, diabetes mellitus; CAD, coronary artery disease; COPD, chronic obstructive pulmonary disease; CKD, chronic kidney disease; CVD, cerebrovascular disease.

Table 2. Relationship between clinical outcomes, LOHS, clinical diagnoses ,hematological parameters of the older adults surgery patients and their mortality status

	Total	Survivor	Mortality	p
Clinical outcomes (n,%)				<0.001
Hospitalization	418 (56.2%)	362 (57.5%)	56 (49.1%)	
Intensive care admission	43 (5.8%)	29 (4.6%)	14 (12.3%)	
Referral to external center	27 (3.6%)	12 (1.9%)	15 (13.2%)	
Death in emergency department	6 (0.8%)	0	6 (5.3%)	
Discharge	250 (33.6%)	227 (36%)	23 (20.2%)	
LOHS	47.5 (1-2420)	52 (1-2420)	39 (3-741)	0.943
Clinical diagnoses				
Acute appendicitis	26 (3.5%)	23 (3.7%)	3 (2.6%)	0.417
Ileus	77 (10.3%)	68 (10.8%)	9 (7.9%)	0.35
GIS bleeding	70 (9.4%)	50 (7.9%)	20 (17.5%)	0.001
Mesentery ischemia	8 (1.1%)	4 (0.6%)	4 (3.5%)	0.006
Perforation	14 (1.9%)	7 (1.1%)	7 (6.1%)	<0.001
Pancreatitis	59 (7.9%)	59 (9.4%)	0	0.001
Cholecystitis	67 (9%)	62 (9.8%)	5 (4.4%)	0.061
Abscess	15 (3.5%)	11 (2%)	4 (3.5%)	0.218
Hernia	54 (7.3%)	52 (8.3%)	2 (1.8%)	0.014
Multi-trauma	21 (2.8%)	17 (2.7%)	4 (3.5%)	0.631
Diverticulitis	5 (0.7%)	5 (0.8%)	0	0.434
Decubitus ulcer	5 (0.7%)	2 (0.3%)	3 (2.6%)	0.005
Subcutaneous hematoma	8 (1.1%)	7 (1.1%)	1 (0.9%)	0.824
Biliary colic	45 (6%)	44 (7%)	1 (0.9%)	0.012
Cholangitis	23 (3.1%)	19 (3.0%)	4 (3.5%)	0.78
Cholelithiasis/choledocholithiasis	39 (5.2%)	35 (5.6%)	4 (3.5%)	0.367
Malignancy	53 (7.1%)	36 (5.7%)	17 (14.9%)	<0.001
Other	229 (30.8%)	190 (30.2%)	39 (34.2%)	0.388

Table 2. Relationship between clinical outcomes, LOHS, clinical diagnoses ,hematological parameters of the older adults surgery patients and their mortality status

	Total	Survivor	Mortality	p
Clinical outcomes (n,%)				<0.001
Hospitalization	418 (56.2%)	362 (57.5%)	56 (49.1%)	
Intensive care admission	43 (5.8%)	29 (4.6%)	14 (12.3%)	
Referral to external center	27 (3.6%)	12 (1.9%)	15 (13.2%)	
Death in emergency department	6 (0.8%)	0	6 (5.3%)	
Discharge	250 (33.6%)	227 (36%)	23 (20.2%)	
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Diverticulitis	5 (0.7%)	5 (0.8%)	0	0.434
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Other	229 (30.8%)	190 (30.2%)	39 (34.2%)	0.388

Table 2. Relationship between clinical outcomes, LOHS, clinical diagnoses ,hematological parameters of the older adults surgery patients and their mortality status

	Total	Survivor	Mortality	p
Hematological parameters				
WBC	10.9 (0.95-95.08)	10.62 (1.93-95.08)	11.8 (0.95-66.17)	0.002
NEU	8.6 (0.59-92.14)	8.43 (1.21-92.14)	9.95 (0.59-62.46)	0.001
LYM	1.2 (0.15-9.54)	1.34 (0.15-9.54)	1.17 (0.28-8.07)	0.027
HGB	12.1 (2.6-19.0)	12.3 (2.6-18.9)	11.2 (4.9-19.0)	0.004
HCT	37.2 (9.0-61.1)	37.5 (9.0-61.1)	35.1 (15.5-58.1)	0.013
MCV	87.8 (55.3-117.2)	87.8 (55.3-117.2)	88.2 (57.1-111.1)	0.726
RDW	28.7 (13.6-38.4)	28.8 (13.6-38.2)	28.3 (17.6-38.4)	0.074
NLR	6.6 (0.75-99.67)	6.17 (0.75-99.67)	8.8 (1.20-66.45)	<0.001
Total	744	630	114	

The diagnostic test performance analyses hemogram parameters of WBC, NEU, MCV, RDW, NLR, and LOHS in predicting mortality revealed that WBC, NEU, and NLR were statistically significant in predicting mortality, with the AUC value being calculated as 0.590 (0.553–0.625) for WBC at a cut-off value of 10.83, 0.596 (0.560–0.632) for NEU at a cut-off value of 9.64, and 0.606 (0.569–0.641) for NLR at a cut-off value of 8.24 (p=0.002; p=0.001; and p>0.001, respectively) (**Table 5** and **Figure 2**). When we compared the AUC values of parameters WBC, NEU, and NLR in a pair wise manner using the DeLong quality test, we found no statistically significant difference between these parameters (p=0.386 for WBC vs. NEU; p=0.565 for WBC vs. NLR; and p=0.673 for NLR vs. NEU).

Table 3. Relationship between the demographic characteristics, comorbidities, symptoms, findings of the operable and non-operated patients and their mortality status

	Operable				Non-operated			
	Total	Survivor	Mortality	p	Total	Survivor	Mortality	p
Age (mean,±)	76 (67-96)	76 (67-96)	77 (70-95)	0.212	78 (66-105)	78 (66-105)	78 (66-98)	0.635
Gender (n,%)				0.917				0.187
Female	50 (60.2%)	42 (60.0%)	8 (61.5%)		341 (51.6%)	295 (52.7%)	46 (45.5%)	
Male	33 (39.8%)	28 (40.0%)	5 (38.5%)		320 (48.4%)	265 (47.3%)	55 (54.5%)	
Comorbidities (n,%)								
HT	40 (48.2%)	34 (48.6%)	64 (6.2%)	0.873	325 (49.2%)	273 (48.8%)	52 (51.5%)	0.613
DM	23 (27.7%)	19 (27.1%)	4 (30.8%)	0.788	165 (25.0%)	139 (24.8%)	26 (25.7%)	0.844
CAD	23 (27.7%)	17 (24.3%)	6 (46.2%)	0.106	232 (35.1%)	193 (34.5%)	39 (38.6%)	0.421
CKD	6 (7.2%)	4 (5.7%)	2 (15.4%)	0.514	62 (9.4%)	50 (8.9%)	12 (11.9%)	0.349
CVD	1 (1.2%)	1 (1.4%)	-	-	56 (8.5%)	43 (7.7%)	13 (12.9%)	0.085
Asthma	1 (1.2%)	1 (1.4%)	-	-	2 (0.3%)	2 (0.4%)		0.548
Malignancy	9 (10.8%)	8 (11.4%)	1 (7.7%)	0.691	133 (20.1%)	107 (19.1%)	26 (25.7%)	0.126
COPD	14 (16.9%)	8 (11.4%)	6 (46.2%)	0.002	61 (9.2%)	50 (8.9%)	11 (10.9%)	0.531
History of operation (n,%)	22 (30.8%)	18 (25.7%)	4 (26.5%)	0.705	197 (29.8%)	172 (30.7%)	25(24.8%)	0.228
Symptoms (n,%)								
Abdominal pain	54 (65.1%)	48 (68.6%)	6 (46.2%)	0.12	265 (40.1%)	239 (42.7%)	26 (25.7%)	0.001
Fever	5 (6%)	4 (5.7%)	1 (7.7%)		48 (7.3%)	46 (8.2%)	2 (2.0%)	0.026
Vomiting	19 (22.9%)	16 (23.1%)	3 (22.9%)		173 (26.2%)	135 (24.1%)	38 (37.6%)	0.004
Diarrhea	3 (4.3%)		3 (3.6%)		39 (5.9%)	31 (5.5%)	8 (7.9%)	0.349
Constipation	12 (14.5%)	8 (11.4%)	4 (30.8%)	0.069	95 (14.4%)	87 (15.5%)	8 (7.9%)	0.045
Syncope	1 (1.2%)		1 (7.7%)	0.342	11 (1.7%)	4 (0.7%)	7 (6.9%)	<0.001
Chest pain	1 (1.2%)	1 (1.4%)			18 (2.7%)	16 (2.9%)	2 (2.0%)	0.618
Headache					7 (1.1%)	6 (1.1%)	1 (1.0%)	0.941
Fatigue	7 (8.4%)	4 (5.7%)	3 (23.1%)	0.127	80 (12.1%)	65 (11.6%)	15 (14.9%)	0.358

Table 4. Relationship between clinical outcomes, clinical diagnoses, hematological parameters, LOHS of the operable and non-operated patients and their mortality status

	Operable				Non-operated			
	Total	Survivor	Mortality	p	Total	Survivor	Mortality	p
Clinical outcomes (n,%)				<0.001				<0.001
Hospitalization	74 (89.2%)	66 (94.3)	8(61.5%)		344 (52.0%)	296 (52.9%)	48 (47.5%)	
Intensive care admission	7 (8.4%)	2 (2.9%)	5 (38.5%)		36 (5.4%)	27 (4.8%)	9 (8.9%)	
Referral to external center					27 (4.1%)	12 (2.1%)	15 (14.9%)	
Death in emergency department					6 (0.9%)		6 (5.9%)	
Discharge	2 (2.4%)	2 (2.9%)			248 (37.5%)	225 (40.2%)	23 (22.8%)	
Clinical diagnoses								
Acute appendicitis	17 (20.5%)	16 (22.9%)	1 (7.7%)	0.213	9 (1.4%)	7 (1.3%)	2 (2.0%)	0.56
Ileus	12 (14.5%)	10 (14.3%)	2 (15.4%)		65 (9.8%)	58 (10.4%)	7(6.9%)	0.287
GIS bleeding	2 (2.4%)	2 (2.9%)		0.537	68 (10.3%)	48 (8.6%)	20 (19.8%)	0.001
Mesentery ischemia	5 (6.0%)	3 (4.3%)	2 (15.4%)	0.122	3 (0.5%)	1 (0.2%)	2 (2.0%)	0.013
Perforation	13 (15.7%)	6 (8.6%)	7 (53.8%)	<0.001	1 (0.2%)	1 (0.2%)	0 (0.0%)	0.671
Pancreatitis	7 (8.4%)	7 (10.0%)		0.517	52 (7.9%)	52 (9.3%)	0(0.0%)	0.001
Cholecystitis	12 (14.5%)	11 (15.7%)	1 (7.7%)	0.45	55 (8.3%)	51 (9.1%)	4 (4.0%)	0.085
Abscess	4 (4.8%)	3 (4.3%)	1 (7.7%)		11 (1.7%)	8 (1.4%)	3 (3.0%)	0.265
Hernia	14 (16.9%)	14 (20.0%)		0.172	40 (6.1%)	38 (6.8%)	2 (2.0%)	0.062
Multi-trauma					21 (3.2%)	17 (3.0%)	4 (4.0%)	0.626
Diverticulitis					5 (0.8%)	5 (0.9%)		0.34
Decubitus ulcer					5 (0.8%)	2 (0.4%)	3 (3.0%)	0.005
Subcutaneous hematoma	1 (1.2%)	1 (1.4%)			7 (1.1%)	6 (1.1%)	1 (1.0%)	0.941
Biliary colic					45 (6.8%)	44 (7.9%)	1 (1.0%)	0.012
Cholangitis					23 (3.5%)	19 (3.4%)	4 (4.0%)	0.775
Cholelithiasis/choledocholithiasis					39 (5.9%)	35 (6.3%)	4 (4.0%)	0.369
Malignancy	4 (4.8%)	4 (5.7%)		0.858	49 (7.4%)	32 (5.7%)	17 (16.8%)	<0.001
Other					229 (34.6%)	190 (33.9%)	39 (38.6%)	0.362

Table 5. ROC analysis of hematological parameters and LOHS for 30-day mortality

	AUC	P value	Cut-offvalue	Sensitivity	Specificity	PPV	NPV	Accuracy	95% CI
WBC	0.590	0.002	10.83	65.8	51.4	19.7	89.3	17.22	0.53-0.64
NEU	0.596	0.001	9.64	54.4	62.4	20.7	88.3	16.77	0.53-0.65
MCV	0.510	0.736	88.9	48.2	58.3	17.3	86.2	6.5	0.45-0.57
RDW	0.553	0.074	29	65.79	45.87	18	88.1	11.6	0.39-0.50
NLR	0.606	<0.001	8.24	57.9	63.3	22.2	89.3	21.23	0.55-0.66
LOHS	0.502	0.940	53	38.6	50.3	12.3	81.9	11.09	0.44-0.55

ROC, receiver operating characteristic; LOHS, length of hospital stay; AUC, area under the curve;PPV, positive predictive value; NPV, negative predictive value; CI, confidence interval; WBC, white blood cell; NEU, neutrophil; MCV, mean corpuscular volume; RDW, red cell distribution width; NLR, neutrophil/lymphocyte rat

DISCUSSION

In this study, WBC, NEU, and NLR were found to be statistically significant in predicting mortality in patients with geriatric surgery indications. When we compared the AUC values of these three parameters, we found no statistically significant difference between them. LYM had a statistically significant relationship with mortality only in the operated group. To the best of our knowledge, there is no other study investigating the relationship between hemogram parameters and mortality in patients presenting to the emergency department with acute abdominal pathologies.

In the literature, older adults have mostly been evaluated in studies undertaken in the fields of gastric or oncological surgery, and the effects of hemogram parameters on postoperative mortality and prognosis have been examined. In a study examining factors affecting mortality in older adults undergoing elective surgery, Kim et al. found a statistically significant relationship between high WBC and low HGB and mortality. In a study investigating acute kidney injury after Cardiac surgery in older adults, it was determined that HGB values were statistically significantly correlated with the development of acute kidney injury.

In our study population, there was a statistically significant relationship between WBC elevation, low HGB and HTC levels, and mortality. While no statistically significant difference was observed in the HGB and HCT values of the operable and non-operated groups, WBC was significantly higher in the former.

No statistically significant relationship was observed between RDW levels and mortality in any of the patient groups, regardless of operation status.

Limitations

The single-center design of our study is a serious limitation. Differences in the diagnoses of the patients also limited the comparisons performed according to operation status. Lastly, we compared short-term mortality according to only emergency surgery operations, and we did not have data on elective surgeries scheduled to be performed 30 days after presentation. Another limitation of this study was we couldn't compare the medications of patients between groups that may affect the results of study

CONCLUSION

In this study, WBC, NEU, and NLR were determined to have a statistically significant ability to predict mortality in older adults presenting with acute abdominal pathologies, but their accuracy rates were low.

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Pub No: OP-044

Development of an extreme gradient boosting machine in the prediction of multiple sclerosis

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ABSTRACT

Objective: In this study, it was aimed to predict multiple sclerosis and non- multiple sclerosis and determine the most important risk factors with the machine learning-based XGBoost prediction model.

Method: The data set used in the study consists of demographic and clinical information about patients with and without multiple sclerosis. XGBoost, a machine learning algorithm, was used to classify multiple sclerosis disease. The performance of the created model was evaluated with accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-score, MCC, and G-mean metrics.

Results: The performance metrics, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-score, MCC, and G-mean values obtained from the XGBoost model are 97.4, 97.4, 97.6, 97.3, 96.8, 97.9, 97.2, 94.8, and 97.4, respectively. Periventricular MRI, initial Symptom, and age were determined to be the most important first three variables in predicting multiple disease.

Conclusion: When the prediction performance of the XGBoost classification model was examined, the constructed model performed well. Periventricular MRI, which is the most important feature in predicting multiple disease disease as a result of the model with high accuracy, is currently a method used in diagnosing multiple disease. In addition, it is thought that the initial symptom of the model, which has a significance value very close to periventricular MRI, may be useful in diagnosing multiple disease clinically.

Keywords: Clinical classification, Extreme Gradient Boosting, Multiple sclerosis, Machine Learning.

Introduction

Multiple Sclerosis (MS) is an autoimmune, chronic and demyelinating disease that usually affects the central nervous system (CNS) in individuals aged 20-40 years. The disease was reported by Jean Martin Charcot in 1868 as a new nervous system disease. While it was defined only as cases before the 20th century, it has been among the common diseases since the beginning of the 20th century. Considering the age of onset of the disease, it is observed that less than 1% of the patients appear in childhood and approximately 2-10% after the age of 50 (1). Although the prevalence of the disease varies according to the geographical region, it is known that there are approximately 1 million patients with MS in the world. MS is one of the most important diseases that cause disability affecting physical, emotional, social and cognitive functions. The disease, which progresses with attacks, shows clinical differences from person to person, and over time, sudden worsening, recovery or spontaneous improvement can be seen. The disease usually causes severe irreversible neurological disability over 10-30 years. While it is more common in young adults; advancing age increases the death rate (2). In the formation of MS, the etiology of which is not clear, both genetic and environmental factors have been reported (3). MS is a disease that consists of a combination of environmental factors, viral/bacterial factors, cytokines released by inflammatory and autoimmune response and some etiological factors in individuals with genetic predisposition. While MS is not a hereditary disease, the frequent occurrence of the disease in blood related people shows that genetic factors have an important place in the etiology (4).

Technologies such as machine learning, artificial intelligence and data analytics today increase business intelligence, improve operational efficiency and shorten processing time, and offer practical applications that quickly discover security vulnerabilities (5). Providing machines with access to big data and providing fast and effective solutions to complex problems provides significant savings and stability in various sectors. For this reason, the intensity of work on machine learning is increasing day by day. The XGBoost algorithm is one of the supervised machine learning algorithms, which is based on the decision tree algorithm, which has been frequently used in regression and classification problems recently. XGBoost algorithm is an algorithm that produces good solutions to classification problems and increases model performance against excessive learning during model training (6).

The aim of this study is to classify MS disease and determine the risk factors associated with this disease by applying XGBoost machine learning technique to an open-access dataset consisting of individuals with and without MS.

Material and Methods

Dataset

The dataset used in this study includes information on patients undergoing a prospective cohort study of Mexican mestizo patients newly diagnosed with CIS who applied to the National Institute of Neurology and Neurosurgery (NINN) in Mexico City between 2006 and 2010 (7). The dataset consists of attributes such as gender, age, schooling (time the patient spent in school (in years)), breastfeeding, varicella, initial symptom, mono or polysymptomatic, oligoclonal bands, LLSSEP, ULSSEP, VEP, BAEP, periventricular MRI, cortical MRI, infratentorial MRI, and spinal cord MRI for 272 subjects (MS= 125, non-MS=148).

Extreme Gradient Boosting (XGBoost)

Extreme Gradient Boosting (XGBoost) algorithm has many advantages over other known machine learning methods and algorithms due to the optimization of the Gradient Boosting algorithm (GBM), preventing over-learning, managing empty data, being fast and most importantly having high predictive power. is a method. It was originally developed by Chen and Guestrin in 2016. Chen and Guestrin (2016) stated in their study that the XgBoost algorithm works 10 times faster than other known algorithms (8). It is seen that the use of boosting algorithms for regression and classification trees performs better. XGBoost has good predictive power as well as computational ease compared to other well-known popular machine learning methods.

Modelling

The 5-fold cross-validation technique was used in the creation of the XGBoost model from the Decision Tree Ensembles class to classify MS (9). Performance evaluation of the established model was evaluated with accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-Score, G-mean and Matthews Correlation Coefficient (MCC) (10).

Results

The performance metrics for the formed XGBoost model and the 95% confidence interval for these metrics are given in Table 1.

Table 1. The metrics of the XGBoost model classification performance and 95% confidence intervals

Metrics	Value	95% Confidence Interval
Accuracy	97.4	95.5-99.3
Balanced Accuracy	97.4	95.5-99.3
Sensitivity	97.6	93.1-99.5
Specificity	97.3	93.1-99.2
Positive Predictive Value	96.8	92.1-99.1
Negative Predictive Value	97.9	94.1-99.6
F1-Score	97.2	95.3-99.2
MCC	94.8	92.2-97.4
G-Mean	97.4	95.5-99.3

The importance values of variables related to possible risk factors for MS determined by the XGBoost model are shown in Figure 1. The performance metrics, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-score, MCC, and G-mean values obtained from the XGBoost model are 97.4, 97.4, 97.6, 97.3, 96.8, 97.9, 97.2, 94.8, and 97.4, respectively.

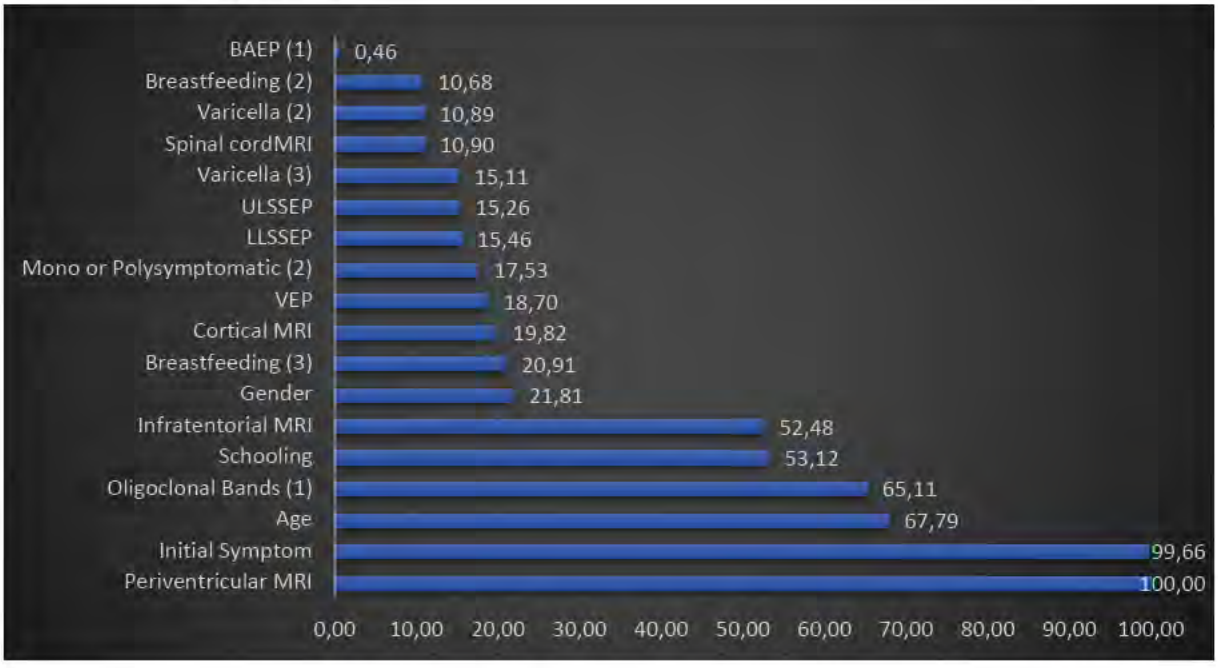

Figure 1. The importance values of variables related to possible risk factors for MS determined by the XGBoost model

DISCUSSION

This study amalgamates cutting-edge machine learning techniques, a meticulously curated open-access dataset, and a fervent commitment to unraveling the mysteries of MS. Through the synergy of these components, the research aspires to not only enhance our understanding of this complex neurological disorder but also pave the way for more effective diagnostic and therapeutic strategies, offering renewed hope and improved outcomes for individuals impacted by MSMS is a neurological disorder primarily observed in adults between the ages of 20 and 40. This condition affects the central nervous system, which comprises crucial components such as the brain, cerebellum, brain stem, and spinal cord. The term "multiple sclerosis" is derived from the presence of sclerosis, referring to hardening, occurring in multiple areas of the brain. This sclerosis arises as a consequence of damage inflicted on the tissues. Within the intricate network of the central nervous system, nerve cells play a pivotal role in transmitting impulses electrically. These impulses enable the seamless communication and coordination of various bodily functions. To facilitate this communication, nerve cells possess elongated projections known as axons, which act as conduits for relaying signals. The nerve cells are further safeguarded by a protective covering known as myelin. Notably, myelin serves a dual purpose: it shields the nerve cells from harm and aids in the efficient transmission of signals. In individuals afflicted with multiple sclerosis, the delicate balance of the central nervous system is disrupted. Both the axons and the myelin sheath can be subjected to damage across different regions of the brain (11). As a consequence, the transmission of nerve impulses becomes compromised, leading to a cascade of neurological issues. The extent of the nervous system damage determines the array of complications that may arise, impacting sensory perception, speech, vision, balance, and mobility. The consequences of multiple sclerosis are highly variable and can manifest in a spectrum of symptoms. Sensory disturbances might result from interrupted nerve signal propagation, potentially causing altered sensations or tingling. Speech difficulties can emerge due to disrupted neural pathways affecting language centers. Visual impairments may stem from compromised communication between the eyes and the brain. Disturbances in balance and walking may arise as a consequence of impaired coordination

between the central nervous system and the musculoskeletal system (12). The intricate interplay of axons, myelin, and nerve cells, which is vital for seamless neurological function, becomes perturbed in multiple sclerosis. This condition exemplifies the delicate harmony required for the proper functioning of the central nervous system and underscores the profound impact that disruptions within this system can have on an individual's overall well-being (13). In the field of MS, ML approaches have often focused on the automatic examination of MRI images to classify disease at the time of onset or to predict the evolution of clinically isolated forms, following the flourishing stream of image analysis (14, 15). In addition, machine learning algorithms created to classify MS disease using clinical data are also available in the literature (16, 17). In this study, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, F1-Score, G-mean and Matthews Correlation Coefficient (MCC) values of the association rules used to construct the XGBoost model method created using to classify the MS were determined as 97.4, 97.4, 97.6, 97.3, 96.8, 97.9, 97.2, 94.8, and 97.4, respectively. In the light of these findings, the MS classification performance of the model created is quite good.

CONCLUSION

As a result, the model constructed using XGBoost has a distinctive feature in classifying MS according to performance metrics. Periventricular MRI, which is the most important feature in predicting multiple disease disease as a result of the model with high accuracy, is currently a method used in diagnosing multiple disease. In addition, it is thought that the initial symptom of the model, which has a significance value very close to periventricular MRI, may be useful in diagnosing multiple disease clinically.

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Pub No: OP-045

COMPARISON OF REPUBLIC OF TURKEY CITIZENS AND REFUGEES IN COVID-19 POSITIVE PATIENTS

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Summary

We compared the socio-economic, background, clinical progress, treatment and outcomes of the citizens of the Republic of Turkey (T.C.) who applied to the emergency service and were found to be positive for the coronavirus disease (Covid-19) and refugees. We aimed to guide new decisions that can be taken in the light of the data we found and health services in possible new pandemics.

4733 patients were included in the study. 3724 of these patients (78.7%) were in T.C. citizens and 1009 of them were Syrian refugees. A total of 2568 (54.3%) patients were male. There was a history of additional disease in 1067 (22.5%) of the patients. The most common comorbidity was found to be hypertension (n=612, 12.5%). While 3619 (76.5%) of the patients were discharged with the recommendation of home quarantine after the emergency service outcome; home quarantine rate T.C. While it was 76.8% (n=2861) among Turkish citizens, it was determined as 75.1% (n=758) among foreign nationals. . In our study, invoice values and ferritin levels were determined by T.C. It was found that there was a significant decrease in the citizens. There was a significant increase in male gender and use of favipiravir, heparin, ASA and antibiotics in Syrian refugees.

We think that the ignorance of these data about the existence of chronic diseases of foreign nationals and the difficulties in reaching preventive health services may have been the cause. We think that the language barrier in treatment leads physicians to polypharmacy. Language training in the temporary integration of asylum seekers and more active interpreter support by hospitals may change this data. Because, while chronic disease is less common in foreign patients, it is observed that they are followed up with multiple drug therapy. It has been determined that the average cost is high among foreign nationals.

Keywords: Syrian refugees, COVID-19, invoice value, cost

Introduction

Defined as a disease of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, Coronavirus Disease 2019 (Covid19) has been recently defined as an infectious disease that primarily affects the respiratory system of humans (1). The first case in Turkey was described on March 11, 2020 (2). In our study, considering the effect of the pandemic on the

society, the rate of spread in the society, and the clinical effects it shows, the presence and types of additional diseases between our guests and citizens under temporary protection and refugees, inpatient treatment status, the outcome of the treatment at the first application, and the 6-month We aimed to investigate the outcome and some laboratory parameters (neutrophil count, lymphocyte count, ferritin, ddimer, platelet, fibrinogen, CRP) and financial disciplinary values such as invoice value.

Material And Method

Between 15.03.2020 and 15.06.2020, who applied to the adult emergency department of Bursa Yüksek İhtisas Training and Research Hospital with the symptoms of COVID-19 and had a positive COVID-19 RT-PCR test, aged 18 and over, of both genders. All patients with full access to the study data were included, who had a citizenship identity, did not have a refugee/refugee background and were in the status of refugee/refugee under temporary protection.

Study data missing, under 18 years old, negative RT-PCR test, pregnant, T.C. Patients with a refugee/refugee background and those who have a national identity and asylum seeker/refugee patients from countries other than Syria were excluded from the study.

Since our study was retrospective, demographic information (age, gender, nationality), presence of additional disease, 6-month mortality, neutrophil count, lymphocyte count, d-dimer, ferritin, fibrinogen, platelet, CRP values from the laboratory parameters, obtained from the files of the patients, and clinical data of the patient. The result of the emergency with the diagnosis was recorded in the electronic form.

Results

A total of 4733 patients were included in the study. Of these patients, 3724 (78.7%) were citizens of the Republic of Turkey (T.C.). The median age of the patients included in the study was 41 years (IQR 25-75: 30-54). T.R. The median age of the foreign nationals was 42 years (IQR 25-75: 31-55), while the median age of the foreign nationals was 37 years (IQR 25-75: 27-52). 2568 (54.3%) of the patients were male. Proportion of male patients T.C. While it was 49.9% for Turkish citizens, this rate was found to be 70.5% for foreign nationals. There was a history of additional disease in 1067 (22.5%) of the patients. The most common comorbidity was found to be hypertension (n=612, 12.5%)

While the average invoice value of the patients was 199.93 ± 673.78 TL, the invoice value was T.C. It was determined as 200.15 ± 757.76 TL for Turkish citizens and 199.10 ± 103.01 TL for foreign nationals.($p<0.05$)

No statistically significant correlation was found in the Chi-square/Fisher'sExact test, which was performed to investigate whether there was a relationship between the emergency room outcome and nationality ($p>0.05$).

In the Chi-square/Fisher'sExact test performed to investigate whether there is a relationship between the agents used in the treatment of COVID-19 and their nationality, a statistically significant relationship was found between the use of Favipiravir, heparin, acetyl salicylic acid (ASA) and antibiotics, respectively, and the nationality of the patients. [($p<0.05$), ($p<0.001$), ($p<0.05$), and ($p<0.05$)]. It was observed that the use of favipiravir, heparin, ASA and antibiotics was higher in foreign nationals.

Variables		Turkish Citizen		Foreign National		Total	
Variables		n	%	n	%	N	%
Emergency room Outcome	Home Quarantine	2861	76.8	758	75.1	3619	76.5
	Service admission	729	19.6	211	20.9	940	19.9
	Busy Care admission	48	1.3	14	1.4	62	1.3
	Other	86	2.3	26	2.6	112	2.4
Hospitalization after diagnosis of COVID-19	None	3495	93.9	944	93.6	4439	93.8
	There is	229	6.1	65	6.4	294	6.2
New disease diagnosis after COVID-19	No	3589	96.4	961	95.2	4550	96.1
	Yes		3.6	48	4.8	183	3.9
New diagnosis of ACS after COVID-19	No	3695	99.2	997	98.8	4692	99.1
	Yes	29	0.8	12	1,2	41	0.9
New diagnosis of LVH after COVID-19	No	3712	99.7	1005	99.6	4717	99.7
	Yes	12	0.3	4	0.4	16	0.3
NewPTE after COVID-19	No	3718	99.8	1006	99.7	4724	99.8
	Yes	6	0.2	3	0.3	9	0.2
Other new disease after COVID-19 diagnosis	No	3621	97.2	972	96.3	4593	97
	Yes	103	2.8	37	3.7	140	3
Mortality within 6 months after COVID-19	No	3658	98.2	981	97.2	4639	98
	Yes	66	1.8	28	2.8	94	2
	Total	3724	100	1009	100	4733	100

Variables	Turkish Citizen	Foreign Nationality	Total
Age, median IQR (25-75) years	42 (31-55)	37 (27-52)	41 (30-54)
Urgent Service Application median IQR (25-75)	0 (0-1)	0 (0-1)	0 (0-1)
Invoice Value, mean ± SD, TL	200.15 ± 757.76	199.10 ± 103.01	199.93 ± 673.78
Neutrophil number, mean ± SD	4.16 ± 2.07	4.26 ± 2.26	4.19 ± 2.11
Lymphocyte number, mean ± SD	1.78±1.49	1.71±0.88	1.77±1.39
Platelet count , mean ± SD	224.49 ± 83.50	223.75 ± 90.47	224.34 ± 85.01
D-dimer, ng/mL, mean±SD	0.65±1.66	0.64±1.20	0.65±1.58
Ferritin ml/ng, average± SD	175.63±200.69	210.45±275.54	183.03±219.18
Fibrinogen mg/ dL,mean± SD	342.57±150.17	321.48±165.90	338.05±153.90
CRP, mg/ dL,mean ± SD	28.75 ± 59.28	36.08 ± 70.21	30.30 ± 61.82

Discussion

The mean age of the applicants in our study was 41. 78.7% of the applicants were from T.C. While they were Turkish citizens, 21.3% were foreign nationals. In a study, 3.24% of all patients who applied to the emergency department were found to be Syrian immigrants. The reason for this difference may be the examination of the total applications made in the study. Again in the same study, the male sex ratio was found to be 49.50% and the female sex ratio was 50.50%, and the results were similar to our study (3).

In the study of Zhou et al. in Wuhan, a total of 191 COVID-19 patients were examined, and a total of 38% of them were female and 62% male; 30% of the survivors were female and 70% male. In the gender comparison, the p value was determined as 0.15 and it was found to be insignificant. Again, in this study, hypertension and diabetes were the most common chronic diseases and were found to be associated with mortality (4). The results included similar results with our study.

In our study, T.C. The average cost for Turkish citizens was 200.15 ± 757.76 TL (29.4 ± 111.4 USD), while the average cost for Syrian refugees was 199.10 ± 103.01 TL (29.27 ± 15.14 USD). When comparing the variables, a significant high difference was found among foreign citizens. In a similar thesis study conducted on COVID-19 patients, the average value per person was determined as 12126.37 TL (1460.96 USD). However, intensive care expenditures are also included in this value. The mean cost of outpatients was found to be 523.86 ± 311.33 TL (62.99 ± 37.4 USD) in this study (5). We thought that the cost difference with our study was that the total number of patients in this study remained at 257 and the intensive care hospitalization expenses were included. We think that the numerically small sample pool and the inclusion of intensive care expenditures may have shown the average cost to be high. . Li et al. In a study conducted in 2020, a total of 70 COVID-19 patients were examined. The overall average cost was US$6827 per case treated. Again, the inclusion of intensive care expenditures of inpatients in this study increases the per capita cost. In a study conducted in a tertiary education and research hospital, the total cost analysis in a COVID-19 service in 2020 was made, and the selected service spent 724,750.37 TL (120,791,727) annually for medical consumables (6).
A total of 6646 patients were evaluated in a study that included all one, two and tertiary care hospitals in Sakarya and the billed values of the patients were calculated. In this study, an average of 1006.5 USD for male patients and 910.8 USD for female patients was determined. The average cost for male patients including ward and intensive care hospitalization was 2825.2 USD and for female patients 2986.6 USD. In this study, no significant difference was found between gender and bill values, but a significant difference was found in patients over 50 years of age (7). According to our study, the inclusion of the payments made according to the Health Practice Communiqué (SUT) of the patients in the invoice values can be shown as the reason for including high values.

Conclusions

We think that the ignorance of these data about the existence of chronic diseases of foreign nationals and the difficulties in reaching preventive health services may have been the cause. We think that the language barrier in treatment leads physicians to polypharmacy. Language training in the temporary integration of asylum seekers and more active interpreter support by hospitals may change this data. Because, while chronic disease is less common in foreign patients, it is observed that they are followed up with multiple drug therapy. It has been determined that the average cost is high among foreign nationals.

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Pub No: OP-047

Predictive Effect of PECARN Score in Pediatric Patients with Minor Head Trauma

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Objective: Clinical decision rules can help to determine the need for CT imaging in children with head injuries. We aimed to validate PECARN clinical decision rule in a large sample of children.

Methods: Patients younger than 18 years of age who applied to the emergency department within 24 hours after suffering a head injury will be included in the study. Our retrospective study will be completed in accordance with the Declaration of Helsinki Principles. During the clinical evaluation of the patients, the effectiveness of the PECARN algorithms will be evaluated.

Result: A total of 244 patients were included in this study. Of these patients, 199 (81.5%) received CT examination and 45 (18.4%) patients did not receive any CT examination. None of these 45 patients showed clinically important traumatic brain injury (ci TBI). Among 199 patients who received CT examination, 72 (30%) patients met the PECARN rules criteria and 127 (52%) patients did not meet PECARN rules criteria. None of the patients who received CT examination and did not meet the PECARN rules criteria showed ci TBI. Among 72 patients who recieved a CT examination and also met the PECARN rules criteria, only 4 (1.6%) patients showed ci TBI. According to these results, the rate of compliance with PECARN rules in our institution ED was 50.9%.

Conclusion: It was determined that the accuracy rate was low in the results obtained using all the guidelines of PECARN. As a result of this information, we would like to take attention to the avoidance of unnecessary CT but considering the environmental conditions the final decision is the clinician's.

Key words: Children; computed tomography; head injury; PECARN.

Pub No: OP-048

An Unusual Cause of Optic Neuritis: Scabies

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Abstract

Human scabies is a parasitic skin infection caused by *Sarcoptes scabiei var. hominis*. Disease symptoms depend on the host's immune response to the invasion of *Sarcoptes* mites. Optic neuritis is an inflammatory and demyelinating disease of the optic nerve. T-cell activation and cytokines are implicated in its pathogenesis. Considering the inflammatory processes of both diseases, coexistence is not surprising. So far, scabies has never been reported among the etiopathogenesis of optic neuritis. In our study, a previously healthy 22-year-old male patient was presented to the emergency department with complaints of blurred vision in the left eye and left eye pain associated with eye movements. An orbital MRI revealed a slight increase in thickness and mild T2 hyperintensity in the left optic nerve. In addition, an erythematous, an excoriated papule, and a hemorrhagic crust were seen on the glans penis and scrotum. Our case is one of optic neuritis possibly triggered by scabies. Pathophysiological mechanisms causing scabies and optic neuritis include inflammatory processes mediated by the immune system. Triggering factors are of great importance in the pathophysiology of autoimmune diseases. For example, in this case report, scabies appeared as a triggering factor. Clinicians should be aware of scabies disease as one of the potential causes of optic neuritis.

Introduction

Human scabies is a skin parasitic infection caused by *Sarcoptes scabiei var. hominis*. Its incidence is approximately between 0.3% and 46.0% (1). In recent years, the incidence of scabies has increased exponentially all over the world, with the greatest incidence in those coming from countries with a high prevalence of scabies (i.e., refugees and asylum seekers)

(2). Disease symptoms depend on the host's immune response to the invasion of *Sarcoptes* mites. This response is a T cell-mediated protective response (3). The most common symptoms are papular skin rash and severe itching (1). Optic neuritis is a demyelinating inflammation of the optic nerve. Major symptoms of optic neuritis are sudden unilateral loss of vision (partial or complete) and pain in movement of the affected eye (4). Demyelination in optic neuritis is immune-mediated. T-cell activation and cytokines are implicated in its pathogenesis. Its annual incidence is approximately 5 per 100,000 (4). Etiological factors are very diverse: bacterial infections (Lyme disease, cat-scratch disease, syphilis, etc.), viral causes (measles, mumps, herpes, etc.), parasites (Toxoplasmosis, Toxocariasis), fungal infections (Cryptococcus, Candidiasis), autoimmune diseases, drugs, and vaccination. (5,6). The underlying pathophysiological mechanism in both scabies and optic neuritis is the activation of T cells (7). Considering the inflammatory processes of both diseases, coexistence is not surprising. So far, scabies has never been reported among the etiopathogenesis of optic neuritis.

Case Study

A previously healthy 22-year-old male patient was presented to the emergency department with complaints of blurred vision in the left eye and left eye pain associated with eye movements. For two weeks, the patient had severe itching that increased at night and in the heat outdoors. He and his family had no history of demyelinating or autoimmune disease. There was no focal neurologic deficit, and his systemic examination was unremarkable. There was pain in the medial and upward gaze in the left eye on globe movements. The patient described visual field loss in the left eye. In the right eye, the best corrected visual acuity (BCVA) was 1.0; the intraocular pressure (IOP) was 14; and the anterior segment and fundus were normal. In the left eye, the BCVA was 0.4; the IOP was 12; and the anterior segment was normal. However, a fundus evaluation revealed an elevation and irregularity of the optic disc borders, and subretinal fluid was present. These findings were consistent with optic neuritis. The patient's brain tomography was normal. No demyelinating lesion was observed in the brain MRI. The orbital MRI revealed a slight increase in thickness and mild T2 hyperintensity in the left optic nerve. Except for the white blood cell count (11) and C-reactive protein count

(123), all laboratory values were within the normal reference range. Hematologic counts, coagulation tests, urinalysis, rheumatoid factor, erythrocyte sedimentation rate, and Lumbar puncture were all normal. The viral panel, including COVID-19, toxoplasmosis, syphilis, HIV, hepatitis C, hepatitis B, Epstein-Barr, Herpes-Simplex Virus, and cytomegalovirus, was negative. The immunological panel, including Lyme disease, vitamin B12 level, IgG, and ANA, was also negative. An erythematous, an excoriated papule and a hemorrhagic crust were seen on the glans penis and scrotum.

In consultation with dermatology, the diagnosis of scabies was confirmed, and treatment was arranged. Ophthalmology recommended follow-up at 15-day intervals after a few days of hospitalization. In an eye examination performed one month later, the BCVA on the left was normal (1.0). Oral steroid therapy was discontinued by reducing 5 mg every five days.

Discussion

Optic neuritis has a long list of etiologies. It is believed that optic neuritis develops as a result of the immune system being triggered for an unknown reason and attacking the optic nerve. (8). This can occasionally occur after an infection, but there is no obvious reason why the immune attack occurs. Scabies is a contagious, immune-mediated inflammatory skin disease whose incidence has increased in recent years. Pathophysiological mechanisms causing scabies and optic neuritis include inflammatory processes that are mediated by the immune system (7). In a large-scale, population-based cohort study, it has been shown that there may be a possible relationship between scabies and autoimmune diseases (e.g., hypersensitivity vasculitis, dermatomyositis, systemic lupus erythematosus, and myasthenia gravis) (9,10). Triggering factors are of great importance in the pathophysiology of autoimmune diseases. For example, in this case report, scabies appeared as a triggering factor.

Our case is one of optic neuritis possibly triggered by scabies. To the best of our knowledge, this is the first case to show a possible relationship between scabies and optic neuritis. It is important to clarify the shared etiologies, and diseases should be considered to have multifactorial causation. Illnesses are best understood and controlled by focusing on their causes. Clinicians should be aware of scabies as one of the potential causes of optic neuritis.

We believe that scabies disease should be added to that long list of etiologies of optic neuritis. Larger case-controlled studies are needed to confirm this association.

Pub No: OP-056

Structure of Emergency Calls During COVID-19 Pandemic in Kazakhstan

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Introduction and Purpose. The COVID-19 pandemic has become the largest global public health issue. There was a huge rise in the workload for all areas of the medical system, particularly the ambulance services and emergency departments. The aim of the study: to assess the structure of emergency calls at an ambulance station in Kazakhstan in the period 2019–2021.

Materials and methods. We have analyzed the structure of emergency calls in the Republic of Kazakhstan for the period of 2019-2021. It was conducted descriptive, population-based cross-sectional study. All data provided by the ambulance stations of 16 regions of the Republic Kazakhstan. We have analyzed the structure of emergency calls in the Republic of Kazakhstan for the period of 2019-2021. It was conducted descriptive, population-based cross-sectional study. All data provided by the ambulance stations of 16 regions of the Republic Kazakhstan. The study was carried out of the project "AP14871609 "Optimizing the structure and improving the efficiency of the emergency medical service in Kazakhstan by training people without medical education (medical technicians)".

Results and conclusion. All emergency cases were divided into 11 categories: infections, cardio-vascular disorders, trauma and poisoning, traffic accidents, obstetrics and gynecology, neurological, respiratory, gastrointestinal, acute surgical, urinary tract diseases and others. In comparison to 2019 and 2020, there was a notable increase in all categories in 2021. The number of calls for the first, second, and third categories of urgency increased significantly between 2019 and 2021 (1st category p=0.006, 2nd category p=0.002, 3rd category p=0.001) as well as between 2020 and 2021 (p=0.001). There is a rise in practically all categories in

2019–2021 and 2020–2021, which is related to an increase in the overall number of calls due to pandemic.

Keywords: COVID-19, emergency, ambulance service

Pub No: OP-057

An Aortic Dissection Case Complicated With Pulmonary Tromboembolism

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Introduction:

Pulmonary thromboembolism is a common and potentially life-threatening medical condition. It is a condition in which occlusion of the pulmonary artery branches occurs due to thrombus. It usually develops as a result of the progression of thrombi previously formed in the veins of the lower extremities to the pulmonary arteries. Massive pulmonary embolism leads to right ventricular dysfunction and cardiogenic shock. Shock usually develops within the first hour after the onset of symptoms and death usually occurs within the first hour. In one study, mortality in acute pulmonary embolism was found to be 11.9%. (1)

Aortic dissection is the most common aortic pathology requiring emergency surgery. Blood enters between the media and intima layers of the aortic wall. Separation occurs between these layers forming the aortic wall. aortic dissection is a medical condition with high mortality rates. The most common causes are hypertension and Marfan syndrome (2).

Simultaneous diagnosis of two high mortality medical conditions such as pulmonary thromboembolism and aortic dissection is rare. The aim of this study is to present a case of a patient who presented to the emergency department with chest pain and dyspnea and was subsequently diagnosed with pulmonary embolism and aortic dissection and to review the literature in terms of this case association.

Case:

A 76-year-old man presented to the emergency department with shortness of breath and back pain. The patient said that he had fatigue for a few days, chills and shivering, but he did not measure his body temperature. His medical history revealed chronic obstructive pulmonary disease, congestive heart failure, coronary artery disease and coronary bypass operation 2 years ago. His medications included acetylsalicylic acid, clopidogrel, salbutamol, formeterol and metoprolol. Arterial blood pressure (BP) was 123/94 mmHg, pulse rate was 96/min and temperature was 37.7 degrees Celsius at the time of admission. Fingertip saturation was 98. Blood was drawn for complete blood count (CBC), emergency biochemistry and cardiac marker tests. An electrocardiogram (ECG) was performed and it was observed that he was in atrial fibrillation rhythm of approximately 100/min. White blood cell count (WBC) was 21,000 and CRP was 16.2 mg/dl. The patient's troponin value was normal. Blood gas pH: 7.330, HCO3: 19.8 meq/L, PCO2: 36.2 mmHg. Contrast-enhanced thoracic and abdominal computed tomography angiography (CT angiography) was planned because the patient continued to have severe back pain. CT angiography revealed dissection in both ascending and descending aorta (image 1). Thrombus was also detected in both main pulmonary arteries on thorax CT (image 2). The patient was consulted with cardiovascular surgery, pulmonology and anesthesia departments. The anesthesia department said that they could not intern the patient because there were no available beds in their intensive care unit. The pulmonology department stated that the patient should first be evaluated by the cardiovascular surgery department for surgical needs.

The cardiovascular surgery department requested that the patient be referred to a center where dissection surgery could be performed. The patient was transferred to the appropriate center by ambulance. It was learned that the patient underwent cardiac arrest while in the intensive care unit, did not respond to the intervention and died.



Image 1: Aortic dissection at CT angiography.



Image 2: Pulmonary occlusion in CT angiography

Discussion:

Aortic dissection and pulmonary embolism are diagnoses with high mortality. Although their coexistence is rare, there are a few cases reported in the literature. When the cases reported in the literature were analyzed, it was observed that the majority of the patients had a history of hypertension and immobility. It has been reported that most of the patients had admitted to emergency services with severe back and chest pain and dyspnea (3,4,5,6,7,8). Our patient had no history of hypertension or any condition that would cause immobility. The patient presented to the emergency department with severe back pain and dyspnea.

Risk factors for pulmonary embolism can be divided into hereditary and acquired. Hereditary risk factors include family history, Factor V Leiden mutation, Protein C deficiency, antithrombin deficiency, sickle cell trait, protein S deficiency. Acquired causes include immobility, oral contraceptive use, malignancies, cardiopulmonary diseases and advanced age. (9) The most important risk factors for aortic dissection are connective tissue diseases and hypertension. Our patient had no risk factors for either diagnosis except that he was 76 years old.

The most common symptoms of pulmonary embolism are chest pain and shortness of breath. The most common finding on electrocardiogram (ECG) is sinus tachycardia. Echocardiogram shows signs of right heart overload, septal paradoxical motion and increased pulmonary artery pressure. Blood gas analysis shows hypoxia and hypocarbia. Ddimer elevation is not specific for pulmonary embolism, but negative ddimer results are meaningful in terms of ruling out the diagnosis of pulmonary embolism. The gold standard in the diagnosis of pulmonary thromboembolism is pulmonary artery CT angiography. (10) In our patient, atrial fibrillation of 100/min was detected on ECG. Echocardiography was not performed. Thoracic and abdominal

CT angiography showed large thrombus in both main pulmonary arteries and the diagnosis of pulmonary embolism was confirmed.

Aortic dissection is classified according to the level at which dissection begins in the aorta. The most commonly used classifications are the Stanford and De bakey classifications. Cases with involvement of the ascending aorta and progression to the descending aorta are called Stanford A, while only involvement of the descending aorta is called Stanford B. De bakey 1 refers to both descending and ascending aorta involvement. De bakey 2 refers to dissection only in the ascending aorta and De bakey 3 refers to dissection only in the descending aorta. Dissection of the ascending aorta has a high mortality rate. Ascending aortic dissection always requires emergency surgery. Dissection of the descending aorta is also not a benign clinical entity, but it is less fatal than dissection of the ascending aorta. (11) It is observed that the cases of coexistence of pulmonary embolism and aortic dissection in the literature usually involve Stanford type A dissection (3). In our case, dissection was present in both the ascending and descending aorta and classified as De bakey type 1, Stanford A.

The appearance of an intimal flap on Transesophageal Echocardiography (TEE) is characteristic for aortic dissection. The flap separates the true and false lumen. During systole, the flap makes pulsatile movements due to the higher pressure in the true lumen. Contrast-enhanced tomography and MR can also be used in the diagnosis of aortic dissection (12). In our patient, cardiac echo was not performed and CT angiography was planned. The appearance of dissection in the descending and ascending aorta was detected in this way. Since our patient had dissection involving the ascending aorta, surgical treatment had to be planned.

The mortality rate of cases of pulmonary embolism and aortic dissection in the literature is quite high. In a case report and literature review study by Gross- gean et al. with 4 cases, it was shown that 2 patients died and 2 patients survived with medical treatment after surgery. All four of the cases in the study were Stanford type A dissections (7). In the case reported by Halefoğlu in 2012, the patient had type B aortic dissection with a large aortic aneurysm. The patient was discharged after surgery with appropriate treatment (8). Our patient who had type A aortic dissection associated with pulmonary thromboembolism went into cardiac arrest during the planning of surgery and died.

Conclusion:

The association of pulmonary embolism and aortic dissection is a diagnosis with a very high mortality rate. It should be considered in the prediagnosis of patients presenting to the emergency department with severe chest and back pain and a history of immobility and hypertension. Early diagnosis and early surgical treatment in appropriate patients will be significant in terms of survival.

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Pub No: OP-058

Factors in Vaccine Refusal by Patients Applying for Covid-19 PCR Test

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Objective: This study was organized to determine the reasons for vaccine refusal in patients who applied for Covid-19 PCR test but did not receive vaccine.

Methodology: The study included 1000 patients who applied to Göztepe Prof. Dr. Süleyman Yalçın City Hospital Emergency Department for Covid-19 PCR test and refused to be vaccinated between 31.01.2022-31.05.2022. In this prospective study, demographic characteristics of the participants, Covid-19 status, reasons for admission, number of PCR tests, methods of obtaining information for vaccination, vaccine safety and reasons for vaccine refusal were questioned. The results were compared statistically and the data were discussed.

Findings: 54.6% of participants were male and 45.4% were female. 60.7% of the patients presented for testing because they had symptoms, 25.4% because they had contact with symptomatic people and 23.9% because of travel/activity. 43.3% of our cases had had Covid-19 infection; 53.6% had been tested an average of 2-5 times in the last year. Information about the vaccine was obtained from social media (35.5%), television (24.1%), medical publications (20.6%) and people in the neighborhood (19.8%). While 60.2% of the participants thought that childhood vaccines should be administered, 62.0% believed that Covid-19 vaccines had side effects, 47.3% believed that they were not protective, and 30.9% believed that there were not enough studies on the subject. Those with university degrees had lower confidence in the effectiveness of vaccines. Most of those in the 31-65 age group (29.2%) learned about vaccines from TV, while the majority of those in the 18-30 age group (40.2%) learned about vaccines from social media.

Conclusion: The most common reasons for Covid-19 vaccine refusal are anxiety about vaccine side effects, doubts about the protection of the vaccine and lack of sufficient studies on this subject. Refusal to be vaccinated is more common in men. The rate of vaccine refusal increases as the level of education increases. The majority of the group refusing vaccination think that childhood vaccines should be administered. While young people learn about vaccination mostly from social media, as the age increases, this information is mostly obtained from television news.

Keywords: Covid-19, vaccine efficacy, vaccine refusal,

INTRODUCTION

The coronavirus disease 2019, caused by the SARS-CoV-2 pathogen that causes acute respiratory failure, emerged in Wuhan, China in December 2019 and caused a pandemic worldwide[1]. This disease normally occurs in animals. There are many theories about how it is transmitted to humans. The most prominent claim is that it is thought to be transmitted from bats in the animal market in Wuhan city due to its similarity with Batcow[2(p2)]. Typical symptoms of Covid-19 include fever, cough and shortness of breath. It can be transmitted as asymptomatic or mild upper respiratory tract infection, or it can cause severe pneumonia, multiple organ failure and consequently serious mortality[3]. According to the World Health Organization (WHO), there were 762,791,152 cases and 6,897,025 deaths as of April 12, 2023[4].

Antiviral drugs such as darunavir nonpeptidyl HIV-1 protease inhibitor, noraminidase inhibitor Oseltamivir, lopinavir and ritonavir combination, favipravir were tried in order to reduce morbidity and mortality in the treatment of Covid-19 disease[5–8]. However, their efficacy and complications became controversial in the ongoing processes and they were removed from treatment[9–11]. Steroids can be used in moderate and painful cases, but routine use of corticosteroids is not recommended as it suppresses cytokine storm[9].

Vaccine studies accelerated in Covid-19 disease because the drugs used did not reach sufficient efficacy. Advances in molecular biology and developments in vaccine technology accelerated the production of different vaccines. For this purpose, inactivation of the live pathogen (inactivated vaccines), virus-like particles (VLP, i.e. synthetically produced antigens of pathogens), viral vectors, nucleic acid-based vaccines (mRNA, DNA vaccines) were produced and put into use. SinoVac, TurkoVac, Biontech, AstraZeneca, Moderna and Sputnik vaccines in Turkey[10]. Free access to these vaccines was provided throughout the country.

Refusal to accept the vaccine despite having access to it is defined as refusal to be vaccinated[11]. Vaccine refusal is always present in a certain segment of every society and the reaction continues to increase. Opponents of vaccination may also include health professionals. The most prominent vaccine refusal attitude emerged in 1840 against the smallpox vaccine[12]. In general, vaccine safety, adverse effects of vaccines, reservations based on religious beliefs, reservations based on disinformation, doubts about the real need for vaccines, misinformation about the effectiveness of vaccines are the most important reasons

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for refusal to vaccinate[13]. Family histories, opinions of friends, and previous personal experiences are among the personal reasons for vaccine refusal[14].

These reasons may also lead people to doubt the vaccination of their own children. As a result, the desired success in reducing the morbidity and mortality of the disease is not achieved.

In this study, we investigated the reasons for Covid-19 vaccine refusal, the perspective of Covid-19 vaccine refusers towards childhood vaccines, the ways in which individuals obtained information about Covid-19 vaccine and the demographic characteristics of the participants. With this, we aimed to understand and implement measures that can be taken to eliminate or reduce our participants' reservations about the Covid-19 vaccine.

METHOD

The place where the study was conducted: This study was conducted prospectively between January 31, 2022 and May 31, 2022 with 1000 participants who applied to Istanbul Göztepe Prof. Dr. Süleyman Yalçın City Hospital for PCR testing and refused to be vaccinated.

Source of ethics: Ethics Committee Approval dated 09.02.2022 and numbered 2022/0075 was taken from Istanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital Clinical Research Ethics Committee.

Analyzed data: Patient's gender, age, educational status, occupation, reasons for application, presence of chronic diseases, where they obtained information about vaccination, status of getting Covid-19 disease, number of tests for Covid-19, their knowledge and comments on childhood vaccines, reasons for vaccine refusal for Covid-19,

How patient data is collected: For the sake of standardization, data from patients admitted only during the hours when the study coordinator was actively working in the admission area were recorded. At the time of admission, after the normal systemic examinations of the patients were performed, PCR tests were duly obtained, and the necessary treatments were administered, the data required for the study were collected. The purpose and objectives of the study, the fact that personal information would not be shared with third parties and that the results could be published academically were clearly explained to the patients. The data of the patients who accepted the conditions were included in the study.

Inclusion criteria:

- Being over eighteen years of age
- Having a PCR test for covid-19
- Refusing to be vaccinated for Covid-19
- Not Having the disease severe enough to require hospitalization due to Covid-19
- Voluntarily participating in the study and agreeing to the scientific publication of their data

Although our study was conducted prospectively on 1000 subjects, individuals who accepted the Covid-19 vaccine were not included in the study, so no comparison could be made with this group. The effect of the data of individuals who did not accept the existence and mortality of Covid-19 and believed that it was a conspiracy theory and therefore did not give Covid-19 PCR test on vaccine refusal could not be evaluated.

Data analysis: In the study, the questionnaire was conducted directly by the author of the study and recorded by the same person. The data were transferred to IBM SPSS Statistics 23 program. While evaluating the study data, frequency distribution (number, percentage) was given for categorical variables. Chi-square test was used for the relationship between variables. $P<0.05$ was accepted for significance.

FINDINGS

Most of the participants were between 18-30 years of age (49.8%), male (54.6%), university graduates (52.6%), actively working (94.4%) and without any chronic disease (82.6%). 60.2% of the participants stated that vaccines should be administered in childhood; only 43.3% had Covid-19; the most important source of information about vaccination was social media (35.5%); the most important reason for wanting to be tested (60.7%) was their symptoms; 18.3% had been tested at least ten times in the last year (Table 2). The top three reasons for refusing vaccination for Covid-19 were vaccine side effects, insufficient studies on the subject and insufficient information about the vaccine.

The results of the distribution of Covid-19 exposure, childhood vaccinations, number of tests performed in the last year, sources of information about vaccination and reasons for refusal to be vaccinated are presented in Table 3. Accordingly, males had Covid-19 at a higher rate (48.5%) than females ($p=0.001$); they used social media more to obtain information about the vaccine ($p=0.001$). However, male participants were more likely to be undecided about childhood vaccination (26.7%). Women were more likely than men (27.8%) to follow medical publications to learn about vaccines ($p=0.001$). The proportion of men (53.8%) who believed that the vaccine had no protective effect was higher than that of women.

The results of the comparison of educational status and other parameters are summarized in Table 4. Accordingly, those with university education stated that childhood vaccines should not be administered at a higher rate (20.6%) than those with lower education (primary and high school) ($p=0.001$) and that they used social media to obtain

information about vaccines at a higher rate (47.9%) (p=0.001). University students and university graduates reported that they had been tested less frequently in the past year; they were more likely to believe that the vaccine had side effects (62.6%) and that the vaccine had no protective effect (52.8%) (Table 4.4). Regarding the source of information for vaccination, high school graduates (29.0%) were more likely than university graduates (20.6%) to follow medical publications.

Comparison of age and other parameters is shown in Table 5. In our study, age distribution was evaluated in three groups as 18-30 years, 31-55 years and 56-65 years. Patients younger than 18 years of age were not included in this study because they were admitted to the pediatric emergency department. In addition, we did not have any patient aged >65 years. Accordingly, the rate of having Covid-19 disease was close to each other in the age groups (p=0.514). Those in the 31-55 age group were more likely (74.0%) to state that childhood vaccines should be administered (p=0.001). Those in the 18-30 age group were more likely (40.2%) than others to have accessed information about vaccines through social media (p=0.001). In all three age groups, the maximum number of vaccinations received in a year was between two and five (p=0.001). The number of tests performed in a year increased with increasing age. The highest rate of receiving ten or more vaccinations in a year (24.3%) was found in the 56-65 age group. Regarding the source of vaccine acquisition, the groups were similarly influenced by their environment. Those aged 56-65 years had more tests (Table 4.5). Younger and middle-aged people were more concerned about the side effects of the vaccine and more likely to report that they believed the vaccine was not protective than those aged 56 and over. Those who refused vaccination due to other diseases (18.5%), who stated that the vaccine would cause other diseases (39.0%), who stated that they did not have enough information about the vaccine (34.6%), and who stated that the substances contained in the vaccine were dangerous (28.7%) were higher in the group older than 56 years. In our study, the rate of participants who were concerned that the vaccine caused infertility was 8.2% (n=82) in general.

The proportions of those who had and had not had Covid-19 who believed that childhood vaccines should be administered were close to each other (61.7% and 59.1%, respectively).

Constraints

One aspect of our study that is different from other studies is that it only included individuals who applied for Covid-19 testing but refused to be vaccinated. In this prospective study of 1000 subjects, individuals who accepted the Covid-19 vaccine were not included, so no comparison could be made with this group. At the same time, individuals who completely refused the vaccine, did not believe in Covid-19, believed that Covid-19 was a conspiracy theory and did not give a PCR test could not be included in the study. Therefore, the effect of the demographic structure of these groups on vaccine refusal could not be evaluated.

As a result, only individuals who were tested for Covid-19 but refused vaccination were included in our study. Regardless of age, gender and educational status, our participants mostly refused to be vaccinated on the grounds that vaccines contain side effects, have no protective effects and that there were not enough studies. The belief that the vaccine had no protective effect was higher in men. Refusal rates increased with increasing educational attainment. Women were more likely to object to childhood vaccines. Social media was used at the highest rate to

obtain information about vaccines. The younger the age, the more social media was used as a source of information. One out of every five participants referred to people in their neighborhood as a source of information. Sixty percent of the participants applied to the emergency room due to their symptoms. One out of every ten participants reported that they did not believe in Covid-19.

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WACEM'23
WORLD ACADEMIC CONGRESS OF EMERGENCY MEDICINE
October, 26 - 31 ISTANBUL | Pine Beach Belek, ANTALYA / TURKIYE

Pub No: OP-059

Schadenfreude Towards Doctors: A Validity and Reliability Study of Schadenfreude Scale

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ABSTRACT

One of the most pressing issues in the world, particularly in Turkey, is violence against healthcare workers. Studies show that violence in healthcare is on the rise worldwide. Violence against healthcare workers is on the rise in Turkey, and despite the laws in place, this trend cannot be stopped. In light of this, in addition to legal requirements and preventive measures, the problem of violence in healthcare should be approached from various angles and social awareness should be raised. For this reason, our study tackles the issue with a focus on violence against doctors and does so within the framework of the concept of schadenfreude, which hasn't been studied in depth. Focusing on the concept of *schadenfreude*[1], which refers to the malicious joy of someone else's misfortune, we aim to highlight the psychological factors that are typically overlooked in research on violence in healthcare. In this respect, based on a review of literature, a scale was developed by addressing the concepts of deserving, jealousy, sympathy, empathy, anger, and aggression, which to date have received little research attention worldwide. Data were collected from 402 participants who were not healthcare professionals or did not have first-degree relatives working in healthcare. Following the data collection, exploratory and

[1] The concept of schadenfreude, which belongs to the German language, means rejoicing at someone else's misfortune and sorrow.

confirmatory factor analyses were completed on the scale items using SPSS and LISREL programs. Based on the results, 7 dimensions and 36 items with high reliability were developed to measure the level of rejoicing by third parties at violence against doctors. Moreover, the scale obtained was prepared for impact analyses such as regression or structural equation modeling.

Keywords: Violence in Healthcare, Violence towards Doctors, Schadenfreude, Validity, Reliability.

INTRODUCTION

The health sector is one of the sectors where violence (Krug et al., 2002), the intentional use or threat of physical force against oneself, another person, a group, or a community, which results or is likely to result in injury, death, psychological harm, developmental retardation, or deprivation as defined by the World Health Organization (WHO) occurs (Wells & Bowers, 2002; Camcı & Kutlu, 2011). Despite the legal arrangements made to prevent violence in the health sector, it appears that violence in healthcare has been on the rise, especially in recent years (Terkeş et al., 2021). The insufficiency of measures to deter and prevent violence necessitates a multi-faceted approach to incidents of violence. It is crucial to examine the underlying causes of health violence incidents, identify them before they occur, and increase social awareness and consciousness in order to eliminate them. It is desirable for all sectors of society to approach episodes of violence against healthcare workers with a negative viewpoint. Revealing why some individuals do not respond negatively to such unpleasant situations, as anticipated, will generate ideas on how to create social consciousness and awareness to prevent the occurrence of violence in healthcare. The appropriate notion to use in identifying these emotions is the notion of schadenfreude. An in-depth exploration of schadenfreude, defined as taking pleasure from another's misfortune (Van Dijk et al., 2005: 933), within the context of negative events experienced by healthcare professionals would contribute to increasing societal consciousness and awareness on the subject. Furthermore, exposing the underlying reasons behind the occurrence of schadenfreude in the face of violence towards healthcare workers would aid in creating a clearer understanding of this phenomenon.

The concept that has been deemed appropriate for the identification of these feelings is the concept of schadenfreude. An in-depth examination of the concept of schadenfreude, which means rejoicing in the sadness of another (Van Dijk et al., 2005: 933), in the context of bad events that happen to health care workers, and in this direction, revealing the reasons that cause

the feeling of schadenfreude in society in the face of violence encountered by health care workers, will contribute to the creation of the aforementioned social consciousness and awareness. In reviewing the studies on the concept of Schadenfreude, it was found that the concept was addressed in the context of various organizational and sociological events and that it was not used in any study directly involving health workers. To name a few of these studies, Spears (2013) examined the concept of schadenfreude in the context of relationships between different gender groups; Boecker (2021) and Koç (2020) examined the tendency towards schadenfreude in relationships between fan groups of football teams; Migeot et al. (2022) focused on the concept of schadenfreude in terms of people in different socio-economic groups; and Myrick and Chen (2022) studied the schadenfreude that individuals feel towards those in the opposite group in relationships between political party groups. However, no research has addressed the occurrence of violence towards physicians within the context of schadenfreude. This study aims to create a valid and reliable scale to measure the level of schadenfreude in the face of violence against doctors and to discuss the concepts of deserving, jealousy, sympathy, empathy, anger and aggression, which are thought to be related to schadenfreude.

Conceptual Framework

The Concept of Schadenfreude

The term schadenfreude denotes the pleasure taken in the misfortunes of others (Van Dijk et al., 2005: 933). While the scientific study of schadenfreude - a term derived from the German combination of "schaden," meaning harm, and "freude," meaning joy - has a long history dating back to the Greeks, there is no English equivalent for this concept. Therefore, scholars continue to utilize the German term schadenfreude (Combs et al., 2009: 635). According to Cikara and Fiske (2013:53), researchers who studied the emotion of schadenfreude and its underlying causes suggest that individuals encounter instances of others' misfortunes in various aspects of daily life. How individuals respond to such adversities is linked to their preconceptions about the targeted individual. Some events are met with empathy and compassion, while others elicit a sense of schadenfreude. In the same study, the researchers provided information regarding situations that could potentially lead to a tendency towards schadenfreude:

- When the misfortune of the target leads to benefits for others,
- When the target deserves their misfortune,
- When the target is someone who is envied by their peers.

According to Cecconi et al. (2020: 2), a high tendency towards schadenfreude is not indicative of a personality trait. Otherwise, they argue, it may be more akin to sadism. This is because schadenfreude is not an emotion that arises from defeating someone, but instead is a feeling of pleasure that arises independently of the observer in response to a negative event happening to the target person. While it is natural to feel sympathy when someone experiences misfortune, it is also possible to experience pleasure from such situations. Schadenfreude, the feeling of joy derived from the suffering of others, has been extensively studied and found to occur particularly when the affected individuals are envied or disliked (Van Dijk et al., 2005: 933).

According to another study investigating the causes of the schadenfreude tendency, if others perceive a bad event faced by an individual as a punishment for violating norms, this can lead to a schadenfreude tendency. Furthermore, the occurrence of an event resulting in the loss of an unfair advantage held by an individual can also generate enjoyment among their followers. Additionally, followers perceive happiness when those possessing a higher social status and are envied for their opportunities experience misfortune (Sundie et al., 2009: 357).

Philosophers including Nietzsche and Schopenhauer, who have analyzed human emotions from a moral and ethical perspective, have stated that deriving pleasure from the misfortune of others is not a moral emotion. Furthermore, recent psychological studies have highlighted that schadenfreude could arise in both interpersonal and intergroup dynamics (Feather, 2008: 32).

Factors Affecting Schadenfreude Tendency

As a result of the review of the literature, we identified deservingness, jealousy, sympathy, empathy, anger, and aggression as the primary factors influencing the concept of schadenfreude. These factors impact an individual's experience of schadenfreude in diverse ways.

Deservingness

Deservingness is related to the events that individuals observe in their daily lives, their responses to the outcomes of these events, and whether or not those events were justified. The perception of others regarding an individual's deservingness greatly influences how they react to their successes or failures. Thus, if it is deemed that the individual who experiences

misfortune is deserving of said event, individuals' emotional response to the situation may align with the concept of schadenfreude (Feather, 2006: 38-46).

According to Ben-Ze'ev (2000), schadenfreude may stem from a perception of deserved misfortune (Sawada & Hayama, 2012: 322). If a person gains something as a result of an event for which they are responsible, this gain may be considered deserved. Similarly, if a person is responsible for a negative event, it may also be considered deserved. Therefore, someone who experiences misfortune due to their own actions will be perceived as deserving of this situation. This may result in the emergence of schadenfreude (Van Dijk et al., 2008: 933-934).

Envy

Envy is defined as an emotion that causes people to think they are inadequate as a result of questioning the reasons for not having the material or immaterial things they do not have, and the excess of this situation leads to some negative behaviors (Ayata, 2022: 80). The person experiencing envy realizes that he/she is being deprived of what he/she considers important as a result of social comparisons (Smith et al., 1996: 158). In addition to envying the individual goals that people set for themselves, it is sometimes observed that they have an envious prejudice against them. This partiality can, at times, progress into schadenfreude. Particularly when recognizing that individuals with elevated status are exposed to more envy, it is noted that the misfortunes experienced by these individuals are more likely to be met with happiness by others (Cikara & Fiske, 2013: 53-54).

Van Dijk et al. (2015: 257-258) argue that there are several underlying causes for the increased schadenfreude tendency as a result of envy. Firstly, the bad event that the target person experiences will make the envious person happy, as it will remove the feeling of inferiority caused by envying someone. Another reason is related to a sense of justice. If the opportunities that the target individual possesses are deemed undeserved, it may evoke feelings of schadenfreude. This is believed to occur due to the belief that the adverse event that happens to the person will take away these opportunities.

Sympathy

When an individual witnesses someone undergoing misfortune, the extent of their sympathy towards the target is one of the major components influencing their reaction (Van Dijk et al., 2005: 933). The emotion of sympathy encompasses processes such as an individual experiencing sadness and anxiety for someone else as a result of a negative occurrence. There

are two ways in which reactions to the misfortunes of others can be manifested. One of these is the feeling of schadenfreude, which is defined as feeling pleasure from this misfortune, while the other is feeling sympathy towards that person (Tatlıcıoğlu, 2015: 31)

According to the findings of the study conducted by Smith et al. (1996: 166), when a misfortune happens to the target individuals who have a low level of sympathy towards the audience, it is expected to generate feelings of schadenfreude. Thus, it can be said that sympathy level and schadenfreude tendency have a negative relationship. Brigham et al. (1997) argue that individuals react with either sympathy or schadenfreude to the misfortunes happening to those around them. These reactions are inversely related. The researchers suggest that schadenfreude may stem from envy, while sympathy may be related to whether or not the misfortune is deserved.

Empathy

Empathy is defined as the process of an individual putting himself/herself in the other person's shoes from the point of view of the events, understanding the feelings and thoughts of the other individual, and communicating this situation to the other person. Empathy involves either experiencing the emotions felt by another person or simply acknowledging those emotions without feeling them oneself. Additionally, adopting another person's perspective and viewing events through their eyes is also a part of the empathic process (Guttman, 2001: 349; Zengin et al., 2018: 185). The concept of empathy is a vital component of social skills and a crucial foundation for social behaviors and interpersonal communication. Individuals with high levels of empathy are less prone to violence and have more helpful and morally developed judgements (Ersoy & Köşger, 2016:9). Studies on this subject reveal that aggression and bullying tendencies decrease as the empathy level of individuals increases (Endersen & Olweus, 2001; Joliffe & Farrington, 2006:540; Topçu et al., 2010: 178). In this context, one could argue that the empathy levels of individuals contribute to their perceptions of violence against doctors.

Anger

Anger conveys expressions that signal a conflict of self-interest and invite the other person to withdraw (Aseo, 2009: 4-6). Some studies on schadenfreude suggest that there is a strong relationship between envy, anger, and schadenfreude. Leach et al. (2003) highlighted that the individual's sense of inferiority can result in anger towards superior and external groups. Subsequently, the feeling of revenge emerging from this resentment leads to the anticipation of

negative events occurring to the outgroups perceived as superior. In other words, individuals who experience anger due to feelings of inferiority desire the misfortune of those perceived as superior or part of an outgroup to relieve their discomfort (Sawada & Hayama, 2012: 322-325).

Aggression

Aggression is defined as any form of behavior aimed at harming or injuring another living being (Baron & Richardson, 1994: 7). However, aggressive behavior ought to serve a purpose, and those exposed to such behavior should make an effort to avoid or prevent it (Akıl, 2018: 29). Various factors, including studies in the literature, media criticism of doctors, inadequate healthcare facilities, impatient and uneducated patients with their relatives, and their disobedience of hospital protocols, may provoke feelings of anger or hostility towards doctors (Terkeş et al., 2021).

Method

This section addresses the purpose of the study, research sample, data collection instrument, data analysis, and procedures.

Purpose

Violence in healthcare is rising rapidly worldwide, including in Turkey. Despite efforts to prevent violence against healthcare workers, it continues to increase. Thus, tackling this issue requires a multi-faceted approach to address violence in healthcare from various perspectives. The objective of this research is to establish a conceptual framework for the feeling of pleasure (Schadenfreude) that is experienced by society towards violence directed at doctors in Turkey. Additionally, this study aims to investigate this concept comprehensively along with other related concepts such as deservedness, envy, empathy, sympathy, anger, and aggression. Furthermore, it aims to conduct validity and reliability studies of the dimensions of the Turkish scale separately and to make it ready to examine the effect analyses. Accordingly, the relationships between the dimensions and means are presented.

Development of the Scale Form

The items for the scale were created after conducting a thorough analysis of the relevant literature. The 4-item scale developed by Van Dijk et al. (2006) and adapted into Turkish by

Torun (2012) was used for the Schadenfreude variable; the 6-item scale developed by Feather (2008) and adapted into Turkish by Sevinçli (2020) for the deservedness variable; the 6-item scale developed by Van Dijk et al. (2006) and adapted into Turkish by Yeniay (2012) for the envy variable; the 12-item scale developed by Vossen et al. (2015) and adapted into Turkish by Zengin et al. (2018) for sympathy and empathy variables; and the 12-item scale developed by Maxwell and Moores (2007) for anger and aggression variables. A total of 40 items were included in the item pool. The item pool statements were evaluated by 14 experts based on their comprehensibility, ease of answering, suitability for the intended purpose, scope, language, and expression. The survey was developed using a five-point Likert scale. The response options include "Strongly Disagree", "Disagree", "Neutral", "Agree" and "Strongly Agree". Prior to data collection for analysis, a pre-test questionnaire was administered to 77 participants to assess the clarity, comprehensibility, validity, and reliability of the scale form.

Research Sample

Although sample size is crucial in creating a valid and reliable measurement tool, there is currently no consensus on what that size should be. Tabachnik and Fidel (2001: 613) state that the number of people to be reached should be at least 300 and that a sample of 50 people would be very poor, a sample of 100 people would be poor, a sample of 200 people would be fair, a sample of 300 people would be good, a sample of 500 people would be very good, and a sample of 1000 or more would be excellent. According to Mundfrom et al. (2005: 160), taking into account the ratio of the number of participants to the number of variables is a better way to determine the minimum sample size. There is no consensus on the optimal sample size based on the ratio of participants to variables. According to Cattell (1978: 508), the recommended ratio is 3 to 6 times the number of variables. Gorsuch (2015: 350) recommends a ratio of 5 times the number of variables, but only if the sample size is not less than 100. Velicer et al. (1998: 232) and Yong and Pearce (2013: 80) suggest a minimum ratio of at least 5 times the number of variables. In contrast, Arrindell et al. (1985: 175) argue that the recommended ratio should be between 10 times and 20 times the number of variables. In this study, the recommendation of at least 10 times more was taken into consideration. In the implementation of the research, data were collected through a survey from 402 individuals who were 18 years of age and older, and who were not healthcare professionals or did not have first-degree relatives working in

healthcare. An Ethics Committee approval was obtained for this study from the Atatürk University Social and Human Sciences Ethics Committee.

Data Analysis

Factor analysis is a group structure analysis procedure used to determine correlations between variables that are related to each other (Carpenter, 2018: 27). Factor analysis reduces many interrelated variables to a set of independent factors (Williams et al., 2010: 2). It is possible to examine the techniques related to factor analysis under two principal categories: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) (DeCoster, 1998: 1). Exploratory factor analysis is conducted to ascertain how many underlying sub-factors the variables within a measurement tool are grouped into, as well as the association between them (Seçer, 2017:153). Exploratory factor analysis aims to reduce the number of variables related to the concept addressed and to determine fewer factors with high explanatory power that can explain this structure (Gürbüz and Şahin, 2018: 318). To determine the suitability of the data set for factor analysis, two statistical measurements including Kaiser-Meyer-Olkin (KMO) and Bartlett's Test are used (Williams et al., 2010: 5; Pallant, 2017: 201). KMO is related to sample size and measures the adequacy of the sample (Karagöz, 2017: 402). KMO value takes a value between 0-1 (Williams et al., 2010: 5; Seçer, 2017: 155). A KMO value of 0.50 is considered suitable for factor analysis. (Williams et al., 2010: 5). According to Field (2013: 647), values greater than 0.5 are barely acceptable, values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are very good, and values above 0.9 are excellent. Pallant (2017: 201) stresses that the significance of the Bartlett test is crucial to determining the suitability of factor analysis. Bartlett's sphericity test assesses whether the relationship between the variables is sufficient. For factor analysis to be suitable, it is necessary for the Bartlett Test of Sphericity to be significant ($p<0.05$) (Williams et al., 2010: 5). When conducting exploratory factor analysis, it is important to verify if there is any crossloading between factor loadings during factor rotation. If the loading does not cause significant cross-loading (overlapping) on another factor, it can be said that the relevant item is a good descriptor

of the factor (Beavers et al., 2013: 9). If an item has a sufficient factor loading under more than one factor, it is considered to be overlapping. If there is a difference of at least 0.10 between the factor loading values, the relevant item is removed from the scale (Seçer, 2017: 167).

Cronbach's alpha coefficients were analyzed to assess the scale's internal consistency. Cronbach's alpha is one of the most widely used reliability measures in social and organizational sciences (Bonett & Wright, 2015: 3). To ensure sufficient internal consistency, the Cronbach's alpha value needs to be at least 0.70 (Tsang et al., 2017: 85). According to Seçer (2018: 60), if the obtained value is 0.70 or higher, it is necessary to examine the item-total correlation values and the table illustrating the changes that occur when the item is removed from the scale. If the Cronbach's alpha value increases after removing an item, the corresponding item should be eliminated. It is crucial to ensure that corrected item-total correlation values are above 0.30 when conducting exploratory factor analysis (Field, 2013: 678). The basic rule taken into account for Cronbach's alpha intervals is as follows (George & Mallery, 2019: 244).

$\alpha > 0.9$—fairly reliable

$\alpha > 0.8$—reliable

$\alpha > 0.7$—acceptable

$\alpha > 0.6$—questionable

$\alpha > 0.5$—weak

$\alpha < 0.5$—unacceptable

The dimensions were analyzed for validity and reliability separately to develop a scale that can explain the effects of schadenfreude by establishing a structural equation model.

RESULTS

Participant Demographics

Findings regarding the demographic distribution of the participants in the research are presented in Table 1.

Table 1. Distribution of Participant Demographics

Variable	Category	Frequency	Percentage
Sex	Male	146	36.3
	Female	256	63.7
Age	18-24	91	22.6
	25-34	125	31.1
	35-44	94	23.4
	45-54	58	14.4
	55+	34	8.5
Marital Status	Married	210	52.2
	Single	192	47.8
Education	Primary education	8	2.0
	High School	71	17.7
	Associate degree	30	7.5
	Undergraduate	207	51.5
	Graduate	86	21.4
Income Level	11 thousand 402 TL and lower	121	30.1
	11 thousand 403 TL-20.000 TL	70	17.4
	20.001-30.000 TL	119	29.6
	30.001-TL-40.000 TL	57	14.2
	40.001 TL-50.000 TL	16	4.0
	50.001 TL and higher	19	4.7

According to Table 1, the participants in the study mostly consist of married women between the ages of 25 and 34 with a bachelor's degree and an income of 11 thousand 402 TL or less.

Results of Exploratory Factor Analysis (EFA)

Table 2 shows the results of the reliability analysis for the deservingness variable.

Table 2. Reliability analysis results for the deservingness (HE) variable.

Deservingness Scale Items		**Corrected Item-Total Correlation**	**Cronbach's Alpha Coefficient When an Item is Removed**
HE1	I think some doctors deserve the violence they experience.	0.891	0.958
HE2	I think some doctors who were subjected to violence got what they deserved.	0.894	0.958
HE3	Some doctors deserve the violent events they experience.	0.895	0.958
HE4	Some doctors are responsible for the violent incidents that happen to them.	0.896	0.958
HE5	Some doctors experience violence in response to their actions.	0.914	0.956
HE6	Some doctors experience violent incidents as a result of their own behavior.	0.860	0.962
Cronbach's Alpha			**0.965**

According to Table 2, the Cronbach's alpha value of the deservingness scale, consisting of six items, is 0.965, which indicates that the reliability of the deservingness scale is high. When the item-total statistics are examined, if any item is removed, the Cronbach's alpha coefficient will not increase; on the contrary, it will decrease. In the corrected item-total correlation, it is seen that all values are greater than 0.30.

Table 3. Reliability Analysis for the Schadenfreude (SF) Variable

Schadenfreude Scale Items		Corrected Item-Total Correlation	Cronbach's Alpha Coefficient When an Item is Removed
SF1	I do not rejoice in the violence that happens to doctors.	0.910	0.946
SF2	When I hear about violent incidents involving doctors, I don't say 'it serves him/her right'.	0.896	0.951
SF3	Violence that happens to doctors does not make me happy.	0.894	0.951
SF4	When I hear about violent incidents involving doctors, I don't say 'I'm glad it happened.'	0.915	0.945
Cronbach's Alpha			**0.961**

According to Table 3, the Cronbach's alpha value of the Schadenfreude scale, consisting of four items, is 0.961, which indicates that the reliability of the Schadenfreude scale is high. When the item-total statistics are examined, if any item is removed, the Cronbach's alpha coefficient will not increase; on the contrary, it will decrease. In the corrected item-total correlation, it is seen that all values are greater than 0.30.

Table 4. Reliability Analysis for the Envy (KI) Variable

Envy Scale Items		Corrected Item-Total Correlation	Cronbach's Alpha Coefficient When an Item is Removed
KI1	I would have wanted to be a doctor.	0.611	0.755
KI2	I often envy doctors.	0.505	0.787
KI3	I would want to have the dignity of a doctor.	0.648	0.742
KI5	I would like to have the status of a doctor.	0.728	0.713
KI6	I feel bad when I compare myself to doctors in terms of status.	0.441	0.803
Cronbach's Alpha			**0.801**

According to Table 4, in the corrected item-total correlation of the envy scale consisting of 6 items, as the item "I get angry with doctors" (K4) had a correlation coefficient of 0.051, which

is less than 0.30, the relevant item was not included in the analysis. Then, a Cronbach's alpha value of 0.801 was obtained, which indicates that the reliability of the envy scale is sufficient. In the corrected item-total correlation, it is seen that all values are greater than 0.30.

Table 5. Reliability Analysis for the Sympathy (S) and Empathy (E) Variables

Sympathy and Empathy Scale Items		Corrected Item-Total Correlation	Cronbach's Alpha Coefficient When an Item is Removed
S1	When doctors feel sad about being subjected to violence, I feel sad too.	0.819	0.947
S2	I feel sorry for a doctor who was subjected to violence.	0.842	0.947
S3	I worry about doctors who get hurt by violence.	0.859	0.946
S4	When doctors who are subjected to violence get upset, I get upset too.	0.844	0.946
S5	I worry about doctors who are subjected to violence.	0.828	0.947
E1	Even if I don't witness an act of violence towards doctors, I can understand how they feel.	0.768	0.949
E2	I can easily describe how doctors who experience violence feel.	0.587	0.955
E3	It is understandable that the doctor who was subjected to violence would be angry.	0.742	0.950
E4	It is understandable that the doctor who is subjected to violence is not actually happy.	0.744	0.949
E5	I get angry when doctors are violent.	0.853	0.946
E6	I get scared when doctors are subjected to violence.	0.638	0.954
E7	I get angry when doctors experience acts of violence.	0.820	0.947
Cronbach's Alpha			**0.953**

According to Table 5, the Cronbach's alpha value of the sympathy and empathy scale, consisting of 12 items, is 0.953, which indicates that the reliability of the sympathy and empathy scale is high. In the corrected item-total correlation, it is seen that all values are greater than 0.30.

Table 6. Reliability Analysis of the Anger (K) and Aggression (SA) Variable

Anger and Aggression Scale Items		Corrected Item-Total Correlation	Cronbach's Alpha Coefficient When an Item is Removed
K1	I feel angry towards the attitudes and behaviors of doctors.	0.677	0.886
K2	I feel resentful towards the attitudes and behaviors of doctors.	0.580	0.892
K3	I get angry at doctors' attitudes and behavior.	0.719	0.883
K4	I show my anger towards the attitudes and behaviors of doctors.	0.632	0.889
K5	I have difficulty controlling my anger towards doctors' attitudes and behaviors.	0.587	0.891
K6	Doctors' attitudes and behaviors make me angry.	0.720	0.883
SA1	Violent behavior towards doctors is acceptable.	0.618	0.890
SA2	Using physical force against doctors is acceptable.	0.574	0.892
SA3	When I get angry at a doctor, I get sarcastic with her/him.	0.583	0.891
SA4	I use force against doctors to take my frustration out.	0.572	0.893
SA5	When I get angry at doctors, I verbally insult them.	0.567	0.892
SA6	Violence against doctors is acceptable to a certain degree.	0.642	0.888
Cronbach's Alpha			**0.897**

Table 6 shows that the Cronbach's alpha value of the 12-item anger and aggression scale is 0.897, which indicates that the anger and aggression scale is reliable. When the item-total statistics are examined, if any item is removed, the Cronbach's alpha coefficient will not increase; on the contrary, it will decrease. In the corrected item-total correlation, it is seen that all values are greater than 0.30.

Table 7. Exploratory Factor Analysis of the Deservingness (HE) Variable

Items	Factor Loadings	Explained Variance	KMO
HE1	0.926	85.763	0.900
HE2	0.930		
HE3	0.931		
HE4	0.927		
HE5	0.941		
HE6	0.901		
Bartlett's Test of Sphericity (p)			**0.000**

According to Table 7, the KMO value of six items regarding the deservingness scale is 0.900, which indicates that the variables are suitable for factor analysis. The Bartlett's Test of Sphericity was p (Sig)=0.00 <0.05. Therefore, the data are suitable for factor analysis. The deservingness scale consists of six items and one dimension, and this dimension explains 85.763% of the variance.

Table 8. Factor Analysis of the Schadenfreude (SF) Variable

Items	Factor Loadings	Explained Variance	KMO
SF1.	0.950	89.559	0.844
SF2	0.942		
SF3	0.941		
SF4	0.953		
Bartlett's Test of Sphericity (p)			**0.000**

Table 8 shows that the KMO value of four items related to the Schadenfreude scale is 0.844, which indicates that the variables are suitable for factor analysis. The Bartlett's Test of Sphericity was p (Sig)=0.00 <0.05. Therefore, the data are suitable for factor analysis. The Schadenfreude scale consists of 4 items and one dimension, and this dimension explains approximately 89.559% of the total variance.

Table 9. Factor Analysis of the Envy (KI) Variable

Items	Factor Loadings	Explained Variance	KMO
KI1	0.772	55.865	0.773
KI2	0.670		
KI3	0.801		
KI5	0.855		
KI6	0.612		
Bartlett's Test of Sphericity (p)			**0.000**

Table 9 shows that the KMO value of 5 items regarding the envy scale is 0.773, which indicates that the variables are suitable for factor analysis. The Bartlett's Test of Sphericity was p (Sig)=0.00 <0.05. Therefore, the data are suitable for factor analysis. The envy scale consists of five items and one dimension, and this dimension explains approximately 55.865% of the variance.

Table 10. Factor Analysis of the Sympathy (S) and Empathy (E) Variables

Items	Factor Loadings	Explained Variance	KMO
Factor 1: Sympathy		66.802	0.920
S4	0.888		
S2	0.888		
S3	0.882		
S5	0.855		
S1	0.807		
Factor 2: Empathy		10.229	
E2	0.845		
E1	0.809		
E3	0.735		
E4	0.650		
E6	0.540		
Bartlett's Test of Sphericity (p) 0.000		**Total Explained Variance**	**77.031**

In the exploratory factor analysis conducted on the sympathy and empathy scale, two items - 'I get angry when doctors experience violence.' (E5) and 'I get upset when doctors experience violence.' (E7)- were not included in the analysis as they cross-loaded with a cross-load value that is less than 0.10. Then, an EFA was completed, which showed that the KMO value of 10

items related to the sympathy and empathy scale was 0.920. This value shows that the variables are suitable for factor analysis. The Bartlett's Test of Sphericity was p (Sig)=0.00 <0.05. Therefore, the data are suitable for factor analysis. The 10-item sympathy and empathy scale consists of two dimensions, sympathy and empathy, which explain 77.031% of the total variance. The sympathy dimension explains 66.802% of the total variance, and the empathy dimension explains 10.229% of the total variance. The dimensional distribution of the items on this scale shows similar distributions to the studies conducted by Vossen et al., (2015) and Zengin et al., (2018).

Table 11. Factor Analysis of the Anger (K) and Aggression (SA) Variables

Items	**Factor Loadings**	**Explained Variance**	**KMO**
Factor 1: Aggression			
SA4	0.900		
SA2	0.867		
SA1	0.850	49.750	
SA5.	0.848		
SA6	0.779		
SA3	0.768		0.892
Factor 2: Anger			
K3	0.918		
K1.	0.887		
K2	0.847	24.044	
K6	0.796		
K4	0.791		
Bartlett's Test of Sphericity (p) 0.000		**Total Explained Variance**	**73.794**

In the exploratory factor analysis conducted on the anger and aggression scale, the item "I have difficulty controlling my anger towards the attitudes and behaviors of doctors" (K5) was not included in the analysis as it cross-loaded with a value that was less than 0.10. The subsequent EFA showed that the KMO value of 11 items related to the anger and aggression scale was 0.892. This value shows that the variables are suitable for factor analysis. The Bartlett's Test of Sphericity was p (Sig)=0.00 <0.05. Therefore, the data are suitable for factor

analysis. The anger and aggression scale consists of 11 items and two dimensions – anger and aggression-, and these dimensions explain 73.794% of the total variance. The anger dimension explains 49.750% of the total variance, and the empathy dimension explains 24.044% of the total variance. The dimensional distribution of the items on this scale shows similar distributions to the study conducted by Maxwell and Moores (2007).

Results of the Correlations between the Variables

Correlation analysis is used to determine the direction and degree of the relationship between variables, and the Pearson coefficient is the most frequently used coefficient in correlation analysis. The Pearson correlation coefficient is denoted by 'r' and takes values ranging from -1 to +1 (Durmuş, Yurtkoru and Çinko, 2018: 143-144). A correlation coefficient of +1 indicates that two variables are strongly positively related; a correlation coefficient of -1 indicates that two variables are strongly negatively related; and a correlation coefficient of 0 indicates that there is no relationship between the two variables (Gogtay and Thatte, 2017: 78). The evaluation ranges taken into account for the correlation coefficient values are as follows (Gürbüz and Şahin, 2018: 262).

$-1 \leq r < -0.7$ indicates a strong negative relationship.

$-0.07 \leq r < -0.03$ indicates a moderately negative relationship.

$-0.30 \leq r < 0$ indicates a weak negative relationship.

$0.00 < r \leq 0.30$ indicates a weak positive relationship.

$0.30 < r \leq 0.70$ indicates a moderate positive relationship.

$0.70 < r \leq 1$ indicates a strong positive relationship.

In order to determine the relationships between the variables, the Pearson correlation coefficient was calculated, and the results are presented in Table 12. Before conducting correlation analysis, statements regarding the schadenfreude scale were reverse coded since the expressions used in the schadenfreude scale were used negatively in the survey.

Table 12. Correlation Analysis

	Variable	Arithmetic Mean	St. Dev.	1	2	3	4	5	6	7
1	Deservingness	1.8528	1.05611	1						
2	Schadenfreude	1.6126	1.04030	0.171**	1					
3	Envy	2.5567	0.96182	-0.160**	**0.000**	1				
4	Sympathy	4.2269	0.89770	-0.473**	-0.414**	0.152**	1			
5	Empathy	3.8881	0.86443	-0.452**	-0.275**	0.293**	0.740**	1		
6	Anger	2.6950	1.05775	0.501**	0.174**	-0.104*	-0.349**	-0.332**	1	
7	Aggression	1.4075	0.67643	0.511**	0.260**	**0.005**	-0.583**	-0.492**	0.359**	1

*p<0.05 **p<0.01 ***SF1, SF2, SF3, SF4 items were reverse-coded.*

According to Table 12, the variable of deservingness has a weakly positive relationship with the variables of schadenfreude ($r= 0.171$, $p<0.05$) and envy ($r= -0.160$, $p<0.05$); a moderately negative relationship with the sympathy ($r= -0.473$, $p<0.05$) and empathy ($r= -0.452$, $p<0.05$) variables, and a moderately positive relationship with the anger ($r= 0.501$, $p<0.05$) and aggression ($r= 0.511$, $p<0.05$) variables. While there is no relationship between the Schadenfreude variable and envy ($r= 0.000$, $p>0.05$), it has a moderately negative relationship with the sympathy ($r= -0.414$, $p<0.05$) variable, a weak negative relationship with the empathy ($r= -0.275$, $p<0.05$) variable, and a weakly positive relationship with the anger ($r= 0.174$, $p<0.05$) and aggression ($r= 0.260$, $p<0.05$) variables. The envy variable has a weakly positive correlation with the sympathy ($r= 0.152$, $p<0.05$) and empathy ($r= 0.293$, $p<0.05$) variables, and a weakly negative relationship with the anger ($r= -0.104$, $p<0.05$) variable, while there is no relationship with the aggression variable ($r= 0.005$, $p>0.05$). The sympathy variable has a strong positive relationship with the empathy ($r= 0.740$, $p<0.05$) variable and a moderate negative relationship with the anger ($r=-0.349$, $p<0.05$) and aggression ($r=-0.583$, $p<0.05$) variables. The empathy variable has a moderate negative relationship with the anger ($r= -0.332$, $p<0.05$) and aggression ($r= -0.492$, $p<0.05$) variables. The anger variable has a moderate positive relationship with the aggression variable ($r= 0.359$, $p<0.05$).

The overall average of the responses given to the items on the deservingness scale is 1.85. According to this value, it was found that approximately 37% of the participants think that doctors deserve the violent events that happen to them, and 63% think that they do not deserve it. The general average of the responses to the items on the Schadenfreude scale is approximately 1.61, and accordingly, it was found that approximately 32% of the participants experience a feeling of schadenfreude towards the violent incidents that happen to doctors, and 68% do not experience this feeling. The general average of the answers given to the statements in the envy scale is 2.55. According to this value, it was found that approximately 51% of the participants have a feeling of envy towards doctors, while 49% do not.

The overall average of the responses to the items on the sympathy scale is approximately 4.22, and it was found that approximately 84% of the participants feel sadness and concern about the violent incidents that happen to doctors, and 16% do not experience these feelings. The overall average of the responses given to the items on the empathy scale is approximately 3.89. It was found that approximately 78% of the participants have a sense of empathy towards doctors when they see the violence experienced by doctors, while 22% do not feel empathy.

The overall average of the responses to the items on the anger scale is approximately 2.69, and it was found that approximately 54% of the participants feel angry towards the attitudes and behaviors of doctors, while 46% do not. The general average of the responses

given to the items on the aggression scale is approximately 1.41, and it was found that approximately 28% of the participants feel aggression towards doctors, while 72% do not.

Results of the Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis defines each observed variable only under its own latent variable and describes the relationship between factors (Çokluk et al., 2014). The reason for using this analysis at this stage is that it is necessary to test the validity of the variables before they are included in the determined structural model to obtain the most appropriate measurement model. In this context, it is aimed to verify the factor structures of the scales based on the goodness-of-fit statistics included in the structural equation model (Hair et al., 2014). Among the items with factor loadings, those with standard factor loadings of 0.50 and above are considered important items for the scale, and those with factor loadings below 0.30 are not included in the analysis (Güngören et al., 2014, p.74; Jöreskog and Sörbom, 1996). On the other hand, in CFA, some values, such as CFI, IFI, NFI, NNFI, etc., must be within the range of fit indices (Yıldırım and Naktiyok, 2017). The reference range of these fit indices is given in the table below, along with the indices of our research. For reference values, the study of Meydan and Şeşen (2011) was used.

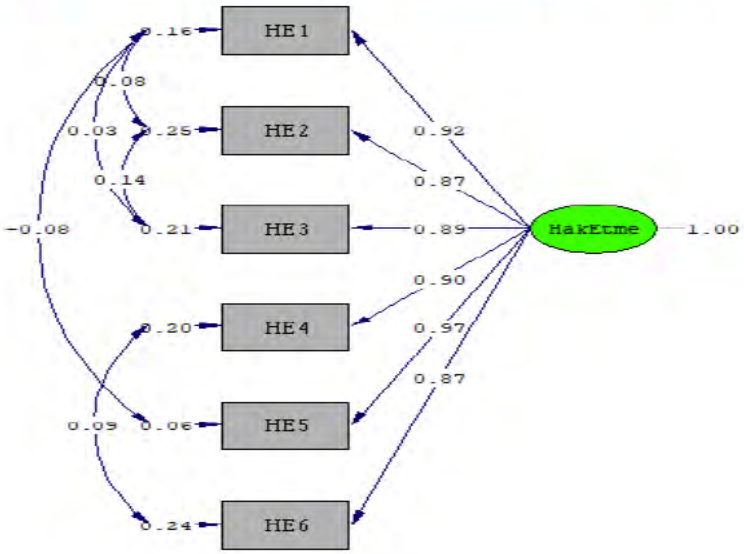
Table 13. Fit Indices of the Confirmatory Factor Analysis (CFA)

Indices	Reference Value		HE	SF	KIS	S-E	K-S
	Good fit	Acceptable Fit					
X^2/SD	$0<\chi 2/sd \leq 3$	$3<\chi 2/sd \leq 5$	1.98	0.00	4.31	3.8	4.77

RMSEA	0 ≤ RMSEA ≤ 0,05	0,05 ≤ RMSEA ≤ 0,01	0.049	0.00	0.091	0.084	0.097
GFI	0,95<GFI ≤ 1	0,90 <GFI ≤ 0,94	0.99	-	0.98	0.94	0.92
AGFI	0,90<AGFI ≤ 1	0,80 <AGFI ≤ 0,90	0.97	-	0.94	0.90	0.87
CFI	0,95<CFI ≤ 1	0,90 <CFI ≤ 0,94	1	-	0.98	0.99	0.97
NFI	0,95<NFI ≤ 1	0,90 <NFI≤ 0,94	1	-	0.98	0.98	0.96
NNFI	0,95<NNFI ≤ 1	0,90 <NNFI ≤ 0,94	1		0.96	0.98	0.96

In Table 13, the goodness of fit indices of the confirmatory factor analysis are presented, and the goodness of fit measures of the factors are given. In the table, the deservingness variable is indicated by HE, the schadenfreude variable is indicated by SF, the envy variable is indicated by KIS, the sympathy and empathy variables are indicated by S-E, and the anger and aggression variables are indicated by K-S. The $\chi 2/df=1.98$, RMSEA=0.049, GFI= 0.99, AGFI=0.97, CFI=1, NFI=1, NNFI=1 values of the deservingness dimension are all within the range of good fit measures. The $\chi 2/sd=0.00$ and RMSEA=0.00 values of the Schadenfreude dimension are within the range of good fit indices. However, it was concluded that the fit of the schadenfreude dimension was excellent. $\chi 2/df=4.31$ and RMSEA=0.091 values of the envy dimension are within acceptable fit measures, while GFI=.98, AGFI=.94, CFI=0.98, NFI=0.98, and NNFI=0.96 values are within the range of good fit indices. The values of $\chi 2/df=3.8$, RMSEA=0.084, GFI=0.94, and AGFI=0.90 of the sympathy and empathy dimension are within the acceptable fit indices, and the values of CFI=0.99, NFI=0.98, and NNFI=0.98 are within the range of good fit indices. The $\chi 2/sd=4.77$, RMSEA=0.097, GFI= 0.92, and AGFI=0.87 values of the anger and aggression dimension are within the acceptable fit indices, and the CFI=0.97, NFI=0.96, and NNFI=0.96 values are within the range of good fit indices. In alignment with the CFA results, the obtained values are within the acceptable range compared to the reference values shown in Table 13. As a result of the confirmatory factor analysis, LISREL outputs of standard factor loadings are given in the figures below.

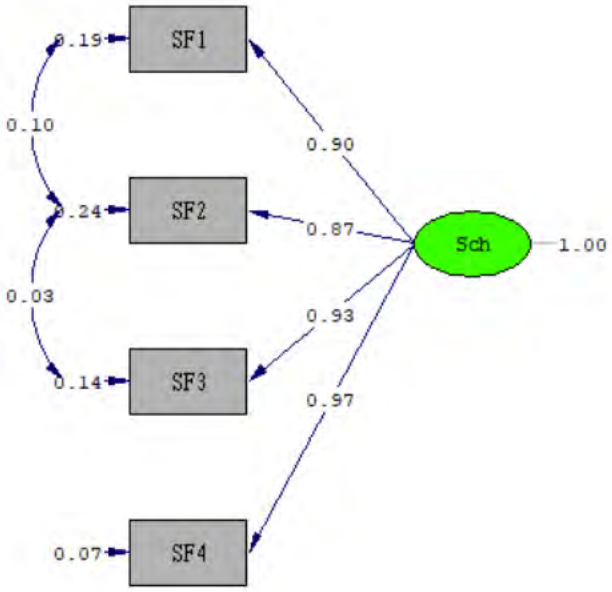
Figure 1. LISREL Output of the Standardized Loadings of the Deservingness Dimension Confirmatory Factor Analysis



7.93, df=4, P-value=0.09429, RMSEA=0.049

As per the guidance of the LISREL program, modifications were made by connecting the items HE2 and HE3, HE1 and HE2, HE1 and HE3, H1 and H3, HE1 and HE5, and HE6 and HE4.

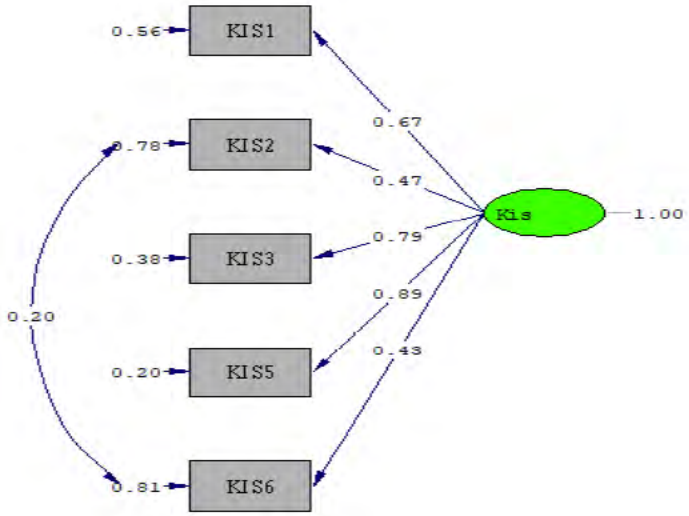
Figure 2. LISREL Output of the Standardized Loadings of the Schadenfreude Dimension Confirmatory Factor Analysis



Chi-Square=0.00, df=0, P-value=1.00000, RMSEA=0.000

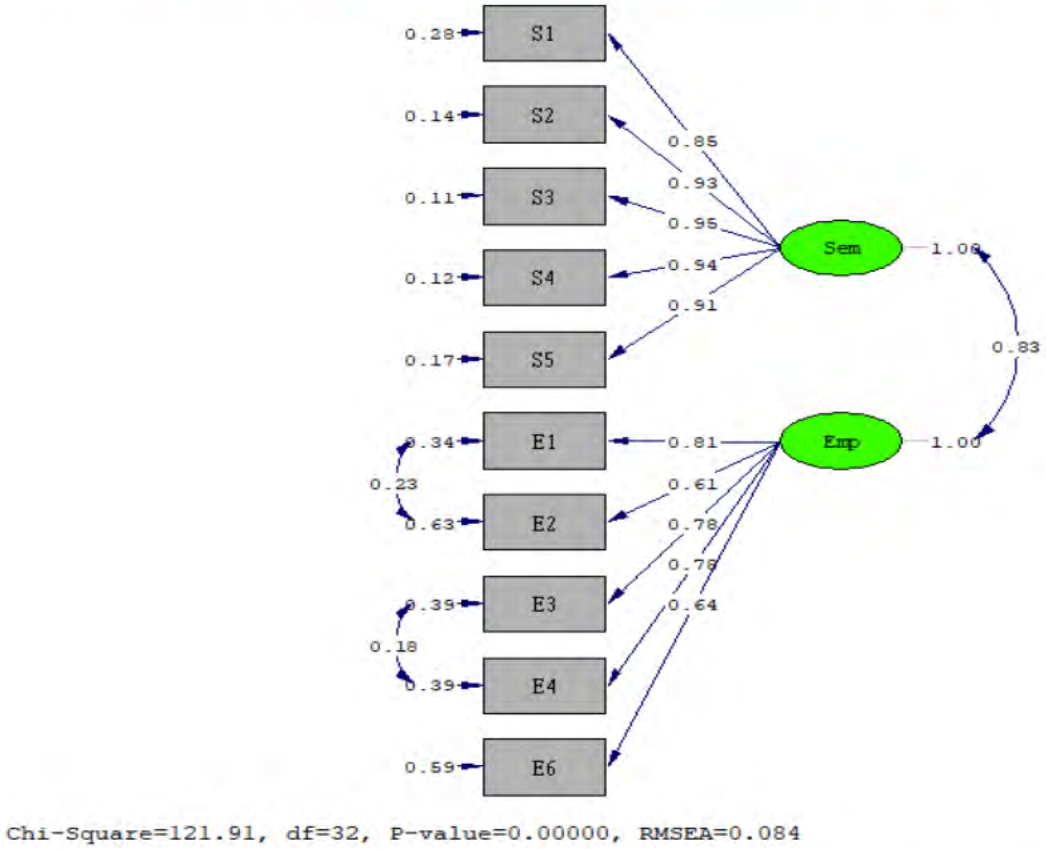
As per the guidance of the LISREL program, modifications were made by connecting the items SF1 and SF2 and SF3 and SF2.

Figure 3. LISREL Output of the Standardized Loadings of the Envy Dimension Confirmatory Factor Analysis



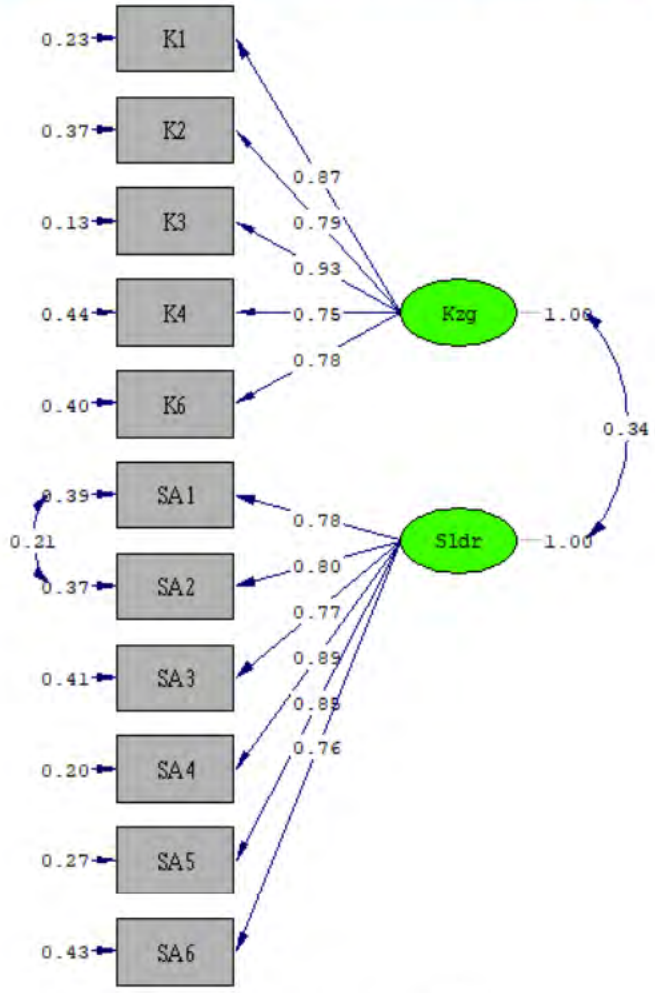
As per the guidance of the LISREL program, modifications were made by connecting the KIS2 and KIS6 items to each other.

Figure 4. LISREL Output of the Standardized Loadings of the Sympathy and Empathy Dimension Confirmatory Factor Analysis



As per the guidance of the LISREL program, modifications were made by connecting the items E1 and E2 and E3 and E4 together.

Figure 5. LISREL Output of the Standardized Loadings of the anger and Aggression Dimension Confirmatory Factor Analysis



Chi-Square=200.49, df=42, P-value=0.00000, RMSEA=0.097

As per the guidance of the LISREL program, modifications were made by connecting SA1 and SA2 items. According to the confirmatory factor analyses, no standardized factor loading is below 0.30 or above 1. Therefore, no items were removed at this stage. Standard factor loadings and t-values for confirmatory factor analysis are summarized in Table 14.

Table 14. A Summary of the Results Related to the Concepts in the Model

Concept in the Model	Items	Standard Values	T Values
DESERVINGNESS	HE1	0.92	23.22
	HE2	0.87	21.73
	HE3	0.89	22.58
	HE4	0.90	22.89
	HE5	0.97	26.30
	HE6	0.87	21.82
SCHADENFREUDE	SF1	0.90	23.21

	SF2	0.87	21.85
	SF3	0.93	24.20
	SF4	0.97	26.07
ENVY	KIS1	0.67	14.13
	KIS2	0.47	9.34
	KIS3	0.79	17.42
	KIS5	0.89	20.47
	KIS6	0.43	8.53
SYMPATHY	S1	0.85	21.17
	S2	0.93	24.55
	S3	0.95	25.33
	S4	0.94	25.01
	S5	0.91	23.79
EMPATHY	E1	0.81	18.59
	E2	0.61	12.55
	E3	0.78	17.54
	E4	0.76	17.46
	E6	0.64	13.62
ANGER	K1	0.87	21.81
	K2	0.79	18.79
	K3	0.93	24.30
	K4	0.75	17.29
	K6	0.78	18.14
AGGRESSION	SA1	0.78	18.19
	SA2	0.80	18.69
	SA3	0.77	17.77
	SA4	0.89	22.37
	SA5	0.88	20.75
	SA6	0.76	17.39

As presented in Tables 13 and 14, standard loadings, t-values, and fit indices are within acceptable value ranges.

Conclusion and Recommendations

Violent incidents, which occur in all walks of life, pose a greater risk to those working in the health sector. Research indicates that employees in the healthcare sector face a significantly greater risk of physical assault than those in other sectors, with a 16-fold increase in risk (Yıldırım et al., 2012; Takak and Artantaş, 2018). Some legal regulations have been implemented to prevent acts of violence, yet it appears that this upward trend persists despite such actions. Consequently, addressing incidents of violence in healthcare necessitates alternative approaches. This study analyzes the violence phenomena among doctors and explores the concept of schadenfreude from a health perspective, a previously unexplored area of study in this field. Evaluating the occurrence of violence against doctors through the lens of the schadenfreude concept, which entails taking pleasure in the misfortune of others, can enable a focus on psychological factors that are typically overlooked in studies on violence against doctors. Departing from this point, this study aimed to develop a scale with validity and reliability by addressing the concepts of deservingness, envy, sympathy, empathy, anger, and aggression, which are related to the feeling of schadenfreude.

In line with this primary objective, we conducted an extensive review of international literature on the topic and established a theoretical framework. For the schadenfreude variable used in the study, the scale developed by Van Dijk et al. (2006) and adapted to Turkish by Torun (2012), for the deservingness variable, the scale developed by Feather (2008) and adapted to Turkish by Sevinçli (2020), for the envy variable, the scale developed by Van Dijk et al. (2006) and adapted to Turkish by Yeniay (2012), for the sympathy and empathy variables, the scale developed by Vossen et al., (2015) and adapted to Turkish by Zengin et al. (2018), and for the anger and aggression variables, the scale developed by Maxwell and Moores (2007) were used. After obtaining approval from the ethics committee at Atatürk University, a pre-test was conducted with 77 participants. Following the necessary corrections from the pre-test, a survey was administered to 402 participants who were not health professionals or did not have any first-degree relatives working in the healthcare field. The sample size was assessed using the Kaiser-Meyer-Olkin (KMO) and Bartlett tests to ascertain its adequacy for Exploratory Factor Analysis (EFA). The results of these tests confirmed that the study was appropriate for EFA.

Following an explanatory factor analysis, the deservingness dimension consisting of six items, the schadenfreude dimension consisting of four items, the envy dimension consisting of five items, the sympathy and empathy dimension consisting of ten items and two sub-dimensions, and the anger and aggression dimension consisting of eleven items and two sub-dimensions were obtained. Based on the results of the explanatory factor analysis, an item with a factor loading of less than 0.3 in the envy dimension, two items with a cross-loading value of less than 0.1 in the empathy dimension, and one item with a cross-loading value of less than 0.1 in the anger dimension were not included in the analysis. On the other hand, to determine its reliability, Cronbach's alpha values of the sub-dimensions of the scale were determined, and it was concluded that the scale is highly reliable. As a result, 7 dimensions and 36 items were obtained as a result of explanatory factor analysis.

Following the explanatory factor analysis, a confirmatory factor analysis was completed. The analysis revealed that some dimensions showed an "acceptable fit" while others showed a "good fit" based on the reference range, with regards to the $\chi 2/sd$, RMSA, CFI, NFI, NNFI, and IFI values. According to the confirmatory factor analysis, it was concluded that all standard loadings of the statements were greater than 0.43 and less than one. However, the t values of the expressions were significant. To improve the fit values, the expressions were connected with 16 modifications specified in the LISREL findings.

For the first time in the context of violence against medical professionals, this investigation delved into the concept of schadenfreude that has previously undergone examination in various groups. However, uncovering the association between the aforementioned concept and concepts such as deservingness, envy, sympathy, empathy, anger, and aggression will facilitate a more comprehensive comprehension of the origins of violence. The developed measurement tool is believed to contribute to the identification of crucial outcomes with regard to the psychological aspect of addressing the issue of violence towards medical practitioners, a significant global problem. A deeper understanding of the phenomenon can provide a valuable foundation for developing feasible solutions.

In future research, alternative psychological interventions could be used to tackle violence towards doctors, which has not been explored in the present study. Nonetheless, adapting the developed scale for individuals employed in various fields may enable comparison of the causes of violent incidents in different fields.

The correlation analysis yielded significant results in this study. It was found that Schadenfreude has negative associations with sympathy and empathy and positive associations with anger and aggression. No significant correlation was found regarding envy. Moreover, empathy and sympathy were found to mitigate anger and aggression. Therefore, policymakers and healthcare institution managers should organize activities to increase empathy and sympathy tendencies towards doctors. Additionally, it is important to eliminate any biased beliefs that suggest doctors deserve violence. It is, therefore, recommended that research be undertaken to explore how empathy and sympathy towards doctors can be enhanced and how unwarranted judgments against them can be reduced.

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Pub No: OP-061

Rarely Encountered Hypokalemic Periodic Paralysis Associated with Conn Syndrome

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Abstract

Introduction and Purpose: Hypokalemic periodic paralysis (HPP) is a rare disorder characterized by attacks of muscle weakness due to decreased serum potassium levels, which can be life-threatening if left untreated. One of its secondary causes is the rarely encountered Conn Syndrome.

Case: Our patient, a thirty-three-year-old female, presented with progressively worsening muscle weakness and difficulty walking over a period of three days. She had no known comorbidities. Routine emergency blood tests revealed significantly low serum potassium levels. Her clinical symptoms completely resolved with potassium replacement therapy in a short period. Subsequently, she developed hypertension, and a diagnosis of Conn Syndrome was established.

Results and Conclusion: This case is presented to highlight the consideration of Conn Syndrome, a rare condition, in patients presenting with muscle weakness and paralysis in the emergency department.

Keywords: Emergency department, hypokalemia, periodic paralysis, Conn Syndrome

Introduction

Hypokalemic periodic paralysis (HPP) is an ion channel disorder characterized by attacks of paralysis in skeletal muscles due to a reduction in serum potassium levels (1,2). Respiratory muscles and consciousness are generally unaffected. HPP is an autosomal dominant inherited disorder and is seen in one per 100,000 individuals (3). During the attack phase, serum potassium levels are low, and potassium moves from the blood to muscle cells. In between attacks, both serum potassium levels and the patient's neurological examination are

entirely normal (4,5). In cases of developing hypertension that is unresponsive to standard treatment, consideration should be given to Conn Syndrome.

Case Presentation

A thirty-three-year-old female patient presented to our hospital's emergency department with a complaint of progressively worsening muscle weakness and difficulty walking over the course of three days. She had no recent history of infection, trauma, or medication use. Her medical history did not include any known comorbidities.

Her blood pressure was 120/70 mmHg, pulse rate was 104 beats per minute, body temperature was 36.4 °C, and oxygen saturation was 99%. The patient appeared to be in moderate overall condition with good mental status, orientation, and cooperation. Her light reflex was normal, pupillary responses were equal and isocoric, and muscle strength in the upper and lower extremities was 3/5 with decreased deep tendon reflexes. The examination of other systems was unremarkable.

A computed tomography scan of the brain performed in the emergency department was normal. Routine blood tests revealed hypokalemia with a level of 2.5 mEq/L (normal range: 3.5-5 mEq/L). An electrocardiogram (EKG) showed QT prolongation. The patient was consulted with the internal medicine department with a preliminary diagnosis of hypokalemic periodic paralysis and was admitted for further evaluation.

Despite potassium replacement therapy during her hospital stay, a 24-hour urine sample showed a daily potassium excretion of 88 mEq, primarily attributed to losses in the urine. Acidosis and alkalosis were not observed in the serial measurements of blood gases. ACTH and cortisol levels were measured and found to be within normal limits (cortisol: 12 µg/dL, ACTH: 30 pg/mL). The patient was normotensive during vital sign monitoring. After being discharged with recommendations for outpatient follow-up, the patient developed hypertension, prompting the initiation of antihypertensive therapy. Her renin level was found to be below 1.6 mg/dL, and aldosterone was measured at 15.5 ng/dL. Thyroid hormone tests were normal, ruling out thyrotoxicosis. Further evaluation, including abdominal ultrasound, revealed adrenal pathology. A magnetic resonance imaging of the abdomen confirmed the presence of an adenoma extending inferiorly from the right adrenal gland. The patient underwent laparoscopic right adrenalectomy. Pathological examination confirmed the diagnosis of adrenocortical adenoma, and the patient was scheduled for outpatient follow-up.

Discussion

In Hypokalemic Periodic Paralysis (HPP) with symmetric muscle involvement, weakness is the most significant clinical complaint. Respiratory and facial muscles are rarely affected, and sensory deficits are not observed in the disease. Severe attacks that can lead to death are very rare in this disorder. Deep tendon reflexes are diminished or absent. Attacks last between 6 to 12 hours in mild cases, while in severe cases, they can extend up to 3 to 8 days (6). In our case, there was widespread, severe muscle weakness in the lower extremities, and deep tendon reflexes were diminished. The patient did not have respiratory distress, and there was no involvement of bulbar and ocular muscles.

HPP is classified into primary and secondary forms based on its etiology. A mutation in the gene encoding the alpha-1 subunit of dihydropyridine-sensitive L-type calcium channels in the tubules of skeletal muscle, leading to autosomal dominant inheritance, is the primary cause of ion channel disease. Among the secondary causes, thyrotoxicosis is the most common, and other conditions include distal type renal tubular acidosis (RTA), primary hyperaldosteronism, Bartter syndrome, exposure to substances such as barium and amphotericin B, alcohol use, and diseases causing potassium loss due to severe diarrhea (7-10). In our case, a detailed history and physical examination were performed regarding secondary causes. Thyroid hormone tests were normal, ruling out thyrotoxicosis. Renin-aldosterone levels were measured, abdominal ultrasound was performed, and adrenal pathology was detected.

Conn Syndrome (primary hyperaldosteronism) is characterized by increased aldosterone secretion from the adrenal glands, suppressed plasma renin activity, hypertension, and hypokalemia. It can lead to increased potassium excretion in urine (hypokalemia/hypopotassemia), increased blood pH (alkalosis), and rarely elevated blood sodium (hypernatremia).

Symptoms of the disease may include frequent urination, increased thirst, weakness, fatigue, transient paralysis, palpitations, muscle cramps, and tingling, especially in individuals with significantly low potassium and/or hypertension.

It is essential to consider a diagnosis of Conn Syndrome in individuals with significant hypokalemia and/or hypertension. While it can occur in anyone, it is most commonly seen in adults between the ages of 30 and 50 and is more prevalent in women than men (5-8). In individuals with hypertension and hypokalemia, primary hyperaldosteronism should be

considered. Conn Syndrome may also be suspected in patients with hypertension resistant to standard antihypertensive treatments.

In conclusion, Conn Syndrome should be considered as a rare cause of hypokalemic periodic paralysis in patients presenting with sudden-onset muscle weakness and paralysis, along with neurological disorders.

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Pub No: OP-065

Posterior Reversible Encephalopathy Syndrome

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Abstract

Introduction: Posterior reversible encephalopathy syndrome (PRES) is a (sub)acute onset neurological disease characterized by a variety of neurological symptoms that may include headache, visual acuity or visual field disturbances, disturbances of consciousness, confusion, seizures, and focal neurological disorders.The diagnosis of PRES is made by anamnesis and radiological examination.Early diagnosis is important for clinical course.Early diagnosis and treatment of PRES is very important. Otherwise, it may cause permanent brain damage and neurological sequelae such as chronic epilepsy.

Case: A 72-year-old male patient was brought to the emergency room with a complaint of confusion.He has chronic kidney failure and lung cancer in his medical history.The patient's GCS: 13 is confused, A focal myoclonic seizure was observed in his right upper extremity.There was no additional feature in the physical examination.Vital signs: blood pressure 220/80 mmHg, respiratory rate 14/minute, pulse 80 beats/minute, temperature 36.5 °C, sPo2 96%. MRI showed an image consistent with vasogenic edema in the bilateral occipital region.The patient was consulted to neurology and internal medicine. After a few days of follow-up, he was discharged with full recovery

Conclusion: PRES is a temporary condition characterized by diffuse cerebral edema, more prominent in the parietal and occipital regions radiologically, which may present with nonspecific findings such as headache, nausea, vomiting, visual and mental changes, generalized and focal seizures.However, if diagnosis and treatment are delayed, it may progress with serious morbidity and mortality due to complications such as status epilepticus, intracranial hemorrhage and massive ischemic infarct formation. PRES can show similar clinical features with different clinical conditions such as ischemic or hemorrhagic stroke, encephalitis, and venous thrombosis. For this reason, it should be kept in mind in the differential

diagnosis of patients who come to the emergency department with altered consciousness and the importance of early diagnosis and treatment should not be forgotten.

Keyworld: PRES, Emergency medicine

Introduction: Posterior reversible encephalopathy syndrome (PRES) is a (sub)acute onset neurological disease characterized by a variety of neurological symptoms that may include headache, visual acuity or visual field disturbances, disturbances of consciousness, confusion, seizures, and focal neurological disorders.It is characterized by a variety of neurological signs and symptoms and distinctive neuroimaging findings reflecting vasogenic edema.Both clinical and imaging features are generally reversible. (1)Among the known causes of the syndrome are hypertensive encephalopathy, preeclampsia, eclampsia, HELPP syndrome, postpartum period following the seizure, immunosuppressive and cytotoxic drugs, renal failure secondary to hypertension, collagen vascular diseases, massive blood transfusion.The diagnosis of PRES is made by anamnesis and radiological examination.Early diagnosis is important for clinical course.On computed tomography (CT) and magnetic resonance imaging (MRI), it usually presents with largely symmetrically located edema in the occipital and parietal lobes, typically in the subcortical white matter, and sometimes in the cortex.Early diagnosis and treatment of PRES is very important. Otherwise, it may cause permanent brain damage and neurological sequelae such as chronic epilepsy.(2)

Case: A 72-year-old male patient was brought to the emergency room with a complaint of confusion.He has chronic kidney failure and lung cancer in his medical history.The patient's GCS: 13 is confused, light reflexes are positive bilaterally, there is no lateralization sign, no motor deficit, and no neck stiffness. A focal myoclonic seizure was observed in his right upper extremity.There was no additional feature in the physical examination.Vital signs: blood pressure 220/80 mmHg, respiratory rate 14/minute, pulse 80 beats/minute, temperature 36.5 °C, sPo2 96%.The patient was given 5 mg diazepam intravenously for his focal seizure and at the same time nicardipine was started as antihypertensive treatment.In blood values, creatine: 8.5 mg/dl, BUN: mg/dl.In order to diagnose and rule out possible central pathologies, the patient underwent brain computed tomography (CT) and diffusion-weighted magnetic resonance (MR) imaging.There was no pathology in the CCT of the patient.MRI showed an image consistent

with vasogenic edema in the bilateral occipital region.The patient was consulted to neurology and internal medicine. After a few days of follow-up, he was discharged with full recovery

Discussion: PRES is a temporary condition characterized by diffuse cerebral edema, more prominent in the parietal and occipital regions radiologically, which may present with nonspecific findings such as headache, nausea, vomiting, visual and mental changes, generalized and focal seizures.However, if diagnosis and treatment are delayed, it may progress with serious morbidity and mortality due to complications such as status epilepticus, intracranial hemorrhage and massive ischemic infarct formation. (3)Etiological causes of PRES include chemotherapeutic drugs, hypertension, sepsis, septic shock, preeclampsia, eclampsia, autoimmune diseases, electrolyte disorders (hypomagnesemia, hypercalcemia) and acute renal failure. (4)On MRI, hyperintensity is observed in T2W and flair sequences, which is typically characterized by vasogenic edema in the bilateral parietooccipital regions. (5) In most studies, it is accepted that a sudden increase in blood pressure is the cause of PRES.Treatment of this syndrome should mainly be directed towards the cause.If early treatment is not initiated, life-threatening bleeding may develop in the affected cranial areas.PRES can show similar clinical features with different clinical conditions such as ischemic or hemorrhagic stroke, encephalitis, and venous thrombosis (6) For this reason, it should be kept in mind in the differential diagnosis of patients who come to the emergency department with altered consciousness and the importance of early diagnosis and treatment should not be forgotten.

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Pub No: OP-066

Elbow Displacement Can Also Occur In Adults

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INTRODUCTION

Elbow dislocations can be complete or partial and usually occur after a trauma such as a fall or accident. In a complete dislocation, the articular surfaces are completely separated. In partial dislocation, the articular surfaces are only partially separated. Partial dislocation is also called subluxation. Elbow dislocations are not common. It typically occurs when a person falls on an outstretched hand. When the hand hits the ground, the force is sent to the elbow. Usually there is a rotational motion of this force. This can remove and rotate the bracket from its slot. A complex dislocation can cause serious bone and ligament injuries. In the most severe dislocations, the blood vessels and nerves running through the elbow can be injured. If this happens, there is a risk of losing the arm. In some patients with connective tissue disease and high joint mobility, such subluxations can be seen even in minor traumas.

CASE

A 38-year-old male patient comes with a complaint of elbow pain after tripping over his feet and falling on his left hand. The vitals of the patient, who had no known additional disease, were within natural limits. In the systemic examination, he had limited range of motion in the left elbow, a deformic appearance, and tenderness in the olecranon region. Neurovascular examination was found naturally. A dislocation of the elbow was observed in the direct X-ray, and the orthopedic surgeon was consulted. The patient, who underwent reduction under sedation, had a normal control neurovascular examination, and a millimetric bone fragment was observed in the tomography of the joint. He was discharged with the recommendation of orthopedic follow-up with symptomatic prescription.

CONCLUSION

Due to the complex ligament structures and neurovascular neighborhoods present in elbow dislocations secondary to direct or indirect trauma in adults, urgent diagnosis should be made and treatment should be arranged under the guidance of a specialist. It is aimed to raise awareness for this luxation, which can be encountered in the emergency department, although it is rare, and to emphasize the importance of follow-up advanced imaging.

KEY WORDS: *Elbow dislocation, Neurovascular examination*


Coronal MPR

Pub No: OP-067

Lung Contusion Volume: Do You Really Know?

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Introduction and Purpose: Pulmonary contusion is one of the most common complications of blunt chest trauma. It is sometimes very difficult for a physician to determine the extent and real amount of pulmonary contusion. The aim of the study was to measure the accurate pulmonary contusion volume on computed tomography images by using the manual planimetry method with the Cavalieri principle.

Material-Methods: The study was performed on 76 patients who were admitted to the Emergency Medicine Clinic with lung contusion. Patient data were retrospectively screened and computed-tomography images of patients with lung contusion were examined to calculate lung contusion volume. After measurement in all lung sections, lung contusion volume was calculated in 6-8-10 sections by systemic randomized sampling. The volume of the contusion was calculated by two independent observers using the manual planimetry method.

Results and Conclusion: The mean volume of contusion obtained from all cross-section measurements was 34.23 ± 17.56%. In 6 sections measurement, contusion volume was 27.98±15.05%, in 8 sections 30.66±16.07% and in 10 sections 32.47±16.97%. When we examined the Bland Altman graphs, it is seen that the mean difference obtained from the 10 sections is smaller than the 6 and 8 sections measurements and the confidence interval is narrower. Therefore, we can say that the 10 sections measurement gives the closest evaluation to all lung contusion measurements with about 95% accuracy ratio.

Lung contusion volume can be objectively evaluated using the manual planimetry method with systematic random sampling without whole lung area measurement on CT with high interobserver and intraobserver agreement.

Key words: Computed tomography; contusion volume; lung contusion; planimetry method; trauma.

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Pub No: OP-068

Ischemic Stroke After Bee Sting

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Summary:

A bee sting can be a serious problem that affects people all over the world. Several clinical manifestations of bee sting have been described elsewhere. Furthermore, local allergic reactions are more common, causing pain, redness, and swelling of soft tissue within a few hours.

Case Report :

A 63 -year-old male patient was brought to the emergency department because of widespread redness, pain and itching at the sting site after a bee sting while pruning roses in the garden.

No acute pathology was found in the physical examination performed at the time of admission, and imaging tests were requested due to the development of weakness in the right lower/upper extremities during the follow-up of the patient. In DWMRI, diffusion restriction was detected in the area adjacent to the left lateral ventricle and he was hospitalised by the Neurology clinic for follow-up and treatment.

Discussion:

Various clinical presentations after a bee sting have been described in the literature. Bee stings often cause local dermal allergic reactions. However, various systemic involvements can result in serious complications . Anaphylaxis is a serious systemic involvement that causes sudden death. Anaphylactic shock, are other unusual systemic manifestations that can occur. Also, there have been prior reports of neurological reactions including epileptic seizures, peripheral neuropathies and cerebrovascular disease. The clinical signs of neurological involvement associated with bee sting vary depending on underlying immunological, ischemic or toxic mechanisms . These reactions require long-term follow-up as they can start in the first hours and last for several days. Our patient had no previous history of epilepsy or cerebrovascular disease and Here, we present ischemic stroke after bee sting, which is an extremely rare neurological involvement due to bee sting .

INTRODUCTION:

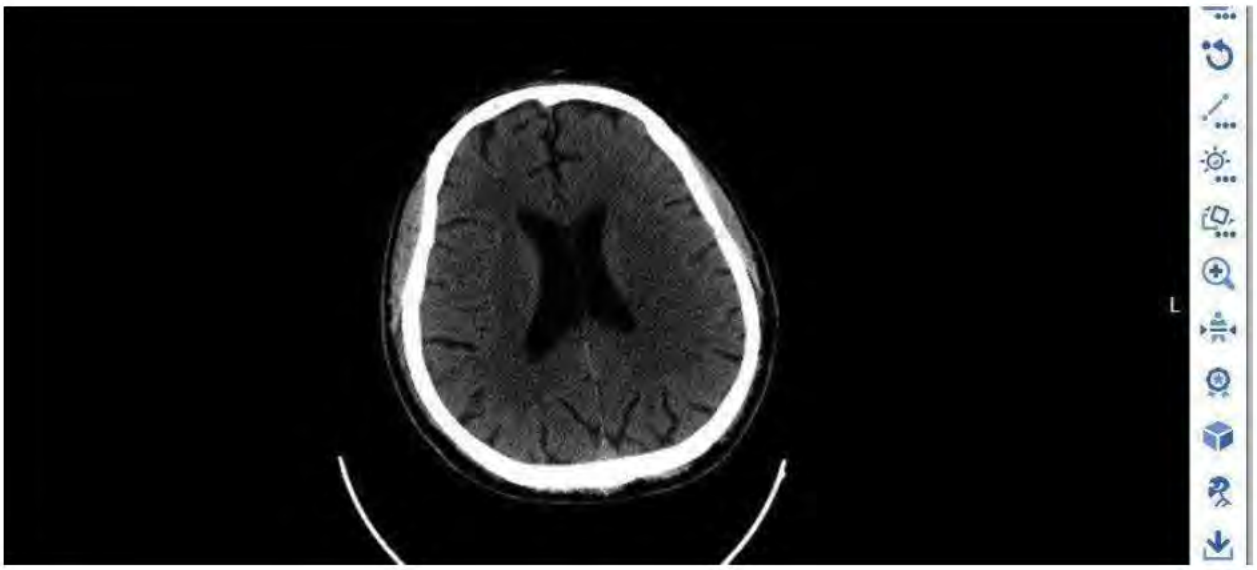
A bee sting can be a serious problem that affects people all over the world. Several clinical manifestations of bee sting have been described elsewhere. Furthermore, local allergic reactions are more common, causing pain, redness, and swelling of soft tissue within a few hours (1-2) . However, signs in severe cases may include myocardial infarction, pulmonary edema, bleeding, kidney failure, and life threatening anaphylactic shock (3). Neurologic symptoms have scarcely been reported in the literature but include encephalitis, acute disseminated encephalomyelitis (4). In this case report, we present a patient with ischemic stroke after bee sting .

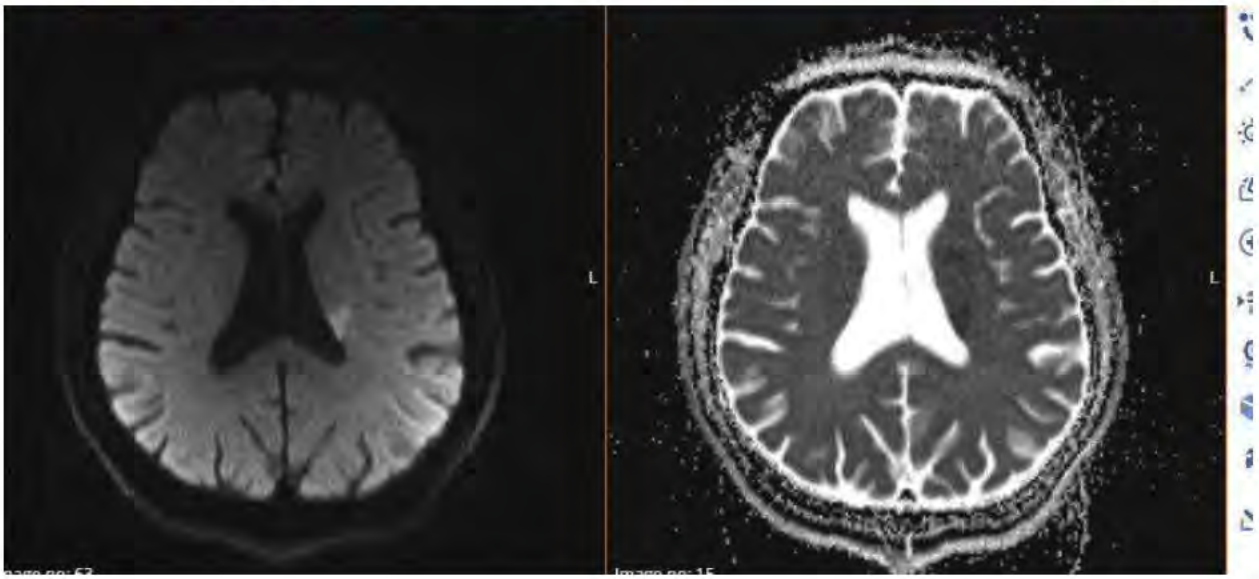
Case Report :

A 63 -year-old male patient was brought to the emergency department because of widespread redness, pain and itching at the sting site after a bee sting while pruning roses in the garden, with a past medical history of hypertension type 2 diabetes and coronary artery disease .He denied alcohol or tobacco use .

On arrival to the ER her vitals were as follows blood pressure (BP):130/80 mmHg, heart rate (HR) 75 beats/min, respiratory rate (RR) 14/min, temperature: 36.4 oxygen saturation: 98% on room air. The general condition is alert and oriented,Neurologic examination, the mental-status examination was normal ,glasgow coma Scale (GCS) was 15 (E4, V5, M6) , other physical examination There is no tachycardia,no tachypnea no murmur-rubbing-galloping. Respiratory system examination is clear to auscultation bilaterally. The remainder of his physical exam was normal. After the physical examination, laboratory tests were requested and symptomatic treatment was started. In the emergency room follow-up, the patient developed weakness in the right lower/upper extremities ,in the control neurological examination, the mental status examination was normal, and the Glasgow Coma Scale (GCS) score was 15 ,the patient exhibited right central facial paralysis, a 3/5 loss of strength in the right upper/lower extremity, and a positive Babinski sign on the right side.As the current clinical presentation

changed, a non-contrast brain CT scan was performed, and no acute pathology was detected (figure 1) However, a DWI (Diffusion-Weighted Magnetic Resonance Imaging) was performed and diffusion restriction was detected in the area adjacent to the left lateral ventricle (figure 2) .In response to the detection of an acute ischemic lesion in the imaging tests, rt-PA (recombinant human tissue-type plasminogen activator) was administered in accordance with the recommendations of the neurology consultant physician .The patient's relatives were informed about the treatment. However, since it was not accepted, the patient was given oral (PO) medication, which included 300 mg of Ecopirin and 0.6 mg of LMWH (Low Molecular Weight Heparin) Enoxaparin, The patient was admitted to the Neurology clinic and hospitalized. However, the patient was discharged on hospital day 5.





Discussion :

Various clinical presentations after a bee sting have been described in the literature. Bee stings often cause local dermal allergic reactions. However, various systemic involvements can result in serious complications . Anaphylaxis is a serious systemic involvement that causes sudden death. Anaphylactic shock, are other unusual systemic manifestations that can occur.(5) Also, there have been prior reports of neurological reactions including epileptic seizures, peripheral neuropathies and cerebrovascular disease. The clinical signs of neurological involvement associated with bee sting vary depending on underlying immunological, ischemic or toxic mechanisms . These reactions require long-term follow-up as they can start in the first hours and last for several days (6) .

Our patient had no previous history of epilepsy or cerebrovascular disease and Here, we present ischemic stroke after bee sting, which is an extremely rare neurological involvement due to bee sting .

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Pub No: OP-069

Evaluation of Laboratory Parameters in Children with Febrile Convulsions

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ABSTRACT

Introduction

Febrile convulsion (FC) is most commonly seen in children aged 6-60 months and the prognosis is generally good. There are conflicting results in the literature regarding serum biomarkers in patients with simple febrile convulsions (SFC) and complex febrile convulsions (CFC). Therefore, this study was aimed to contribute to the literature by evaluating the serum biomarkers of febrile convulsion patients in a broader scope.

Materials and Methods

This study is a retrospective analysis based on database review. It was performed on a total of 164 children aged 6-60 months admitted to the pediatric emergency department of Merzifon Kara Mustafa Pasha State Hospital in Amasya, Turkey, between June 2019 and June 2023 due to FC. The control group consisted of 119 children who presented with fever but had no history of febrile convulsions. Data on age, gender, serum biomarker levels were obtained from the medical records of the patients in the hospital information management system and laboratory results.

Results

The median age of patients admitted with febrile convulsions was 22.5 (5-60) months. 55.5% of the participants were male. Among the patients with FC, 23.7% were found to have had CFC. The difference in serum biomarker parameters including glucose, K, CA, WBC, CRP, ALT, pH, lactate, pH, and glucose was statistically significant between the SFC, CFC and control groups ($p<0,05$).

Conclusion

Since serum biomarkers differed between groups according to the data of our study, it was thought that serum biomarkers may provide a prediction for differentiating between SFC and CFC in children.

INTRODUCTION

Febrile convulsion (FC) is defined as a seizure that occurs in children aged 6-60 months and is accompanied by a fever of at least 38◦C without central nervous system infection (1). Febrile seizures are observed in 2% to 5% of all children (2, 3). Febrile seizures are classified as simple, complex febrile seizures and febrile status epilepticus according to duration, presence of focal findings and recurrence (1). Simple febrile convulsion (SFC) is defined as primary generalized seizures lasting less than 15 minutes and not recurring within 24 hours. Complex febrile convulsion (CFC) is defined as focal, prolonged (≥15 minutes) and/or recurrent FC within 24 hours (2). FC occurs most frequently in winter months (4) and is considered benign (5). In some sources, no gender difference was observed in the incidence of FC, whereas in others, it was shown to be more common in men (6, 7).

Some studies have investigated whether patients with hyponatremia during febrile illness are more likely to have CFC than children without hyponatremia (8). Some of these studies have shown that hyponatremia may increase the likelihood of CFC during febrile illness (9-12); however, others have reached the opposite results (13-15). Serum calcium and serum ferritin levels were compared between patients who had FC and patients who had fever but did not have FC, and it was shown that these values did not help to determine the risk for FC (16).

Patients who had FC during febrile illness were found to be similar in terms of age, gender, white blood cell (WBC) count, neutrophil ratio, C-reactive protein (CRP), and serum glucose when compared with patients who did not have FC. However, hemoglobin, platelet count and serum sodium levels were found to be significantly lower in patients who had FC during febrile illness compared to those who did not (17).

In accordance with these data in the literature, this study was planned to evaluate the serum biomarkers of patients with febrile convulsions, to compare patients with febrile convulsions with each other and to compare patients with febrile convulsions with control group patients without febrile convulsions.

MATERIALS AND METHODS

This study is a retrospective analysis based on database review. A database consisting of patients under 18 years of age admitted to the pediatric emergency department of Merzifon Kara Mustafa Pasa State Hospital, a second-level hospital, between 01.06.2023-01.06.2019 due to fever and seizures was created. The diagnosis of FC was based on the criteria established by the American Academy of Pediatrics in 2011(1). Febrile illnesses that cause FC include acute upper respiratory tract infection, urinary tract infection, acute laryngitis, acute bronchitis/bronchiolitis and herpes angina. Children with missing medical data and chronic neurological and systemic diseases such as epilepsy, diabetes, genetic syndrome, congenital malformation, inherited metabolic disease, intracranial space-occupying lesion, meningitis, intellectual disability and brain injury were excluded. Gastrointestinal diseases such as diarrhea were also excluded.

Children who presented to the pediatric emergency department with fever and did not have any disease that could cause electrolyte loss (diarrhea, vomiting, etc.) and who were identical in age and gender were selected as the control group.

Age, gender, history of previous FC, body temperature at presentation, duration of convulsion, and results of blood tests performed after FC were obtained from the patient records. Data on the last seizure of the patients with a history of more than one episode of FC and the patients who were hospitalized were recorded. In the control group, body temperature at admission, age, gender and blood test results were collected.

Blood tests included: white blood cell count (WBC), hemoglobin (Hb), platelet count (PLT), neutrophil count (NC), aspartate aminotransferase (AST), alanine aminotransferase (ALT), sodium (Na), potassium (K), calcium (Ca), glucose (Glu), C-reactive protein (CRP), pH, lactate. In patients who had blood drawn more than once in the same admission, the data of the first examination were recorded.

The patients with FC were divided into two groups as those with simple FC and those with complex FC and statistical analysis was performed between 3 groups including the control group.

STATISTICS

The research data were analyzed using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp. Armonk, NY: USA. Released 2017). Descriptive statistics are given as numbers and percentages for categorical variables. The conformity of numerical variables to normal distribution was evaluated by Shapiro-Wilk test. Variables conforming to normal distribution were expressed as mean ± standard deviation (SD) and variables not conforming to normal distribution were expressed as median and minimum maximum (min-max) value. Chi-Square test was used in the analysis of categorical variables, One-Way Anova test was used in the analysis of numerical variables that fit the normal distribution in independent groups, and Kruskal Wallis test was used in the analysis of numerical variables that did not fit the normal distribution in independent groups. Statistical significance level was accepted as $p<0.05$.

ETHICAL ASPECTS OF THE RESEARCH

A written study permit dated 06.07.2023 and numbered 181 was obtained from Hitit University Non-Interventional Research Ethics Committee for this study conducted in the emergency department of Merzifon Kara Mustafa Paşa State Hospital.

RESULTS

The number of patients admitted to the pediatric emergency department due to FC within the specified dates was 164 and the median age of the patients was 22.5 (5-60) months. It was observed that 73 (44.5%) of the patients were female and 91 (55.5%) were male. The distribution of gender and laboratory parameters of the patients with FC is given in Table I.

Of 164 patients with FC, 125 (76.2%) had simple FC and 39 (23.7%) had complex FC. The control group consisted of 119 patients. A statistically significant difference was found between these three groups (simple FC, complex FC, control group) in the biomarker parameters Glucose, K, Ca, Ca, BK, CRP, ALT, pH, Lactate ($p<0,05$). The gender distribution of the 3 groups and statistical comparison of biomarkers are summarized in Table II.

DISCUSSION

Although evaluation of serum electrolytes is not routinely recommended in patients with simple FC, some laboratory tests are recommended after detailed history and careful physical

examination (1, 15). In any patient presenting with seizures, serum glucose level is one of the parameters that must be evaluated (1, 15). However, it has been observed in many studies that laboratory biomarkers show differences between simple FC and complex FC and between both groups and the control group (9-12, 16, 17). Studies showing the opposite have also been found (1, 13-15). The aim of this study was to evaluate laboratory biomarkers comprehensively and to contribute to the literature.

In our study, it was found that FC was more common in male children (14, 16-18). In a study by Forsgen et al., it was found that FC was more common in males and the male/female ratio was found to be 1.72/1 (6). In the literature, no gender difference was observed between the control groups of simple FC and complex FC (11, 14, 17, 18). Similarly, in our study, it was observed that 55.5% of the patients with FC were male and no gender difference was found between the groups.

FC is a disease seen in children aged 60 months and younger (1). In the literature, it has been reported that the mean ages of simple and complex FC patients were similar (14, 17), and there was no difference in terms of age between the patients in the control group consisting of children who had fever but did not have FC (11, 16, 18). In our study, the median age was 22.5 (5-60) months and there was no difference between simple and complex FC groups, similar to the literature.

Although it is known that electrolyte disturbance in pediatric patients may lead to seizures and facilitate seizures, examination of serum electrolyte values in patients with FC has received little attention in the scientific literature (19). While some studies reported that Na levels were important in predicting seizure recurrence (9-12), some studies (13-15) showed no difference in Na levels between simple and complex FC and the control group, similar to our study.

Comparison of the clinical and laboratory findings of the patient and control groups in our study showed that serum K and Ca levels were significantly lower in the FC group compared to the control groups. Deterioration in serum electrolytes is among the most important pathogenesis theories for FC, but has not yet been confirmed (20). In a study conducted by Amouian et al. with 160 patients with FC and a control group, it was shown that calcium value was not significant, but in this study, patients with FC were not grouped as complex or simple (21). In a study by Sharavat et al. it was found that low serum Ca, Na and glucose levels and the presence of microcytic hypochromic anemia played a role in the first febrile seizure (22). A study by

Michael et al. revealed that Ca and other electrolyte levels were in the normal range in patients with FC (23). In another study conducted by Mohammadi et al. it was observed that increased or decreased serum K, Ca, Na and glucose levels were not associated with the onset of febrile seizure (24). Further research is needed to determine whether serum K and Na levels help to predict the prognosis of FC.

In some studies, anemia has been shown to be a risk factor for febrile seizures (22, 25), while others have found no association between febrile seizures and FC (16). Similarly, studies have shown that decreased PLT counts in patients with FC may be related to the release of numerous inflammatory mediators caused by infection (26, 27). Sharawat et al. found no correlation between the FC group and the control group in terms of hemoglobin value (22). In our study, similar to the literature, no statistical difference was found between the groups in terms of Hb and PLT counts.

In our study, the difference in the BM level between the simple FC group and the control group was found. In the study by Chen et al. no difference was observed between the febrile and non-febrile control groups of patients with FC (17); similarly, in the study by Liu et al. no correlation was found between the WBC values in the FC and control groups (26). Yousefichaijan et al. showed that WBC was significantly higher in the control group compared to children with FC (28). We think that it is difficult to interpret this difference in WBC accurately. Since the causative agents of fever were unclear (bacterial/viral) and there may be differences in the degree of dehydration in both control and FC group patients, the difference between the groups was not associated with the presence or absence of convulsions.

In the studies conducted by Göksugur et al. and Yiğit et al. in which simple and complex FC cases were evaluated, no difference was found between NC values. The dependence on multiple variables in the evaluation of the number of WBC is also valid for the NC, and the difference between the groups cannot be associated with the presence or absence of convulsions.

C-reactive protein (CRP) is considered as one of the inflammatory markers. In this study, CRP levels were found to differ between children with simple FC and febrile children without seizures. Romanowska et al. showed that CRP levels were significantly lower in children with FC compared to control group children (15,73 vs. 58,50; $p<0,001$) (27). The reason for this

difference suggested that FC may occur before CRP reaches its highest level in the blood and comments supporting this idea were found in the literature (27, 29). Therefore, CRP was not defined as a factor affecting FC sensitivity in this study.

Stress hyperglycemia and hyperlactatemia are often shown as markers of stress severity and poor outcome in children with severe acute illness or febrile seizures (30). Stress hyperglycemia is defined as transient, elevated blood glucose levels that resolve spontaneously after the acute illness regresses (31). When the literature is reviewed, it has been found that the prevalence of stress hyperglycemia is relatively high in children with FC and that there is a significant predisposition to stress hyperglycemia in children with complex and especially prolonged FC (exceeding 15 minutes). In addition, a significant statistical relationship has been shown between pH, hyperlactatemia and stress hyperglycemia indicating anaerobic glucose metabolism in the case of FC (30, 32). Although the data in our study were similar to the data in the literature, it could not be determined how long after the seizure activity the samples for blood glucose and blood lactate values were taken.

Although it is well known that serum alanine aminotransferase (ALT) levels are elevated due to liver damage, there is controversy that skeletal muscle injury may also cause this condition(33). In a study conducted by Nathawi et al., it was shown that ALT was accompanied by elevated aspartate aminotransferase (AST) levels and the AST/ALT ratio was greater than 3 in patients with seizures (33). In our study, a significant difference was found between the simple FC and control groups in ALT values, and it could not be clearly distinguished whether the ALT elevation was due to convulsion or due to the infection picture that the patient was undergoing. Therefore, more studies are needed to clearly demonstrate the relationship between liver function tests and FC.

In conclusion, this study has shown that Ca and K, serum electrolytes; WBC and CRP, acute phase reactants; pH, hyperglycemia and hyperlactatemia, stress-related factors; ALT, liver function values may serve as biomarkers in the prognosis and follow-up of simple and complex FC and we think that large-scale multicenter studies will support the data in our study.

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TABLES

Table I. Distribution of Gender and Laboratory Parameters of Febrile Convulsion Patients

Sex	**n (%)**
Female	73 (%44,5)
Male	91 (%55,5)
Laboratuvar Parametreleri	
Sodium (mmol/L)	135 (125-141)
Potassium (mmol/L)	4,2 (3,2-6,3)
Calcium (mg/dL)	9,62 ± 0,40
Leukocyte Count (10^3xuL)	12,6 (3,3-36,8)
Neutrophil Count (10^3xuL)	6,1 (0,3-27,2)
Hemoglobin (g/dL)	11,6 (6,3-14,8)
Platelet Count (10^3xuL)	299,5 (15,2-929)
CRP (mg/L)	7,19 (0,10-187,00)
Ph	7,30 (6,98-7,53)
Lactate (mmol/L)	3,2 (0,10-10,60)
Glucose (mg/dL)	127 (70-219)
AST (U/L)	37 (19-172)
ALT (U/L)	16 (2-56)

CRP: C-reactive protein, AST: Aspartate transaminase, ALT: Alanine aminotransferase

[a]Data shown are mean ± standard deviation and median (min-max)

Table II. Comparison of Demographic and Biomarkers of Simple, Complex FC Patients with Control Group Patients

	Simple Febrile Convulsion	Complex Febrile Convulsion	Control Group	P-Value
Age (month)	22 (5-60)	25 (8-60)	28 (6-60)	0,319*
Sex				
Female, n (%)	60 (%33,3)	13 (%48,0)	48 (%40,3)	0,212#
Male, n (%)	65 (%66,7)	26 (%52,0)	71 (%59,7)	
Laboratuvar Parametreleri				
Sodium[1]	135 (126-140)	134 (125-141)	135 (126-141)	0,072*
Potassium[1]	4,1 (3,3-5,5)	4,2 (3,2-6,3)	4,4 (3,3-5,8)	**0,005*,a**
Calcium[2]	9,62 ± 0,41	9,63 ± 0,37	9,79 ± 0,48	**0,014**,b**
Leukocyte Count[3]	12,5 (3,3-36,83)	14 (3,3-27,76)	10,4 (2,3-31,8)	**0,036*,a**
Neutrophil Count[3]	6,5 (0,6-19,2)	6,43 (0,3-17,4)	5,3 (0,8-27,2)	0,278*
Hemoglobin[4]	11,6 (6,3-14,8)	11,5 (9,5-14,1)	11,9 (7,8-14,3)	0,194*
Platelet Count[3]	309 (136-929)	280 (15,2-573)	302 (158-706)	0,485*
CRP[5]	6,50 (0,18-134,00)	9,00 (0,10-187,00)	13,38 (1,00-200,00)	**>0,000*,a**
Ph	7,30 (6,98-7,53)	7,31 (7,14-7,44)	7,41 (7,26-7,47)	**>0,000*,c**
Lactate[1]	3,24 (0,10-10,60)	3,10 (0,90-8,50)	1,89 (1,07-3,89)	**>0,000*,c**
Glucose[2]	125,5 (71-218)	130 (70-219)	88 (42-149)	**>0,000*,c**
AST[6]	38 (19-172)	35 (20-96)	36 (15-114)	0,133*
ALT[6]	17 (3-56)	15 (3,5-42)	15 (7-163)	**0,038*,a**

CRP: C-reactive protein, AST: Aspartate transaminase, ALT: Alanine aminotransferase
[1](mmol/L), [2](mg/dL), [3](cell count/10^3xuL), [4](g/dL), [5](mg/L), [6](U/L)
** p value for Kruskal-Wallis Test*
 # p value for Chi-Square Test
*** p value for One-way ANOVA Test*
[a]There was a statistically significant difference between Simple Febrile Convulsion and Control Group (Kruskal-Wallis Test)
[b]There was a statistically significant difference between Simple Febrile Convulsion and Control Group (One-way ANOVA Post-hoc Tukey Test)
[c]There was a statistically significant difference between the Control Group and the other two groups (Kruskal-Wallis Test)
[d]Data shown are mean ± standard deviation and median (min-max)

Pub No: OP-071

A Rare Case of Thoracic Aortic Aneurysm Presenting with Massive Hemoptysis

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Introduction:

An aortic aneurysm is defined as the dilation of the aortic vessel, increasing its diameter by approximately one and a half times. When the aortic diameter exceeds 4.5 cm, the risk of aneurysm, dissection, and sudden death increases[1]. Thoracic aortic aneurysms (TAA) are observed in approximately 6 out of every 100,000 individuals[2]. TAA (Thoracic Aortic Aneurysm) is often clinically silent and is typically incidentally identified during imaging examinations. When TAA becomes symptomatic, it often presents with chest pain and back pain, which are secondary to potential life-threatening conditions such as aortic dissection or aneurysm rupture; hemoptysis is exceedingly rare in TAA patients[3]. Massive, life-threatening hemoptysis is most commonly associated with causes such as bronchiectasis, malignancies, and infectious etiologies[4]. In our case, the source of massive hemoptysis is a TAA rupture.

Case:

A 62-year-old male patient presented to the emergency department with complaints of bloody sputum and vomiting of blood for approximately 4 days. He has a history of alcoholic cirrhosis, smoking, and coronary artery disease. There is no history of prior surgery. His regular medications include Perindopril, metoprolol, aspirin, atorvastatin, pantoprazole, furosemide, and spironolactone. On physical examination, the patient is in moderate general condition, cooperative, and oriented. Minimal tenderness is noted on abdominal examination, and there is no difference in blood pressure between the extremities. Other systemic examination findings are within normal limits. Vital signs include a temperature of 36.6°C, a pulse rate of 106 beats per minute, a blood pressure of 147/72 mm Hg, and oxygen saturation (SatO2) of 96%. Hemoglobin (HGB) is measured at 9.13 g/dL (normal range: 13-17), indicating a 2 g/dL decrease from the value recorded 10 months ago, with a subsequent 3 g/dL decrease during

follow-up. Other laboratory tests are within normal ranges. Given the patient's history of cirrhosis, an upper gastrointestinal endoscopy was performed to assess for esophageal variceal bleeding. Endoscopy revealed no varices or active bleeding, and the upper gastrointestinal mucosa appeared normal. A computed tomography (CT) scan was performed to investigate the etiology of hemoptysis and abdominal pain, revealing a rupture of the thoracic aortic aneurysm (TAA) at the T10 level with communication into the bronchus (Figure 1.2.3). Consequently, the patient was initiated for transfer to a center capable of performing Thoracic Endovascular Aneurysm Repair (TEVAR) due to the TAA rupture. The patient received a blood transfusion, endotracheal intubation, and intravenous administration of 1 gram of tranexamic acid (TXA), followed by a continuous infusion of 125 mg/h TXA. Despite receiving resuscitative support, the patient, who continued to experience active bleeding, succumbed to his condition in the emergency department.

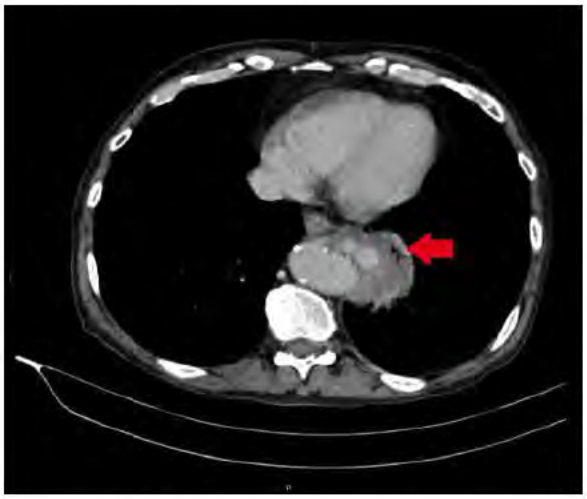

Figure 1: TAA Rupture is marked with a red arrow,



Figure 2: TAA rupture at the T10 level with communication into the bronchus was visualized



Figure 3: T10 TAA Rupture is marked with a red arrow

Discussion:

Thoracic aortic aneurysms (TAAs) inherently tend to remain silent in nature, with over 95% of cases being asymptomatic[2]. The enlargement of the aortic diameter, genetic factors like a family history of Marfan syndrome, smoking, and the presence of coronary artery disease are significant triggers for rupture[5]. In the literature, cases of TAAs presenting with hemoptysis leading to fatal outcomes have been reported, alongside case series demonstrating successful outcomes with Thoracic Endovascular Aneurysm Repair (TEVAR)[3, 5, 6]. While advancements in technology, including bronchoscopy, interventional embolization, and CT angiography, have facilitated early diagnosis and treatment options for massive hemoptysis, it can still be associated with a poor prognosis. Cases of massive hemoptysis managed solely with conservative methods have been reported to have mortality rates reaching up to 75%[7]. This rare case underscores the potentially fatal outcome associated with TAA rupture in a patient presenting with massive hemoptysis. TAAs often progress silently, and when symptoms manifest, they are frequently linked to life-threatening complications. Hence, the importance of regular monitoring and evaluation, especially in patients with risk factors, should be emphasized. Early diagnosis and the utilization of treatment options can increase the chances of patient survival and prevent fatal consequences.

Conclusion:

In cases where patients present to the emergency department with complaints of vomiting blood and bloody sputum, the source of hemorrhage is not always attributed to the nasopharynx, gastrointestinal system, or respiratory system[8]. Ruptures of major vascular structures can also lead to symptoms such as hemoptysis and hematemesis[6, 9]. This case has been presented to emphasize the importance of considering the differential diagnosis of TAA rupture, which has distinct treatment approaches.

Keywords: Thoracic Aortic Aneurysm, Hemoptysis, Gastrointestinal system bleeding

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Pub No: OP-072

INVESTIGATION OF FACTORS AFFECTING 28-DAY MORTALITY IN GERIATRIC PATIENTS DIAGNOSED WITH PROXIMAL FEMUR FRACTURE IN THE EMERGENCY DEPARTMENT

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Introduction: Proximal femur fractures in the elderly have a significant impact on the quality of life for both patients and their families, making them an important public health issue. As life expectancy increases and the geriatric population continues to grow, the global number of hip fractures has increased from 1.26 million in 1990; It is estimated that it will increase to 4.5 million in 2050[1]. As described in the literature, approximately 30% of people aged 65 and over fall once a year. Currently, hip fractures affect 18% of women and 6% of men worldwide[2]. Our aim in this study was to investigate the factors affecting the 28-day mortality of geriatric patients diagnosed with proximal femur fractures in emergency department (ED). We aimed to compare the effectiveness of Almelo Hip Fracture Score (AHFS), Nottingham Hip Fracture Score (NHFS), Charlson Comorbidity Index (CCI), and Modified Rapid Emergency Medicine Score (mREMS) in predicting patients 28-day mortality, in-hospital mortality and the need for admission to the Intensive Care Unit (ICU).
Materials and Methods: In our study, we examined NHFS, AHFS, mREMS and CCI scores, the need for admission to the ICU, 28-day survival status, and in-hospital survival status of patients ≥65 years who presented to our ED between June 1, 2022 and December 31, 2022 with a diagnosis of proximal femur fracture. The Receiver Operating Characteristic (ROC) curve method was used to calculate the success and threshold values of NHFS, AHFS, mREMS and CCI scores in predicting ICU admission, 28-day mortality and in-hospital mortality.It was considered statistically significant when $P<0.05$. All analyses were performed using SPSS version 22.0 statistical software (SPSS Inc, Chicago, IL).
Results: A total of 181 patients were included in our study. When patients were examined in terms of outcomes, it was observed that 18.2% (n=33) lost their lives within the first 28 days, 10.5% (n=19) dead in the hospital and 48.1% (n=87) required admission to the ICU (Table 1). In the conducted ROC analysis, among the compared scoring systems, mREMS was found to be statistically unsuccessful in predicting all three outcome statuses, while AHFS was identified as the most successful scoring method in predicting all three outcome statuses. Accordingly, when AHFS was ≥8, it successfully predicted 28-day mortality with a sensitivity of 81.8% and specificity of 60.8% (95% CI, AUC: 0.772; $P<0.001$), in-hospital mortality with a sensitivity of 89.5% and specificity of 58.0% (95% CI, AUC: 0.798; $P<0.001$) and the need for ICU admission with a sensitivity of 81.2% and specificity of 83.0% (95% CI, AUC: 0.883; $P<0.001$). In light of the results obtained in our study, AHFS stands out as a step ahead in predicting early mortality and morbidity in geriatric patients with proximal femur fractures compared to other scoring systems, clinical and laboratory values.

Table 1. Demographic and Clinical Characteristics of Included Patients in the Study

		n (%)
Gender	Male Female	72 (39,8) 109 (60,2)
Age (years)	Male Female Total	81,43 ± 9,06) 82,13 ± 7,86 81,85 ± 8,34
Type of Fracture	Intertrochanteric Neck of Femur Subtrochanteric Trochanter Major	113 (62,4) 55 (30,4) 8 (4,4) 5 (2,8)
Fractured Side	Right Left	92 (50,8) 89 (49,2)
Admission to the ICU	Yes No	87 (48,1) 95 (51,9)
Invasive Ventilation Requirement	Yes No	18 (9,9) 163 (90,1)
Erythrocyte Suspension Transfusion	Yes No	117 (64,6) 64 (35,4)
Fresh Frozen Plasma Transfusion	Yes No	66 (36,5) 115 (63,5)
In Hospital Mortality	Alive Dead	162 (89,5) 19 (10,5)
28 Day Mortality	Alive Dead	148 (81,8) 33 (18,2)

Table 2. Success of AHFS, NHFS, CCI, and mREMS Scores in Predicting 28-Day Mortality.

	AUC (%95)	***P***	**Sensitivity (%)**	**Specifity (%)**
AHFS ≥ 8	0,772 (0,688– 0,856)	***<0,001***	81,8	60,8
NHFS ≥ 6	0,705 (0,607– 0,803)	***<0,001***	60,6	68,9
CCI ≥ 6	0,637 (0,540– 0,733)	***0,014***	54,5	60,8
mREMS ≥ 5	0,584 (0,468- 0,701)	0,130	54,5	60,1

Table 3. Success of AHFS, NHFS, CCI, and mREMS Scores in Predicting In-Hospital Mortality.

	AUC (%95)	*P*	Sensitivity (%)	Specifity (%)
AHFS ≥ 8	0,798 (0,716-0,880)	***<0,001***	89,5	58,0
NHFS ≥ 6	0,721 (0,615-0,826)	***0,002***	68,4	67,3
CCI ≥ 6	0,654 (0,544-0,763)	***0,029***	63,2	60,5
mREMS ≥ 5	0,537 (0,381-0,694)	0,595	47,4	58,0

Table 4. Success of AHFS, NHFS, CCI, and mREMS Scores in Predicting the Need for Admission to the ICU

	AUC (%95)	*P*	Sensitivity (%)	Specifity (%)
AHFS ≥ 8	0,883 (0,833-0,934)	***<0,001***	81,2	83,0
NHFS ≥ 6	0,688 (0,610-0,765)	***<0,001***	55,2	80,9
CCI ≥ 6	0,612 (0,530-0,694)	***0,009***	47,1	62,8
mREMS ≥ 5	0,564 (0,480-0,647)	0,138	46,0	60,6

Figure 1. ROC Curve illustrating the performance of AHFS, NHFS, CCI, and mREMS scores in predicting 28-day mortality.

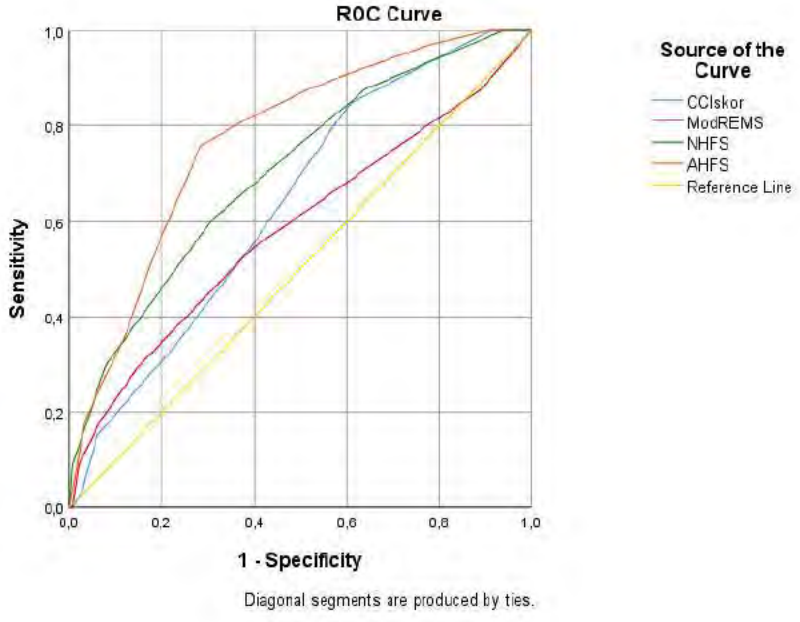


Figure 2. ROC Curve illustrating the performance of AHFS, NHFS, CCI, and mREMS scores in predicting in-hospital mortality.

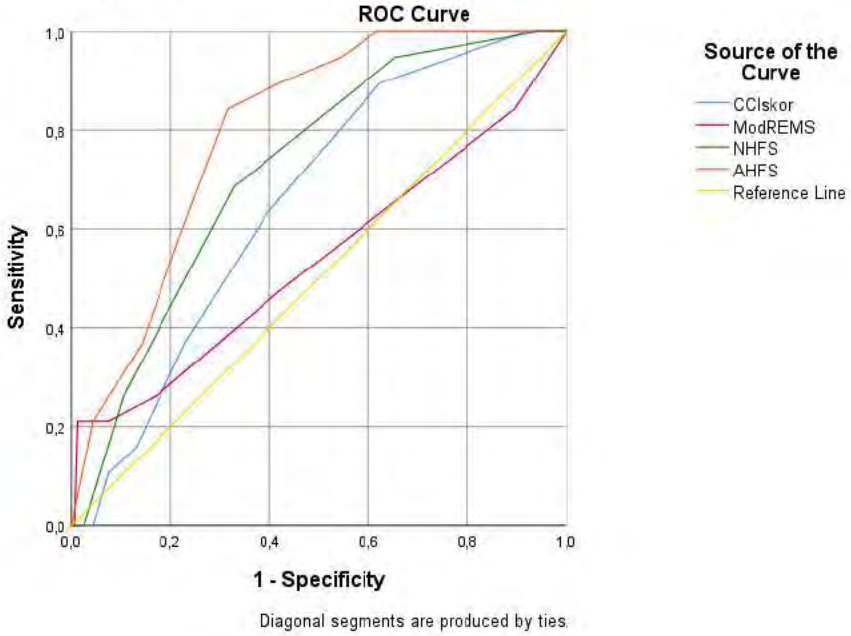
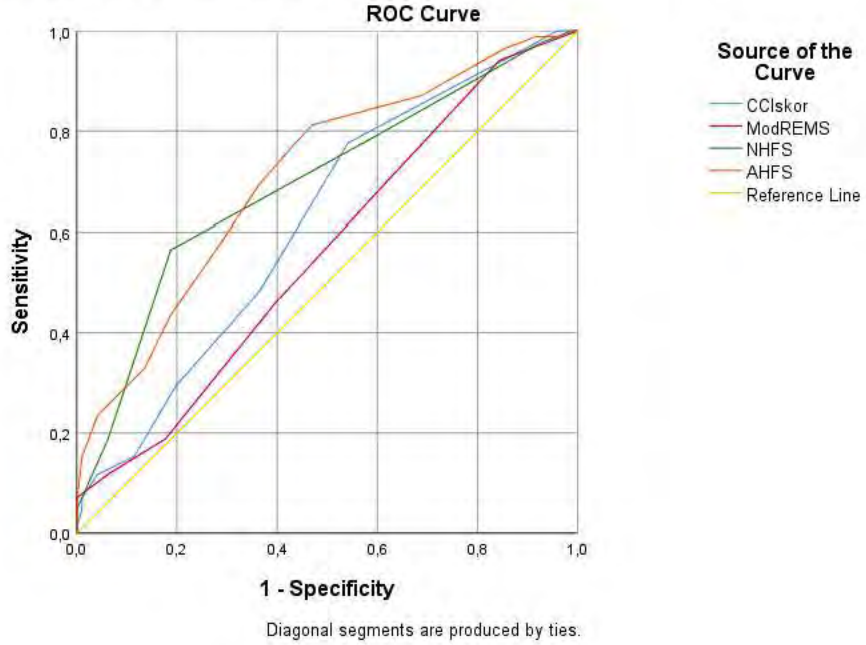


Figure 3. ROC Curve illustrating the performance of AHFS, NHFS, CCI, and mREMS scores in predicting the need for admission to the ICU.



Discussion: In the literature, it is reported that the most common fracture type in proximal femur fracture cases is intertrochanteric fractures with rates varying between 50-70%, the female gender ratio is 58%-90%[2] and the average age is between 67-85 years[5]. In our study,

consistent with the literature, it was determined that the majority of the patients were female (60.2%) and the average age was 81.85 ± 8.34 years. We think that this compatibility is important for the generalizability of the results of our study.In this patient group, mortality in the postoperative 30-day period may increase from 4% to 13.5%[3,4,5].In our study, our 28-day mortality rate (18.2%) was found to be higher than the mortality rates in the literature (4.7%-13.3%). While studies in the literature evaluating the mortality of patients with geriatric femur fractures evaluated the 30-day period after the operation, in our study the date when the patients applied to the emergency department was taken as basis. Non-operated patients and patients for whom surgical treatment was not indicated were also included in the study. Therefore, we think that patients who did not receive effective treatment and patients who died in the preoperative period may have caused the increase in mortality rates in our study.

Conclusion: Almost all the studies on these scores have been conducted in ward and ICU conditions, and there is not enough information in the literature about their applicability in emergency service conditions. Our study is the first in the literature to include patients with geriatric femur fractures that were not treated surgically and to include the findings of the patients at the time of admission to the emergency department. Early recognition and treatment of patients with poor clinical prognosis can seriously reduce mortality and morbidity rates. We believe that the use of AHFS as a useful scoring tool for emergency medicine physicians in early-term mortality and morbidity prediction and patient management should be widespread in emergency department practice. We find it useful to underline that there is a need for supportive studies on this subject with larger patient populations.

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Pub No: OP-073

Effect of COVID-19 Pandemic on Electrophysiological Examination Applications

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Abstract

Introduction and Purpose: In addition to respiratory and systemic symptoms, COVID-19 has also been observed to have neurological complications. Dysphoria, dizziness, impaired consciousness, encephalitis, encephalopathy, cerebrovascular disease, peripheral nervous system damage and neuromuscular disorders were among the most common neurological findings. In our study, we examined the effect of the COVID-19 pandemic on the electrophysiology laboratory applications of our hospital.

Materials and Methods: We shared our electrophysiology laboratory results for a certain period in 2020-2021. We aimed to compare the distribution and diagnoses of patient groups in these periods. We retrospectively examined the age, gender, preliminary diagnosis, and electrophysiological examination results of the patient groups. The distribution of patients' ages, genders and diagnoses in both years is shown in Table-1.

Results and Conclusion: Only nerve conduction study results were included in this study. There was a 27.8% decrease in hospital admissions in 2021 compared to 2020 (347,251 respectively). There was no significant difference between the mean age of the patients in both periods (p=0.295). However, during the intense period of the pandemic, there was a significant increase in the female/male patient ratio (1.66, 2.43, respectively; p = 0.041). We thought that there was a decrease in applications to electrophysiology laboratories for the diagnosis of neuromuscular diseases, as in many diseases of the COVID-19 pandemic.

Keywords: COVID-19, EMG, nerve conduction study, electrodiagnostic test

Introduction and Purpose

The COVID-19 infection, which was detected for the first time in our country in March 2020, was declared a pandemic by WHO (1,2). In this disease; In a study including 214 patients for the first time, in addition to respiratory and systemic symptoms, neurologic complications were found in 36.4% (3). Headache, dizziness, impaired consciousness, encephalitis, encephalopathy, cerebrovascular disease, peripheral nervous system damage and neuromuscular disorders were among the most common neurological findings (3). Due to the intensity of this disease, there have been delays in the diagnosis and treatment of many diseases (4,5). In this study, we aimed to review the impact of the COVID-19 pandemic on our hospital's electrophysiology laboratory applications and the disease distribution between periods.

Materials and Methods

In this study, we shared our center's electrophysiology laboratory results in the same periods in 2020-2021. We retrospectively analyzed the age, gender, pre-diagnosis and electrophysiological examination results of the patient groups in these periods. Pearson Chi-square test was used to analyze categorical variables and student t tests were used to compare paired groups. $p<0.05$ was considered statistically significant.

Results

In this study, only nerve conduction study results were included in the review, since we are a pandemic hospital. There was a 27.8% decrease in hospital admissions in 2021 compared to 2020 (347, 251 respectively). During these periods, it was observed that there was an approximately 5-fold increase in the number of COVID-19 patients in Turkey (35964, 176248, respectively) (6). There was no significant difference between the mean age of the patients in both periods (p=0.295). However, during the intense period of the pandemic, there was a significant increase in the female/male patient ratio (1.66, 2.43, respectively; p = 0.041). There was no statistical difference between the rates of disease diagnoses in both periods (Table-1).

Table-1: Clinical and demographic characteristics of patients according to periods

Variables		**2020 NCS**		**2021 NCS**		***p***
Age, Mean±SD*		49,1±15,2		50,4±14,2		0,295
		n	**%**	**n**	**%**	
Gender**	Male	130	37,5	73	29,1	**0,041**
	Female	217	62,5	178	70,9	
	Total	347	100	251	100	
Diagnosis ***	Normal	228	65,7	150	59,7	0,419
	CTS	86	24,8	77	30,6	
	Polyneuropathy	21	6,0	14	5,5	
	Peripheral Neuropathy	12	3,4	10	4,0	

*Student t test, **Chi-square analysis, ***One-way ANOVA; NCS: Nerve conduction study; CTS: Carpal tunnel syndrome

Discussion

Apart from early findings such as headache, anosmia, and impaired sense of taste, many central nervous system, peripheral nervous system and neuromuscular pathologies have been reported with COVID-19 infection (7). When the electrodiagnostic findings of patients with COVID-19 infection were examined, common myopathic EMG (electromyography) findings were observed in COVID-19-related critical illness (8). As with many diseases, delayed diagnosis of peripheral neuropathy and myopathies has been shown to lead to increased costs in healthcare services, prolonged rehabilitation time, and decreased patient quality of life (4,5,9). Electrophysiological examinations, which are widely used in the diagnosis of peripheral diseases during the pandemic, have also been disrupted due to the high risk of exposure to oropharyngeal secretions (10). In our study, it was observed that there were relatively fewer patient applications, especially during COVID periods when the patient density was high.

Conclusion

In this study, we thought that the COVID-19 pandemic caused a decrease in applications to electrophysiology laboratories for neuromuscular disease diagnoses, as in many diseases.

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Pub No: OP-074

Hematoma in the psoas region secondary to trauma and subsequent renal failure

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[1]İzmir Torbalı Devlet Hastanesi

Introduction:

Hematoma in the psoas muscle may occur spontaneously or secondary to trauma. Spontaneous causes include coagulopathies, anticoagulant use, and leakage from abdominal aortic aneurysm (1).

While the incidence of spontaneous iliopsoas hematoma is 0.1% in the general population, this value is 0.6% in the elderly population with the effect of anticoagulant use (2)

Traumatic psoas hematoma may be an indicator of serious mechanisms of injury, but may also be a marker of severe blood loss. (3)

Key words: Psoas hematoma, Psoas hematoma secondary to trauma, psoas muscle

Case report:

A 49-year-old man with known alcohol-related cirrhosis presented to the emergency department with complaints of right lower quadrant abdominal pain and anorexia. 10 days ago, while sitting in a chair, he fell on his right side. Vital parameters: Blood pressure: 85/45 Pulse: 70 SpO2: 98 Temperature: 36.1°C

On examination, neurologically normal. Rales are heard in both lungs. Pretibial edema +/+ , tenderness in the right lower quadrant of the abdomen. The abdomen appears distended. There is a 6-7 cm diameter ecchymotic area extending laterally on the right hip, which turns green in color.

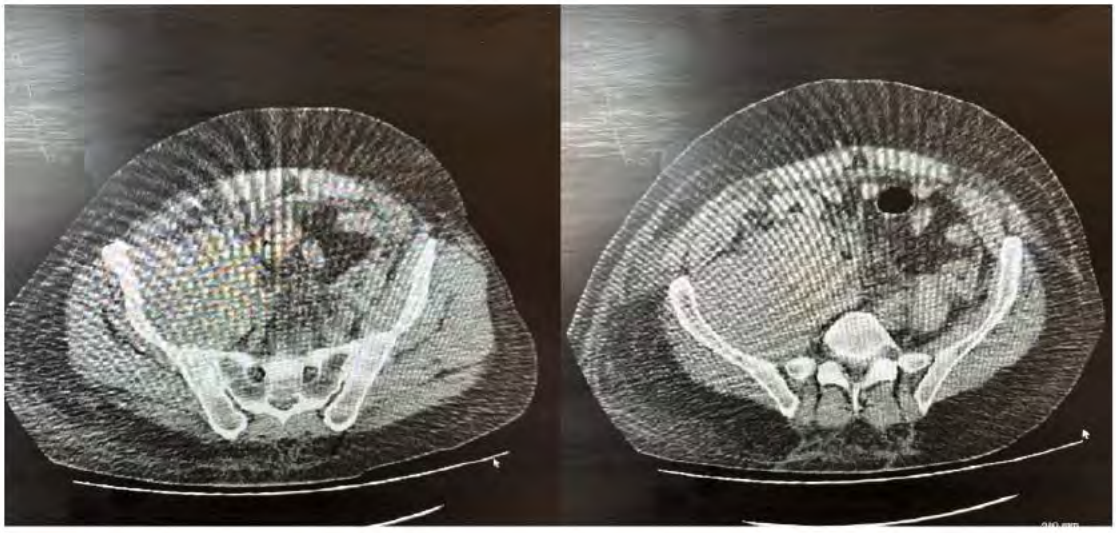
	Parametre Adı	Sonuc	Birim	Normal Değerler		Önceki Sonuc
	Glukoz	89	mg/dL	70	100	134 / 117 Grafik
↑	Üre	159	mg/dL	17	43	47 / 24 Grafik
↑	Kreatinin	5.31	mg/dL	0.67	1.3	1.24 / 0.94 Grafik
↓	eGFR	12	ml/dk/1.73	60	120	68 Grafik
	Alt	33	U/L	5	40	37 / 44 Grafik
↑	AST	81	U/L	5	50	85 / Grafik
	GGT	24	U/L	7	55	31 Grafik
	ALP	89	U/L	43	270	Grafik
↑	Total Bilirubin	10.48	mg/dL	0.3	1.2	5.98 / 5.42 Grafik
	T.Kolesterol	153	mg/dL	130	200	Grafik
	TRIGLISERID	71	mg/dL	40	150	Grafik
↓	HDL KOLESTEROL	29	mg/dL	50	60	Grafik
	LDL	110	mg/dL	0	130	Grafik
	Sodyum (NA)	136	mmol/L	136	145	136.6 / 141.4 Grafik
↑	CRP (TÜRBİDİMETRİK)	14.5	mg/L	0	8	9.5 / 3.8 Grafik

Biochemistry values

Parametre Adı	Sonuc	Birim	Normal Değerler	
PT	32,4	Sn	9,7	14,7
INR	2,58	%	0,78	1,22
PT %	24,5	%		
APTT	44,9	sn	21	36,5

Parametre Adı	Sonuc	Birim	Normal Değerler	
WBC	11.46	K/uL	4,8	10,8
RBC	1.42	M/uL	4,2	6,1
HGB	5,1	g\dL	12	18
HCT	14.8	%	37	52
MCV	104.2	fL	80	100
MCH	35.9	pg	27	31
MCHC	34,5	g/dL	33	37
PLT	132	K/uL	130	400
RDW-SD	55.9	fL	37,4	51
RDW-CV	15.1	%	7,5	18,5
PDW	12.0	fL	9	16
MPV	10.5	fL	7,2	11,1
PCT	0.14	%	0,12	0,36
NEUT#	7.35	x10^3/µL	1,9	8
LYM#	1.68	x10^3/µL	0,8	5,2
MONO#	2,35	x10^3/µL	0,16	1,2
EOS#	0.08	x10^3/µL	0,00	0,5
BASO#	0.00	x10^3/µL	0,0	0,2
NEUT%	64.1	%	40	74
LYM%	14.7	%	19	46
MONO%	20.5	%	3,4	10
EOS%	0.7	%	0	7
BASO%	0.0	%	0	1

Hemogram and coagulation results



Hypodense lesion approximately 10x8 cm in size thought to be in the psoas muscle in the inferior neighborhood of the right kidney

Psoas hematoma due to trauma caused renal failure and anemia. Erythrocyte suspension was given in the emergency room. Urine output was measured as approximately 100 cc in 6 hours. He was then admitted to the intensive care unit and it was decided to connect her to the dialysis unit.

Discussion:

Traumatic psoas hematoma is more common in adolescents (4). After trauma, pain in the lower abdomen, gait disturbances, motor and sensory deficits in the areas innervated by the femoral nerve may be encountered (5).

A significant decrease was observed in our patient's hemoglobin value compared to normal. In a study by Ammar A. et al. it was reported that hemoglobin decrease was detected in 56% of cases.(3) In a study by Chevalier et al., these hemoglobin decreases were attributed to the fact that the psoas muscle can collect a volume of blood 10 times its own size (6).

Although surgical methods are preferred in some patients, non-operative treatment methods were preferred in our patient as in many cases. He was discharged after his clinical condition improved.

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Pub No: OP-077

Recognizing an Uncommon ECG Pattern for Urgent Intervention in Acute Coronary Occlusion: De-Winter Syndrome

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Introduction

ST-segment elevation myocardial infarction (STEMI) is defined by the American Heart Association as a clinical syndrome characterized by typical symptoms of myocardial ischemia and typical ST-segment elevation on an electrocardiogram (ECG), followed by the release of biomarkers of myocardial necrosis (1). However, ECG abnormalities other than ST segment elevation may also indicate coronary artery total occlusion and require urgent intervention (2). In 2008, de-Winter et al. identified in 30 of 1532 patients with anterior myocardial infarction a non-standard ECG pattern suggestive of proximal left anterior descending (LAD) coronary artery occlusion (3). Emergency physicians should be aware of these uncommon ECG patterns to ensure timely and appropriate intervention, as they may significantly impact patient outcomes.

Case

A 55-year-old male presented to our emergency department (ED) with compressive retrosternal chest pain persisting for a duration of 2 days, accompanied by sweating, nausea, and vomiting. Upon admission, the patient was experiencing subjective discomfort and distress, although his initial vital signs were within normal range. The patient had no known risk factors or prior history of cardiovascular disease. The initial ECG exhibited significant ST-segment

depression (> 1 mm) at the J point in leads V2-V6, accompanied by tall, positively symmetrical T waves. A slight ST-segment elevation measuring 0.5 mm was observed in the aVR lead, as depicted in Figure 1.

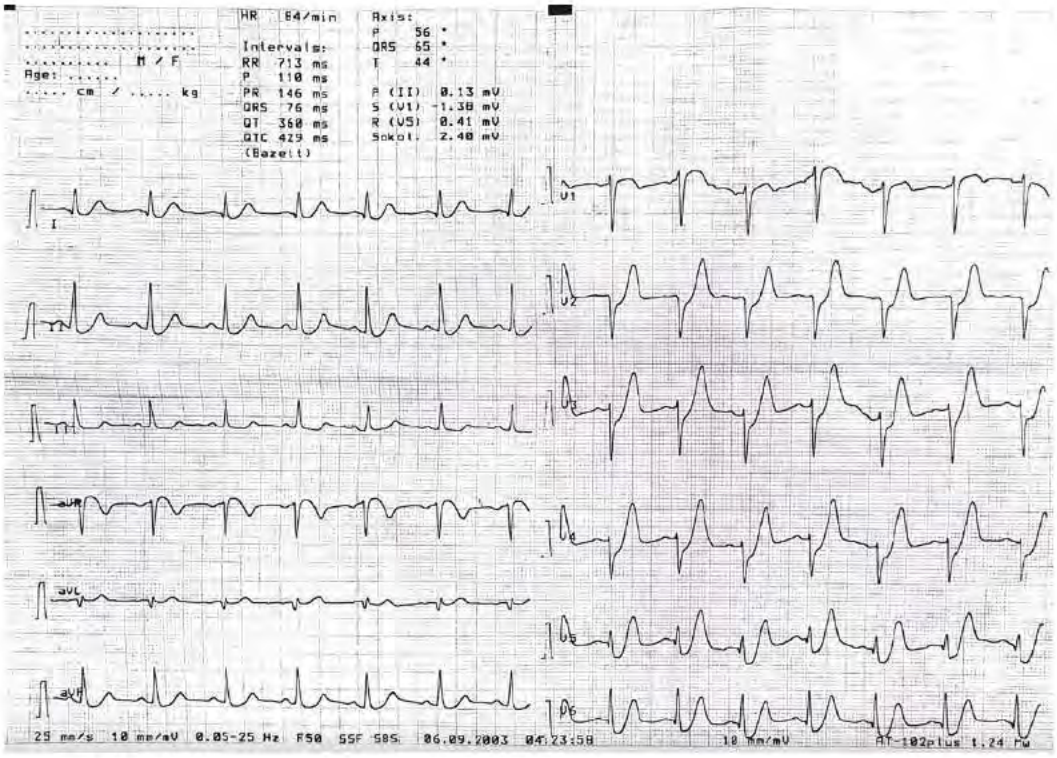

Fig 1. A 55-year-old male presented to emergency department with ECG exhibited significant ST-segment depression (> 1 mm) at the J point in leads V2-V6, accompanied by tall, positively symmetrical T waves. A slight ST-segment elevation measuring 0.5 mm was observed in the aVR lead.

The electrocardiographic profile exhibited by the patient was indicative of de-Winter syndrome, a condition characterized by an anterior STEMI equivalent, which is commonly associated with the acute occlusion of the LAD coronary artery. Dual antiplatelet therapy with aspirin and a direct-acting P2Y12 receptor inhibitor (ticagrelor) was administered in the ED. An urgent coronary angiography was performed, which revealed total occlusion of the LAD coronary artery (Fig. 2).



Fig 2. A) An urgent coronary angiography was performed, which revealed total occlusion of the LAD coronary artery. B) After the patient received effective treatment through mechanical reperfusion therapy and stenting

Conclusion

Our case exhibited characteristic symptoms of chest pain accompanied by a de-Winter ECG pattern. The patient underwent urgent coronary angiography, which revealed a total occlusion of the LAD. Subsequently, the patient received effective treatment through mechanical reperfusion therapy. The early detection of the de-Winter ECG pattern in individuals plays a crucial role in reducing further myocardial necrosis while improving the overall clinical outcomes (4).

Keywords: De Winter syndrome , LAD coronary artery , STEMI-equivalent

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Pub No: OP-079

Hypochalemic periodic paralisis, a rare condition to visit Emergency Department.

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Introduction and Purpose: Hypochalemic periodic paralisis is a rare otosomal dominant disorder. Although its exact prevalence is unknown, hypokalemic periodic paralysis is estimated to affect 1 in 100,000 people. It usually starts between puberty and third decade. It is especially hard to diagnose because patients complaints are temporary. Lab tests are normal and patients show no clinical findings between the attacks. Since patients usually seek emergency care during an attack, it is of great importance among emergency physicians as well.

Case: This is a case of 26 year old male patient woke up with tetraparesis after charbonhydrate rich meal. Due to severe weakness he couldnt even stand by himself. The examination conducted after being brought to the emergency department by his relatives revealed no findings except for tetraparesis. With suspected diagnoses of stroke, Guillain-Barré syndrome and electrolyte imbalances; blood samples, ECG, and an MRI were requested. The MRI imaging did not reveal any issues, but the blood tests showed a potassium level of 2. The ECG showed findings consistent with hypokalemia. The patient was referred to the neurology department with suspicion of hypochalemic periodic paralysis. The EMG done by the neurolgy department was consistent with the hypochalemic periodic paralysis.

The patient, who had begun treatment with 0.5mEq/kg PO potassium chloride, had their potassium level checked and it was 3.6. Approximately 1 hour after the completion of replacement therapy, the patient's symptoms improved. The patient, who fully recovered, was discharged with a prescription of acetazolamide 250 mg twice a day and referred to the neurology outpatient clinic.

Results and Conclusion: Hypokalemic periodic paralysis, being less common compared to other cases of tetraparesis or paraparesis seen in the emergency department, can be overlooked especially by emergency physicians without prior experience. The disease presents in episodes and patients appear normal between episodes, making diagnosis particularly challenging. Despite being a neurological condition, it is not uncommon for patients to seek treatment in the emergency department due to the acute and alarming nature of the condition. Therefore, it should be well recognized by emergency physicians.

Keywords: Acetazolamide, Electrolyte İmbalances, Emergency Department, Hypochalemic Periodic Paralisis,

Pub No: OP-081

Prolonged Sedation After Chloral Hydrate

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Introductıon: Sedation of patientsbeforesimplemedicalprocedures is a commonmedicalprocedure. Chloralhydrate is one of themostcommonlyusedsedativeagentespecially in childrenbecause of itsease of useandlowsideeffects. Inthisarticle, wereporttwopatientswhodevelopedprolongedsedationafterchloralhydrateingestion.

Case 1: A 7-year-old malepatientwasbroughttotheemergencydepartmentbecause of impairedconsciousnessthatdevelopedapproximately 40 minutesafteringestion of 750 mg (approximately 30 mg/kg) chloralhydrategivenfor EEG in thepaediatricneurologyoutpatientclinic. GCS was 5, pupilsweremyotic, bloodpressurewas 110-70 mmHg, pulse rate was 140/min, fingertipsaturationwas 99%, respiratory rate was 30/min, respirationwassuperficial, arterialbloodgasreadingswere Ph:7.16, PCO2: 82 mmHg, PO2: 167 mmHg, HCO3: 29.6mmol/L, haemogramandbiochemistryvaluesshowednopathologicalfindings. Sinustachycardiawasobserved on ECG. Comaduetochloralhydrateintakewasconsidered. Thepatientwasintubatedandhospitalised in thepaediatricintensivecareunit. Thepatientwasextubatedapproximately 12 hourslater. After 1 day of follow-up, thepatientwasdischargedwithrecovery.
Case 2: A 10-year-old malepatientwasbroughttotheemergencydepartmentbecause of inabilitytowakeupafteringestion of 750 mg chloralhydrategivenfor EEG in thepaediatricneurologyoutpatientclinic. GCS was 8, pupilsweremyotic, bloodpressurewas 110-70 mmHg, pulse rate was 110, fingertipsaturationwas 99%, respiratory rate was 25/min, arterialbloodgaseswere Ph:7.3, PCO2: 60 mmHg, PO2: 100 mmHg, HCO3: 29.1 mmol/L, haemogramandbiochemistryvaluesshowednopathologicalfindings. Thepatientwasthoughttohaveprolongeddisturbance of consciousnessduetochloralhydrateintake. Thepatientwashydratedandfollowedupwith mask oxygen. He regainedconsciousnessafterapproximately 5 hours. After 1 day of follow-up, thepatientwasdischargedwithrecovery.

Discussion: Chloralhydrate is a frequentlyusedagenttoprovidesedation in proceduressuch as dentaltreatments, radiologicalimaging, EEG, ECG, sutures, especially in pediatricpatients. It can be administeredorallyorrectally, 25 to 50 mg /kg, maximum 1 gram in children. Itreachesthehighest serum concentrationswithin 30-60 minutesafteringestion. Absorption is

rapidand is metabolisedbyalcoholdehydrogenasetotrichloroethanol, theactive form. Thehalf-life of trichloroethanol is approximately 8-12 hours, and in cases of overdose, thehalf-life mayextendupto 35 hours. Whentakentogetherwithethanol, itssedativeeffectincreaseswithsynergisticeffect.
It is stillused in somecentresbecause of itswidetherapeuticindex, easyadministrationandrelativelylow risk of respiratorydepression. Chloralhydrate has noseriouseffect on respiratoryandcardiovascularsystem at therapeuticdoses. Although it is consideredto be a well-tolerateddrug, manysideeffects, whicharemostlyseen in highdosesandmisapplications, can also be seen at therapeuticdoses. Nauseaandvomitingduetogastricirritation, laryngealoedema, hypercapnia, apnea, prolongedsedation, paradoxicalhyperactivity, dizziness, drowsiness, hallucinations, delirium, hypotension, cardiacarrhythmiasandcardiacarresthavebeenreported. Inaddition, resedationmaydevelopupto 24 hoursafteradministration. Inboth of ourpatients, prolongedsedationandhypercapniadevelopedafterchloralhydrateadministration at a therapeuticdose. No additionalfindingswereobserved in othersystemevaluations.
There is noantidoteforchloralhydrate. Treatment of overdoseandsideeffects is mostlysupportive. Inourhospital, both of ourpatientswithchloralhydrate-inducedconsciousnessdisorderwerefollowedupwithsupportivetreatment. Within 24 hours, bothpatientsregainedconsciousnessandweredischargedwithrecovery.
Conclusıon: Chloralhydratemaycauseprolongedsedationorcoma at therapeuticdoses. It has beenwithdrawnfromuse in someregionsduetoitsdelayedonset of action, prolongedeffectandsideeffects. Therefore, it is importanttomonitorthepatientswhowill be givenchloralhydrate, tokeepthemunderclosefollow-upandtoprovidedetailedinformationtothepatient'srelativesaboutthesideeffects.
Keywords: chloralhydrate, coma, hipercapnia, prolonged sedation

Pub No: OP-083

Identifying Biomarkers in Predicting Breast Cancer with the XGBoost Approach

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ABSTRACT

Objective: This study focused on utilizing the XGBoost approach to effectively classify and predict breast cancer (BC). By employing advanced algorithms and techniques, this research aimed to enhance our understanding of BC detection and prognosis. Through the analysis of comprehensive data sets and the incorporation of state-of-the-art machine learning methodologies, valuable insights and predictive models were generated. The significance of this study lies in its potential to aid healthcare professionals in making accurate and timely diagnoses, facilitating early intervention, and ultimately improving the outcomes and quality of life for individuals affected by BC.

Method: The study utilized a comprehensive public dataset encompassing demographic and clinical traits of both individuals diagnosed with and without breast cancer (BC). Employing the advanced XGBoost algorithm, a powerful gradient boosting technique, the researchers aimed to classify cases of BC with utmost accuracy. To evaluate the efficacy of the model, performance metrics including Accuracy, F1 Score, Specificity, and Sensitivity were diligently assessed.

Results: The XGBoost model underwent meticulous analysis to evaluate several performance criteria, including accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score. These essential metrics were meticulously calculated, yielding exceptional results. The values obtained were as follows: accuracy - 0.984, balanced accuracy - 0.983, sensitivity - 0.989, specificity - 0.976, positive predictive value - 0.986, negative predictive value - 0.981, and F1-score - 0.987.

Conclusion: Considering the correct classification rates of BC, the XGBoost model performed well. In addition, the XGBoost model had a high sensitivity value. We think that this result, which has a high sensitivity criterion, is clinically very important to minimize missed BC patients.

Keywords: Breast cancer, feature selection, machine learning, XGBoost algorithm.

INTRODUCTION

Breast cancer is one of the most prevalent types of cancer among women worldwide, making early detection crucial for effective treatment and improved patient outcomes. Traditional screening methods, such as mammography and physical examination, have been essential in detecting breast cancer, but they are not without limitations (1). Machine learning techniques offer a potential solution to enhance the accuracy and efficiency of breast cancer prediction (2).

Machine learning algorithms are successful at finding complex patterns and relationships in large datasets. In the context of breast cancer prediction, these algorithms can analyze vast amounts of patient data, including demographics, medical history, and imaging results, to identify relevant risk factors and markers associated with the disease (2, 3).

One common approach to breast cancer prediction involves supervised learning, where algorithms are trained on labeled data to recognize patterns between input features and the target variable, which in this case is the presence or absence of breast cancer. Features could include patient age, family history, genetic factors, and imaging characteristics. The labeled data used for training consists of historical patient records with known breast cancer outcomes (3, 4).

Various machine learning models can be employed for this task, including logistic regression, support vector machines (SVM), random forests, XGBoost, and deep learning-based methods like artificial neural networks. These models learn from the training data and can then make predictions on new, unseen patient data (5).

A critical aspect of developing accurate breast cancer prediction models is the quality and size of the dataset used for training. Large and diverse datasets contribute to better generalization and robustness of the models. Researchers and clinicians collaborate to gather and share datasets from different healthcare institutions to create comprehensive and diverse training sets, thereby improving the performance of the prediction models (6).

The effectiveness of machine learning methods in breast cancer prediction has been demonstrated in various studies. These models can aid in risk assessment, providing patients and healthcare providers with valuable information about the likelihood of developing breast cancer. Early detection through these methods enables timely intervention and personalized treatment plans, leading to better patient outcomes and potentially reducing the mortality rate associated with breast cancer (2-5).

This study aims to determine the most important risk factors of breast cancer and to predict breast cancer based on these risk factors.

MATERIAL AND METHOD

Users can access the data freely because it was obtained from the University of Wisconsin-Madison's Department of General Surgery. The open-access dataset "Breast Cancer Wisconsin (Diagnostic) Data Set" was gathered from the UCI Machine Learning Repository (7). For this investigation, the following variables were used: diagnosis (malignant, benign), radius mean (mean of distances from the center to points on the perimeter), texture mean (the standard deviation of grayscale values), perimeter mean (mean size of the core tumor), area mean, smoothness mean (mean of local variation in radius lengths), compactness mean (mean of perimeter 2/area - 1.0), concavity mean (mean of the severity of concave portions of the contour), concave points mean (mean for the number of concave portions of the contour), symmetry mean, fractal dimension mean (mean for “coastline approximation” - 1)

To identify potential biomarkers for breast cancer, a rigorous approach was employed, making use of random forest-based feature selection (8). Once the relevant features were identified, a thorough evaluation of the model was conducted, employing 5-fold cross-validation for validation purposes. For the actual prediction of breast cancer, the XGBoost algorithm was employed, known for its efficiency and effectiveness in predictive modeling (9). To assess the performance of the model, various metrics including accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score were considered. Importantly, all the modeling and calculations were conducted using the Python programming language, ensuring robust and reliable results (10).

RESULTS

The current study involved a comprehensive analysis of 569 patients, carefully examining the data to gain valuable insights. Among this group, 357 patients (approximately 62.7%) were found to have benign breast cancer, while the remaining 212 patients (around 37.3%) were diagnosed with malignant breast cancer. To evaluate the effectiveness of the XGBoost model, various performance measures were assessed, including accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score in Table 1. These measures were calculated and the impressive results obtained were as follows: accuracy (0.984), balanced accuracy (0.983), sensitivity (0.989), specificity (0.976),

positive predictive value (0.986), negative predictive value (0.981), and F1-score (0.987). Additionally, The captivating visualization of the XGBoost model's performance metric values is flawlessly portrayed in Figure 1, presenting a concise yet comprehensive graphical representation. This meticulously crafted illustration captures the essence of the model's prowess, allowing for a profound understanding of its performance. Within this captivating image, the intricate patterns and trends of the performance metrics gracefully unfold, enhancing our comprehension and enabling informed decision-making. With one glimpse, Figure 1 effortlessly communicates the complex results and achievements of the XGBoost model, making it an invaluable asset for researchers, practitioners, and enthusiasts in the field.

Table 1. Performance Metrics for XGBoost Model

Metrics	**Value**
Accuracy	0.984
Balanced Accuracy	0.983
Sensitivity	0.989
Specificity	0.976
Positive Predictive Value	0.986
Negative Predictive Value	0.981
F1-score	0.987

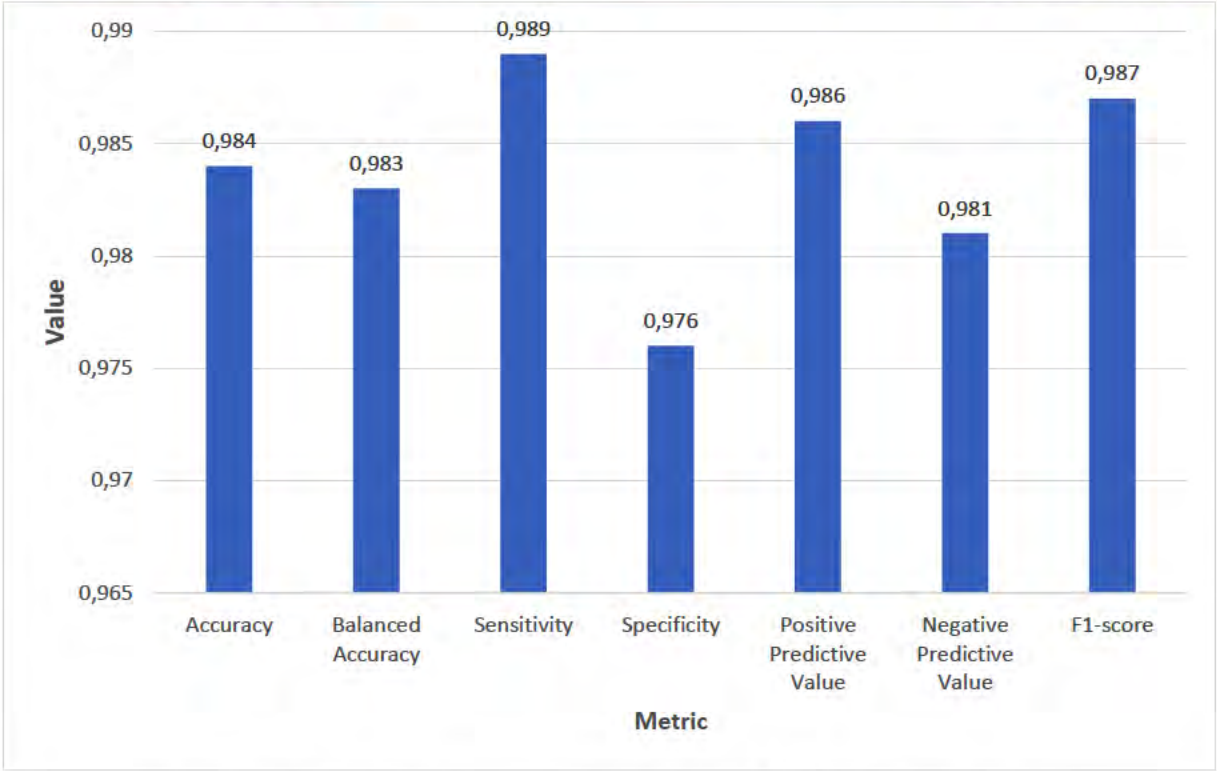

Figure 1. The performance metric values of the XGBoost model

DISCUSSION

Breast cancer, the second most prevalent cancer type worldwide, carries a grim distinction as the leading cause of death among women. With its bleak prognosis, alarmingly high mortality rate, and escalating number of cases, breast cancer stands as one of the most pressing health challenges we face today. Each year, a significant number of women tragically lose their lives to this merciless disease, underscoring the urgent necessity for earlier and more precise detection methods and treatment options. As we grapple with this formidable foe, it becomes evident that our quest for improved techniques and solutions remains as critical as ever. Cancer, a formidable health problem, continues to exert its devastating impact, incessantly challenging mankind despite remarkable advancements in both the realms of diagnosis and treatment. While we have witnessed tremendous progress in detecting and combating this insidious disease, with innovations like early screening techniques and targeted therapies, it behooves us to recognize that cancer remains a grave concern that afflicts countless lives worldwide. As medical experts tirelessly strive to create breakthroughs, equipping themselves

with cutting-edge technologies, we must foster awareness, support continued research, and embrace the collective goal of conquering this formidable adversary once and for all (10).

Computer technology now can make judgments due to the success of machine learning approaches in categorization and definition. These advantages of machine learning methodologies have led to improved decision support systems that can help medical professionals with the diagnosis and treatment of patients. Using decision-support systems, it is feasible to diagnose diseases with a high degree of success. Inference is a crucial component of machine learning methods, which are commonly utilized in cancer diagnosis procedures (11). The open-access breast cancer dataset is used in this work to assess the breast cancer classification performances of the XGBoost algorithm and identify the risk variables for breast cancer.

Based on the comprehensive analysis conducted, the XGBoost model has emerged as a standout performer in accurately classifying breast cancer using the highly regarded "Breast Cancer Wisconsin Dataset." With its remarkable classification performance, the XGBoost model has effectively utilized metric values to provide successful predictions. These findings not only reinforce the significance of this open-access dataset but also highlight the potential of the XGBoost algorithm in contributing to the identification and categorization of breast cancer cases. This breakthrough emphasizes the value of leveraging advanced machine learning methods to enhance medical diagnostics and prioritize patient care.

Due to the limitations of the study, where only the open access data set was available and accessing other essential clinical and demographic data of the patients was not possible, crucial information regarding the subtypes of breast cancer was unfortunately absent. Therefore, the findings obtained cannot be reliably interpreted in relation to these specific subtypes. However, future studies hold the potential to delve deeper into the prediction of diseases through the examination of the classification performances of a multitude of machine learning models and ensemble learning approaches, shedding light on valuable insights in the field.

CONCLUSION

In conclusion, our study induces that the XGBoost model, one of the gradient-boosting algorithms, is effective at predicting BC. Therefore, the proposed XGBoost algorithm can be used in the detection and follow-up of breast cancer patients.

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Pub No: OP-086

Evaluation of calcaneal fractures admitted to the emergency department: 5 year retrospective analysis of a tertiary care hospital

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INTRODUCTION

Calcaneus fractures are the most common tarsal bone fracture, accounting for 2% of all fractures. It is usually observed as a result of high-energy trauma (1). However, it can also be caused by relatively minor trauma in patients with poor bone quality (2). It is common when accompanied by high-energy trauma. The most common accompanying injuries include lumbar spine injuries, lower extremity injuries, and foot and ankle fractures (3). Fractures of the calcaneus often cause long-term pain and lifelong disability if not properly diagnosed and treated (4). These injuries are accompanied by soft tissue complications in cases where the diagnosis is missed and not treated appropriately (5). Physical examination of the ankle can be misleading and radiographic examination can be difficult to interpret. In addition to the accompanying morbidity of calcaneal fracture, the emergency room physician should be aware of the high incidence (6).

Patients with calcaneal fracture who applied to the emergency department (ED) of a tertiary hospital were included in this study. It was aimed to evaluate demographic features, etiology, type of fracture, laterality, joint association, presence of other accompanying fractures, level of accompanying spinal fracture, and treatment modalities. By carrying out this study, it was planned to increase the awareness of emergency physicians about calcaneal fractures.

MATERIAL METHOD

Patients who applied to ED of Aksaray Training and Research Hospital between January 2019 and January 2023 and were prediagnosed with calcaneal fracture (ICD diagnosis code: S92.0) were planned to be included in this study. The age, gender, type of trauma, fracture type, laterality, joint association, presence of other accompanying fractures, level of accompanying spinal fracture, and treatment method were obtained from the database retrospectively. All patients admitted to this hospital with the diagnosis of calcaneal fracture were included in the study. Patients with missing data (no clinical, physical examination findings and imaging) were excluded from the study. Patients without spinal imaging were considered to have no spinal fractures.

RESULTS

A total of 155 patients, including 122 (78.7%) male patients and 32 (20.6%) female patients, were included in our study. The characteristics of patients with calcaneal fracture are shown in Table 1. The mean age of all patients was calculated as 43.71 ± 15.89 years. Among the patients participating in our study, 61 (39.4%) had a calcaneal fracture due to falling from a height, 21 (13.5%) motor vehicle accidents and 73 (47.1%) other traumas. The calcaneus fracture was closed in 146 (94.2%) patients and open type in 9 (5.8%) patients. It was determined that 136 (87.7%) patients had unilateral calcaneal fracture and 19 (12.3%) patients had bilateral calcaneal fractures. Although joint association was present in 106 (68.4%) of these patients, 49

(31.6%) did not have joint association. Although 114 (73.5%) patients had only calcaneal fractures among all patients, 15 (9.7%) patients had spinal fractures, 11 (7.1%) had more than one non-calcaneal bone fracture, 8 (5.2%) patients had lower extremity bone fractures (non-calcaneal fractures), 5 (3.2%) patients had pelvic fracture, 1 (0.6%) patient had upper extremity bone fracture, and 1 (0.6%) patient had head-neck bone fracture (Figure 1). One or more spinal fractures were accompanied by 21 (13.5%) patients with calcaneal fractures, and 134 (86.5%) patients had no spinal fractures. Fractures were accompanied by spinal fractures in the lumbar vertebrae in 18 (85.7%) patients, in the thoracic-lumbar vertebrae in 2 (9.5%) and in the lumbar-sacral vertebrae in 1 (4.8%) of the patients with spinal fractures. Although conservative treatment approach was applied in 129 (83.2%) of these patients, surgical treatment was applied in 26 (16.8%) patients.

Figure 1: Anatomical location of other fractures accompanying calcaneus fractures

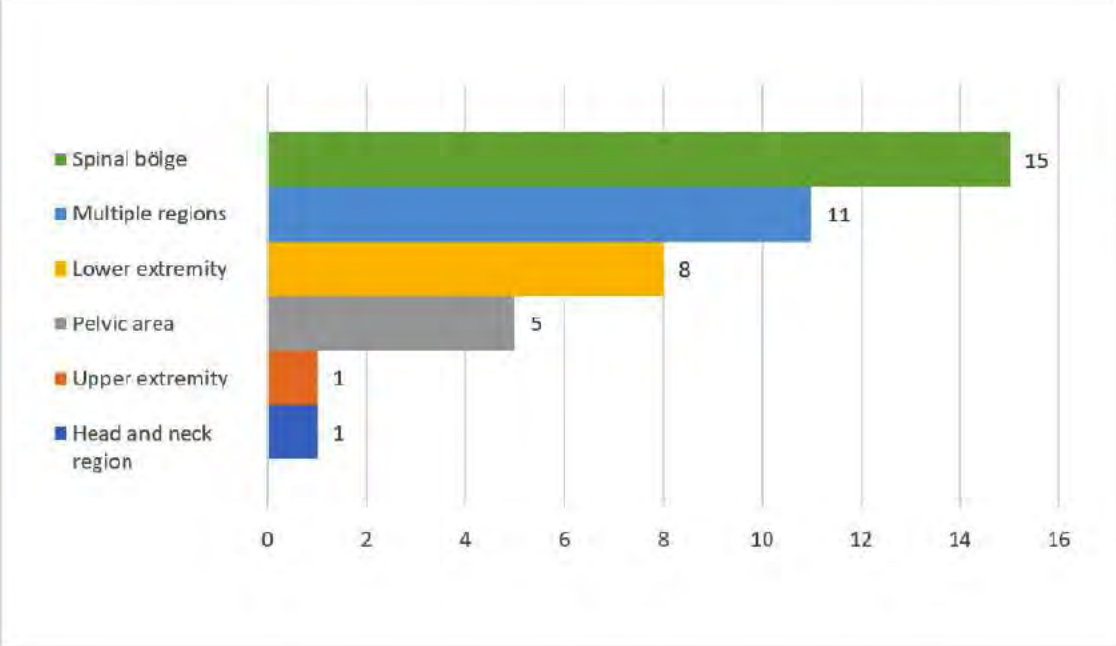

Table 1: Characteristics of patients with calcaneal fractures

Total number of patients; n	155
Male; n(%)	122 (%78.7)
Female; n(%)	32 (%20.6)
The average age; year	43.71 ± 15.89
Cause of trauma	
Falling from high; n(%)	61 (%39.4)
Motor vehicle accident; n(%)	21 (%13.5)
Other traumas; n(%)	73 (%47.1)
Type of calcaneus fracture	
Open; n(%)	9 (%5.8)
Closed; n(%)	146 (%94.2)
Calcaneus fracture laterality	
Unilateral; n(%)	136 (%87.7)
Bilateral; n(%)	19 (%12.3)
Calcaneus fracture joint relationship	
Intra-articular; n(%)	106 (%68.4)
Extra-articular; n(%)	49 (%31.6)
Associated fracture types	
Absent; n(%)	114 (%73.5)
Spinal region; n(%)	15 (%9.7)
Multiple regions; n(%)	11 (%7.1)
Lower extremity; n(%)	8 (%5.2)
Pelvic area; n(%)	5 (%3.2)
Upper extremity; n(%)	1 (%0.6)
Head and neck region; n(%)	1 (%0.6)
Types of spinal fractures	
Lumbar; n(%)	18 (%85.7)
Thoracic-lumbar; n(%)	2 (%9.5)
Lumbar-sacral; n(%)	1 (%4.8)
Types of treatment	
Conservative treatment; n(%)	129 (%83.2)
Surgical treatment; n(%)	26 (%16.8)

DISCUSSION

Although studies on calcaneus fractures are frequently handled by orthopedists, it is seen that emergency physicians deal with this issue very little. Consistent with the literature, we found that calcaneal fractures were more common in male patients (7). Studies have shown that calcaneal fractures are mostly seen with falling from a height (8). In our study, the number of patients who came with a fall from a height was quite high. In our study, it was seen that it was bilateral at a rate of 12.3%, which was higher compared to previous studies (9). Most calcaneus fractures (60% to 75%) are intra-articular fractures (10). The result found in terms of joint association supports the literature. Open fractures of the calcaneus are rare. They are mostly caused by high-energy trauma (11). In our study, open type fractures were seen in a small rate of 5.8% of the patients. Leite et al. a similar rate of spinal fracture was seen in his study. This rate is similar to the rate of classical calcaneus and spinal fractures in the literature (7). Surgical treatment of displaced intra-articular calcaneal fractures is controversial. Luo et al. concluded that there is still insufficient evidence to determine whether operative treatment is superior to

nonsurgical treatment in these injuries (12). In our study, we found that only 16.8% of patients underwent surgical treatment.

CONCLUSION

Calcaneus fractures are frequently encountered in ED's. Knowing the frequency of cases with calcaneus fracture will be important in terms of raising awareness for emergency physicians. Timely correct diagnosis and effective treatment will be beneficial in terms of preventing possible complications. Clinicians should always keep calcaneal fracture in mind, especially in patients with high energy and spinal fractures.

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Pub No: OP-087

EMPHYSEMATOUS GASTRITIS RELATED TO SARCINA VENTRICULI INFECTION; CASE REPORT

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ABSTRACT

Emphysematous gastritis, one of the gastrointestinal emergencies, has a mortality of approximately 60%. Amphithematous cholecystitis, lymphoma with intra-abdominal mass effect, alcohol consumption, chronic diseases such as diabetes, kidney failure and poisoning that disrupts the pH balance of the stomach are among the causes, as well as rarer known infections. Our aim in presenting this case is to emphasize that emphysematous gastritis may develop secondarily due to the S. ventriculi infection pathogen, especially in patients with comorbidities and who are immobile and have slow gastric emptying, and accordingly, early diagnosis and treatment can reduce mortality.

A 27-year-old female patient was admitted to our hospital through 112 with widespread abdominal pain that has been increasing in severity for 2 days. In addition to this complaint, our patient had a history of inability to pass gas and stool for 12 hours and nausea and vomiting. It was learned that vomiting occurred twice and its content was natural. In addition, the patient with a history of cerebral palsy had a moderate to poor general condition, with a GCS of 15. In the examinations, our patient's stomach was clearly enlarged in the ADBG image, and we thought that the bright image in the right kidney calyx was due to the contrast material given in the tomography. There was minimal subdiaphragmatic free air on the PAAG image. Uncontrasted thorax bt "Esophagus is dilated. There are fluid contents that create air-fluid leveling in the esophageal lumen" and contrast-enhanced abdominal CT "Diffuse air values were observed in the portal vein. The stomach is markedly dilated (gastric outlet obstruction?). It was interpreted as air-liquid leveling in the stomach lumen.

Proliferation of the S. ventriculi pathogen is associated with delayed gastric emptying due to underlying causes such as diabetic gastroparesis, pyloric stenosis, gastric surgery, slipped gastric banding, and obstructive masses (6,7). Several reports have specifically shown that the bacterium is associated with delayed gastric emptying. Management of patients diagnosed with emphysematous gastritis is difficult. These patients can change course very quickly. Rapid intervention is important in patients with suspected emphysematous gastritis, especially fluid resuscitation, antibiotic treatment and surgical treatment are important steps.

Keywords: Emphysematous gastritis, Sarcina ventriculi, gastrointestinal emergencies

INTRODUCTION

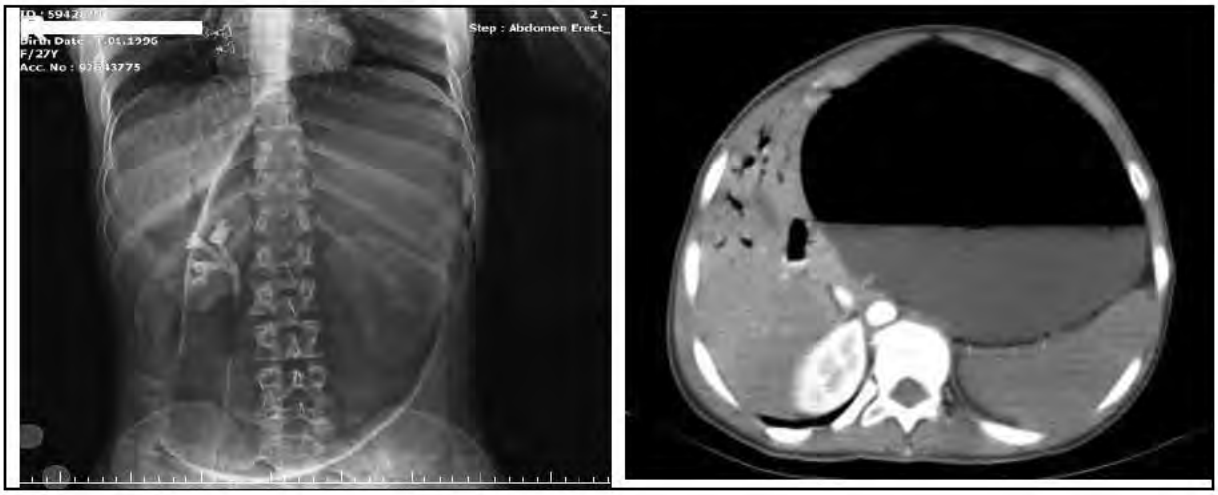
Emphysematous gastritis, one of the gastrointestinal emergencies, has a mortality of approximately 60%. Amphithematous cholecystitis, lymphoma with intra-abdominal mass effect, alcohol consumption, chronic diseases such as diabetes, kidney failure and poisoning that disrupts the pH balance of the stomach are among the causes, as well as rarer known infections (2,3). The common feature of the bacteria detected in patients who develop emphysematous gastritis is that they produce gas. Clostridium perfringens, Enterobacter spp., Klebsiella pneumoniae, Staphylococcus aureus, as well as more commonly known bacteria, cause amphithematous gastritis in rarer bacteria such as Sarcina Ventriculi (SV) (3). Sarcina Ventriculi (SV), also known as Clostridium Ventriculi, is a non-motile, anaerobic, Gram-positive cocci that performs vital activity in an acidic environment (4,5). The pathogen, which was previously detected more frequently in animals, began to be detected in humans over time, especially in people on a vegetarian diet (6).

Our aim in presenting this case is to emphasize that emphysematous gastritis may develop secondarily due to the S. ventriculi infection pathogen, especially in patients with comorbidities and who are immobile and have slow gastric emptying, and accordingly, early diagnosis and treatment can reduce mortality.

CASE PRESENTATION

A 27-year-old female patient was admitted to our hospital through 112 with widespread abdominal pain that has been increasing in severity for 2 days. In addition to this complaint, our patient had a history of inability to pass gas and stool for 12 hours and nausea and vomiting. It was learned that vomiting occurred twice and its content was natural. In addition, the patient with a history of cerebral palsy had a moderate to poor general condition, with a GCS of 15. Arrival vitals were A: 37.3°C NB: 152 beats/min TA: 120/80 mmHg SPO2: 98%. The patient was evaluated in the emergency observation area. On physical examination, there was widespread abdominal tenderness and a wooden abdomen. ECG was taken. ECG showed sinus tachycardia. Their tests were taken. In Biochemistry, Glucose: 237 mg/dL Urea: 49.4 mg/dL eGFR: 51.09 Creatinine: 1.41 mg/dL, AST: 24 u/L, ALT: 17 u/L, Amylase: 399 u/L, Calcium: 9.82 mg/dL, Total Bilirubin: 0.28 mg/dL, Direct Bilirubin: 0.06 mg/dL, Indirect Bilirubin: 0.22 mg/dL, CK:75 u/L, CK-MB: 24, 4 u/L, Alkaline phosphatase: 125 u/L, CRP: 2.3 mg/L, GGT: 12.2 u/L, Sodium: 149.1 mmol/L, Potassium: 3.24 mmol/L, Chlorine : 102.8 mmol/L, INR: 1.02, aPTT: 24.7 sec, PT: 9.33 sec. In the hemogram, WBC: 16.42 K/uL, NEU#: 14.92 K/uL, LYMPH#: 0.75 K/uL, MONO#: 0.73 K/uL, EOS#: 0.01 K/uL, BASO#:0.01 K/uL, NEU%: 90.7, LYMPH%:4.6, MONO%:4.5, EOS%:0.1, BASO%: 0.1, Rbc: 4.99 mg/dL, Hgb:15.5 G/DL, HCT: 48.6%, MCV: 97.4 fL, MCH: 31.1 PG, MCHC: 31.9 g/dL, RDW-CV: 13.6 , RDW-SD: 48.7fL, Plt: 235 K/uL, MPV: 10.7 fL, PDW: 16.2 K/uL, PCT: 0.250%, P-LCC: 74, P-LCR: 31.5 It came in %. In our patient's ADBG image, the stomach was clearly enlarged, and we thought that the bright image in the right kidney calyx was due to the contrast material administered in the tomography. There was minimal subdiaphragmatic free air on the PAAG image. Uncontrasted thorax bt “Esophagus is dilated. There are fluid contents that create air-fluid leveling in the esophageal lumen" and contrast-enhanced

abdominal CT "Diffuse air values were observed in the portal vein. The stomach is markedly dilated (gastric outlet obstruction?). It was interpreted as air-liquid leveling in the stomach lumen. The patient was evaluated as unstable during this period and was monitored. A bladder catheter was applied. Large vascular access was opened from 2 separate arms. Symptomatic treatment was administered through the opened vascular access and he was hydrated. Oral stop was applied. A nasogastric tube was urgently inserted into the patient and gastric emptying was achieved. It was observed that air mixed with bright red content coming spontaneously from the nasogastric tube was observed. Immediately afterwards, relief was observed in the patient's abdomen and clinic. The patient was consulted to a general surgeon. The patient was urgently taken to gastrectomy surgery. After gastrectomy, it was determined that the pathogen belonged to the bacteria called Sarcina Ventriculi (SV)(Figure 1-4).



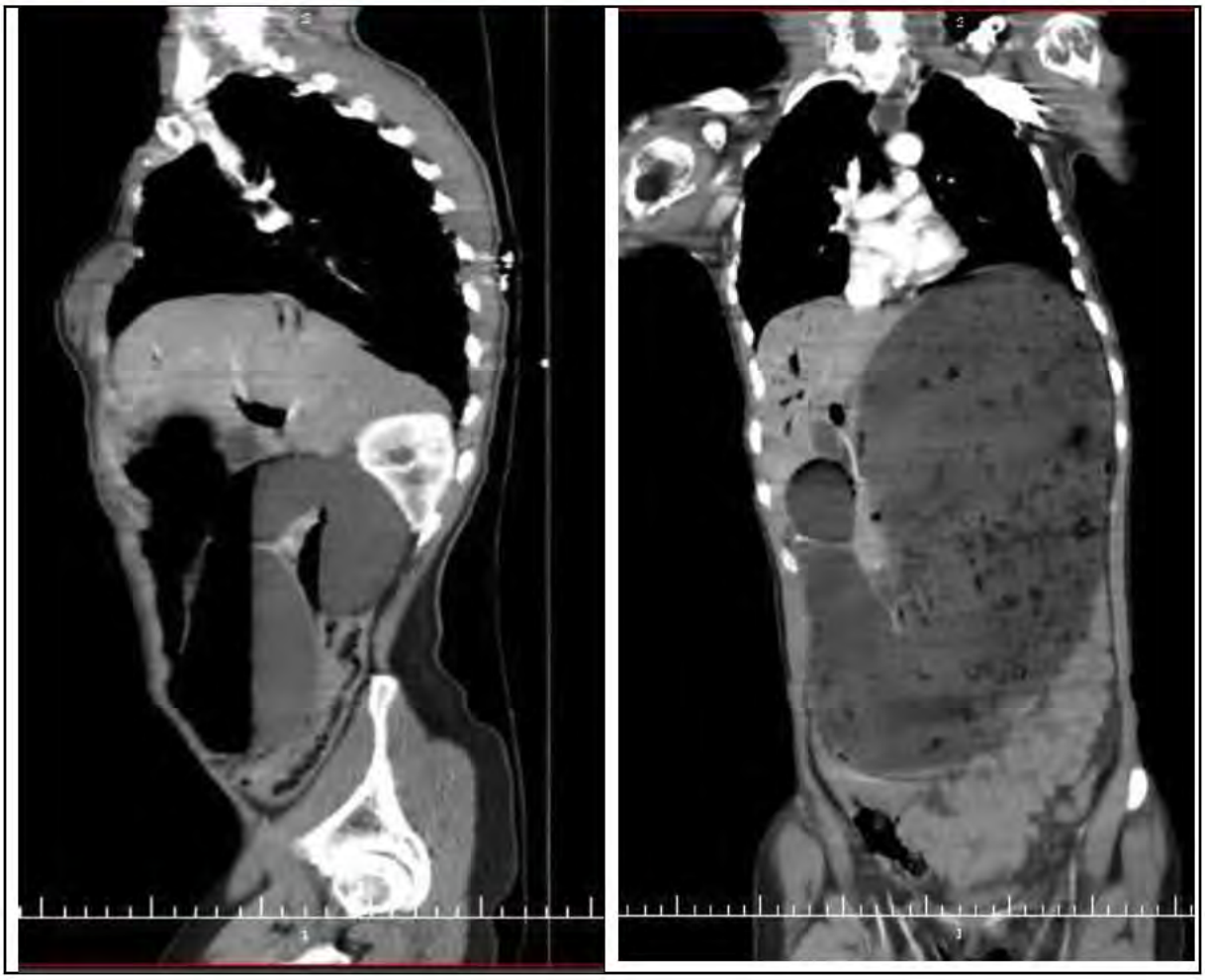


Figure 1-4. X-ray and CT images of the patient

DISCUSSION AND CONCLUSION

Proliferation of the S. ventriculi pathogen is associated with delayed gastric emptying due to underlying causes such as diabetic gastroparesis, pyloric stenosis, gastric surgery, slipped gastric banding, and obstructive masses (6,7). Several reports have shown that bacteria in particular are associated with delayed gastric emptying(6).

It may be difficult to identify the symptoms of emphysematous gastritis, especially in patients who cannot communicate fully during the examination. The most common symptoms include nonspecific abdominal pain, nausea, vomiting, and in some cases, fever and chills (8,9). Less common symptoms may include hematemesis and melena. Particularly leukocytosis, portal vein gas images, lactic acidosis and hemodynamic instability support the diagnosis of emphysematous gastritis (10,11). In our case, although the patient's vitals were stable at the first development and the patient's relatives brought him to the emergency room complaining of occasional constipation due to cerebral palsy and stated that he was relieved after the treatment, the patient's complaints did not subside in the intermittent examination and after the imaging on the abdominal X-ray, the patient had a bright red color during the nasagagastric insertion. As a result of further examination, a diagnosis of

emphysematous gastritis was considered in the patient, as it was observed that there was air mixed with the contents.

Management of patients diagnosed with emphysematous gastritis is difficult. These patients can change course very quickly. Among the findings seen in these patients, the radiographic finding of portal vein gas caused by intraluminal air or air from bacteria is a poor prognostic indicator(12, 13). The presence of this finding increases the mortality of patients to over 75% [13]. Rapid intervention is important in patients with suspected emphysematous gastritis, especially fluid resuscitation, antibiotic treatment and surgical treatment are important steps.

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Pub No: OP-088

A Rare Case of Coexistence of Acute Appendicitis and Acute Pancreatitis

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Abstract

Acute appendicitis and acute pancreatitis are both common gastrointestinal conditions that manifest in distinctive ways. However, these two situations rarely occur together, making it difficult to determine what is wrong. A 34-year-old male with severe abdominal pain who presented to the hospital was diagnosed with acute pancreatitis and acute appendicitis. After a laparoscopic appendectomy and conservative treatment for acute pancreatitis, the patient's symptoms subsided. This case demonstrates the importance of considering both acute appendicitis and acute pancreatitis when a patient presents with severe abdominal pain.

Key Words: Acute appendicitis, acute pancreatitis, co-occurrence

Introduction

Acute pancreatitis (AP) is a disease characterized by inflammation of the pancreas, which causes clinical, morphological, and functional change. It is one of the most common causes of hospital admissions for gastrointestinal diseases in the United States (1). Acute appendicitis (AA), on the other hand, is one of the most common surgical emergencies worldwide, and although its etiology is not yet fully understood, it is believed to develop as a result of luminal obstruction (2, 3). The coexistence of AP and AA is rare (4). This article describes the case of a 34-year-old man who presented to the emergency department (ED) with abdominal pain and was diagnosed with acute appendicitis and acute pancreatitis.

Case

A 34-year-old male patient applied to the ER complaining of epigastric nausea, loss of appetite, and stomach pain. According to the medical history, the patient's abdomen pain began three days ago and gradually worsened. There was also nausea and a loss of appetite. Gallstones and gastroesophageal reflux disease (GERD) were present in the patient's past. Gallstone surgery had been recommended in the past, but the patient did not undergo the procedure. The patient was taking antacids for GERD and had no alcohol consumption history. During the physical examination, the patient's vital signs were normal. Examination of the abdomen revealed epigastric tenderness, but neither guarding nor rebaund tenderness. The following laboratory results were detected: urea: 26 mg/dL; creatinine: 1 mg/dL; AST: 459 U/L; ALT: 878 U/L; GGT: 464 U/L; Na: 139 mmol/L; K: 3.9 mmol/L; D/T.Bil: 3.86/4.2

mg/dL; amylase: 2386 U/L; lipase: 3937 U/L. The results of the hemogram were: WBC: 11390/L, HGB: 15.7 g/dL, and PLT: 265,000/L. Table 1 displays the patient's laboratory test results.

Elevated levels of amylase and lipase in the patient's blood, along with severe epigastric abdominal pain, suggested the possibility of AP. Therefore, contrast-enhanced abdominal computed tomography (CT) imaging was requested to confirm the diagnosis. The CT scan revealed pancreatic enlargement, increased density in the peripancreatic adipose tissue, thickening of the anterior pararenal fascia, and fluid traces along the fascia (Fig.1). These findings were consistent with a diagnosis of AP and were also suggestive of AA due to the presence of a swollen appendix and increased density in the surrounding adipose tissue (Figure 2). Following an evaluation of the patient's condition by a general surgeon, it was determined that AA would require surgical intervention. After the laparoscopic appendectomy procedure, the removed appendix was sent for pathological examination, and the pathology report was consistent with a diagnosis of AA. The patient was evaluated by an internal medicine specialist for Magnetic Resonance Cholangiopancreatography (MRCP) to rule out choledocholithiasis after surgery. The MRCP results showed no evidence of choledocholithiasis but indicated symptoms of acute cholecystitis. The patient was administered antibiotics and fluid replacement therapy on the ward, and AP treatment was monitored. The patient recovered with no complications and was discharged on the eighth day.

Discussion

In this case where both AP and AA were detected simultaneously, a diagnosis of AP was made in accordance with the Atlanta criteria (5). AP is a disease that can cause both local and systemic complications, in addition to inflammation in a single organ. Table 2 (6) summarizes the early and late complications of AP. Generally, among gastrointestinal complications, situations such as infections in or near the pancreas organ, ischemias, or local complications in the transverse colon region are expected . In some studies, it has been observed that AA, which is rarely reported as a complication of AP, develops (4,7). Different opinions have also been reported on the cause of AA in addition to AP. Kadel et al. suggested that the peripancreatic and retroperitoneal fluid formed after AP extends towards the right iliac fossa and causes peri-appendicular inflammation, which gradually progresses to AA (8). However, there are also studies that state that AA and AP may exist as different pathologies in the abdomen at the same time (9). In our case, a fluid content extending between the fascia and towards the iliac fossa was detected on the contrast-enhanced abdominal CT. This finding suggests that AA developed as a complication of AP. However, studies explaining the relationship between AP and AA are limited in the literature. Therefore, additional research is required to better comprehend and elucidate this relationship.

Conclusion

The concurrent occurrence of acute pancreatitis and acute appendicitis is an uncommon condition that can be difficult to diagnose. Clinicians treating patients who come with acute abdominal discomfort should take into consideration both illnesses and make use of imaging modalities to assist in making a diagnosis. The timely detection and management of these problems are absolutely essential to achieving a favorable outcome.

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Laboratory	Results	Reference ranges
Hemogram		
Hemoglobin (Hb)	15,7	11 – 15 g/dL
Leukocyte (WBC)	11,39	4 – 10 10^3 /ul
Biochemistry		
Glucose	137	74 – 10 mg/dl
Urea	26	17 – 49 mg/dl
Creatinine	1,00	0,5 – 0,9 mg/dl
Aspartate Amino Transferase (AST)	459	5 – 32 U/L
Alanine Amino Transferase (ALT)	878	5 – 33 U/L
Albumin	50	35 – 52 U/L
Amylase	2386	28 – 100 U/L
Lipase	3937	13 – 60 U/L
Potassium (K)	3,9	3,5 – 5,5 mmol/L
Chlorine (Cl)	103	95 – 110 mmol/L
C – Reactive Protein (CRP)	12,8	0 – 5 mg/L
Sodium (Na)	139	135 – 145 mmol/L
T.bilurubin	4,2	0,15 – 1,2 mg/dl
D.bilurubin	3,86	0,09 – 0,3 mg/dl

Table 1. The Laboratory Findings of the Patient at the AdmissionTime in ED

Table 2. Acute Pancreatitis Complications (6)

Acute Pancreatitis Complications	Early Complications	Moderate and Late Complications
	Shock Hypotension Cardiac and peripheral vascular insufficiency Tachypnea Arterial hypoxemia Respiratory failure , Oliguria and anuria, Thrombosis or bleeding Diabetic coma Hypocalcemia	Local and retroperitoneal infections Abscess, Pseudocysts, Gastrointestinal and biliary tract involvement, Vascular and hemorrhagic complications Pancreatic acid

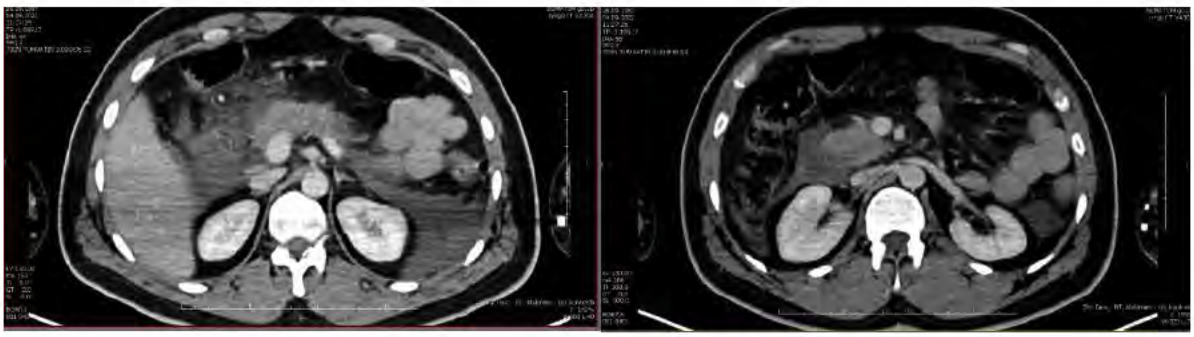

Fig. 1. Pancreatic enlargement, increased density in the peripancreatic adipose tissue and thickening of the anterior pararenal fascia, and fluid traces along the fascia

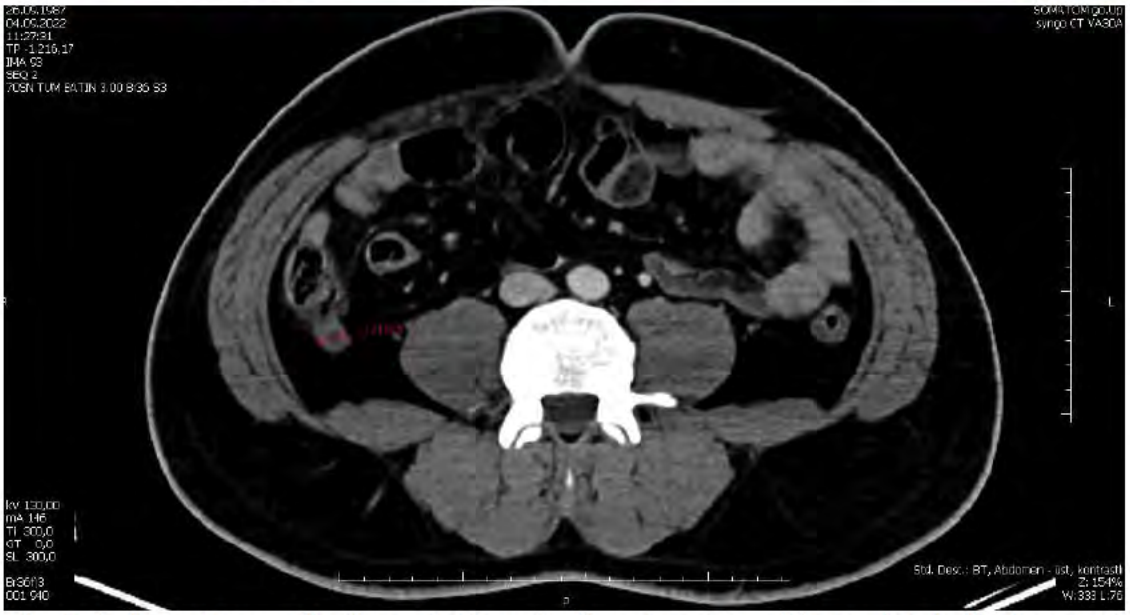

Fig. 2. Inflamed appendix tissue 1.15 cm in diameter at its widest point, indicating acute appendicitis

Pub No: OP-089

Predicting liver disease based on demographic/clinical characteristics and examining risk factors with a machine-learning approach

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ABSTRACT

Introduction and Purpose: In this study, it was aimed to predict liver disease and determine the most important risk factors with the machine learning-based LightGBM prediction model.

Materials and Methods: In the study, a data set containing demographic/clinical characteristics of individuals with and without liver disease was used. LightGBM, a machine learning algorithm, was used to classify liver disease. Model performance was evaluated based on Accuracy, F1 Score, Specificity, and Sensitivity.

Results: The values of Accuracy, Specificity, Sensitivity, and F1-score criteria obtained from the LightGBM model were calculated as 0.976, 0.963, 0.990, and 0.976 respectively. Indirect phosphate, alanine aminotransferase, and total bilirubin were determined to be the most important first three variables in predicting liver disease.

Conclusion: When the prediction performance of the LightGBM model was examined, the LightGBM model performed well. Also, the LightGBM model had a high sensitivity value. We think that this result, which has a high sensitivity criterion, is clinically very important in order to minimize the number of patients with missed liver.

Keywords: Liver disease, machine learning, LightGBM, feature importance.

INTRODUCTION

The liver, a critical organ within the human body, plays a pivotal role in regulating metabolism, ensuring the balance of various chemical processes required for optimal functioning. Additionally, it aids in distributing red blood cells, which are vital for delivering oxygen throughout the body. Hence, the liver's significance cannot be understated [1, 2]. Liver diseases can both cause other diseases in the body and pose great dangers to the body in itself. For these reasons, early diagnosis and treatment of liver diseases such as liver cancer, cirrhosis, liver tumor, and HCC are of vital importance for the human body [3, 4].

Recently, it has become quite common to use different machine-learning classification methods in the diagnosis of biomedical diseases. The most valid explanation for these reasons would be to obtain near-accurate results with computer-based classification methods. Although liver diseases do not have sufficient symptoms at first, they may appear prominently in later stages [5].

In the traditional approach to diagnosing liver diseases, medical practitioners have relied on measuring enzyme levels in the blood to make informed decisions [6]. By analyzing these results, clinicians can gain valuable insights into the patient's liver health, allowing for timely interventions and appropriate treatment plans [6]. However, there was also a need to use automatic classification methods depending on parameters such as speed, accuracy, and precise diagnostic results.

The proposed objective of this research study involves the development of a prediction model, specifically employing a Light Gradient Boosting Machine (LightGBM), an advanced tree-based classification technique, to facilitate accurate diagnoses of liver diseases. This approach holds significant potential in improving healthcare outcomes, making it a worthwhile area of investigation.

MATERIAL AND METHOD

Liver disease estimation was carried out using the LightGBM technique in this study. The dataset employed for predicting liver disease was obtained from the renowned "Liver Disease Patient Dataset" available on the Kaggle database. This dataset provides valuable insights and aids in developing effective diagnostic models for a wide range of individuals. The dataset included clinical data for a total of 30691 patients, 21917 with liver disease and 8774 without. Ten clinical features of the patients were examined. These features are Patient's age, gender, total bilirubin, direct bilirubin, indirect phosphate, alanine aminotransferase, aspartate aminotransferase, total protein, albumin and the albumin/globulin ratio [7].

Since the data did not show the normal distribution in the biostatistical data analysis, the Mann-Whitney U test was used to compare the two groups, and the data were summarized using the median and interquartile range (IQR). A value of p-value < 0 .05 was considered statistically significant. Biostatistical data analysis was performed using IBM SPSS Statistics (Statistical Package for Social Sciences) for Windows 26.0.

To mitigate the challenge of class imbalance in the Output variable, the utilization of the Synthetic Minority Over-sampling Technique (SMOTE) was implemented. SMOTE, an efficient oversampling technique, generates synthetic samples from the minority class to balance the dataset. By employing SMOTE, the issue of class imbalance was effectively addressed, enhancing the accuracy and robustness of the model [8]. Following that, the dataset was divided into an 80% training set and a 20% testing set. For classification, the LightGBM algorithm, renowned for its efficient and accurate performance, was chosen. LightGBM, short for light gradient-boosting machine, is a free and open-source distributed gradient-boosting framework for machine learning, originally developed by Microsoft [9]. It is based on decision tree algorithms and used for ranking, classification, and other machine learning tasks. The evaluation of the LightGBM model encompassed Accuracy, Specificity, Sensitivity, and F1-score, providing a comprehensive assessment of its performance. Throughout the experimentation process, Python programming language was utilized for all modeling and calculations, ensuring a robust and efficient analysis.

RESULTS

Table 1 provides a comprehensive overview of the descriptive statistics for both the liver disease group and the healthy control group. Critical measures such as the age of the patients were compared, revealing no statistically significant disparities between the two groups ($p>0.05$). There was a significant difference between the groups in total bilirubin, direct bilirubin, indirect phosphate, alanine aminotransferase, aspartate aminotransferase, total protein, albumin, and the albumin/globulin ratio results ($p<0.05$).

Table 1. Descriptive statistics of the variables regarding the groups

Variable	Group		*p*-value
	Liver disease	Control	
	Median (IQR)	Median (IQR)	
Age	45 (23)	45 (23)	0.601
Total bilirubin	1.3 (2.9)	0.8 (0.4)	<0.001
Direct bilirubin	0.5 (1.6)	0.2 (0.1)	<0.001
indirect phosphate	224 (132)	185 (51)	<0.001
alanine aminotransferase	41 (53)	27 (17)	<0.001

aspartate aminotransferase	53 (84)	29 (23)	<0.001
Total protein	6.5 (1.4)	6.5 (1.5)	<0.001
albumin	3 (1.1)	3.3 (1.2)	<0.001
albumin/globulin ratio	0.9 (0.39)	1 (0.4)	<0.001

The performance measures of the LightGBM model in the test set are given in Table 1. The values of Accuracy, Specificity, Sensitivity, and F1-score criteria obtained from the LightGBM model were calculated as 0.976, 0.963, 0.990, and 0.976 respectively.

Table 2. Performance Metrics for LightGBM Model

Metrics	**Value**
Accuracy	0.976
Specificity	0.963
Sensitivity	0.990
F1-score	0.976

The variable importance graph for the model's prediction of liver disease is given in Figure 1. When Figure 1 was examined, it was determined that the first three most important variables in the prediction of liver disease were indirect phosphate, alanine aminotransferase and Total bilirubin.

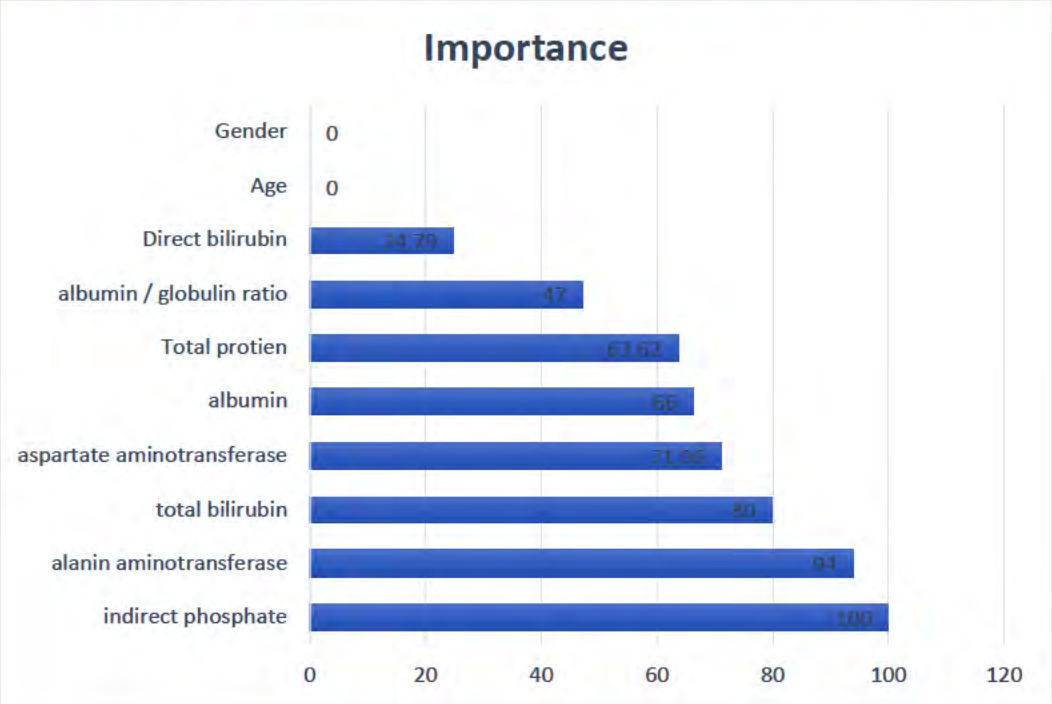

Figure 1. Feature importance of the LightGBM model for the prediction of liver disease

DISCUSSION

Classification algorithms have witnessed a surge in adoption within healthcare, aiding clinicians by providing valuable support in medical diagnoses. The culmination of these algorithms' development yields insights that possess the potential to profoundly impact contemporary clinical practices. These insights, rooted in data-driven analyses, offer a unique vantage point to fine-tune diagnoses and treatment strategies, fostering an enriched landscape of patient care [10].

This investigation delved into utilizing the LightGBM classification model, a machine learning methodology, to forecast liver disease through the analysis of clinical data. The study harnessed an openly accessible dataset for the purpose of predicting liver disease. Detailed performance metrics of the LightGBM model on the test set are exhaustively presented within Table 1, wherein key evaluation parameters, such as Accuracy (0.976), Specificity (0.963), Sensitivity (0.990), and F1-score (0.976), were meticulously calculated, offering an encompassing perspective on the model's effectiveness. Notably, the study pinpointed the pivotal role of indirect phosphate, alanine aminotransferase, and total bilirubin as the three most crucial variables in the realm of liver disease prediction. These findings underscore the significance of these parameters in contributing to the predictive accuracy of the LightGBM model in diagnosing liver disease based on clinical data.

Timely detection of liver disease plays a pivotal role in preserving lives and enabling timely interventions. The prediction model formulated in this research demonstrated its proficiency in effectively anticipating liver disease and pinpointing noteworthy risk elements. Consequently, the developed model holds the potential to offer clinicians a valuable tool for initial diagnostics, while the identified critical risk factors can steer the course of patient follow-up and treatment strategies. This advancement promises to enhance the accuracy and efficacy of early intervention, ultimately fostering improved patient outcomes.

CONCLUSION

This paragraph summarizes the main findings of the research on the LightGBM algorithm and its application to liver disease prediction. The LightGBM algorithm is a machine learning technique that can handle large and complex data sets with high accuracy and speed. The research showed that the LightGBM algorithm outperformed other methods in predicting liver disease based on various clinical and biochemical features. Therefore, the LightGBM algorithm could be a valuable tool for assisting clinicians in diagnosing, treating, and monitoring patients with liver conditions.

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Pub No: OP-092

Aneurysm rupture

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Introduction:

Cerebral aneurysms are thin-walled protrusions in intracranial arteries that can rupture and cause subarachnoid hemorrhage (SAH). Non-traumatic SAH is most commonly caused by ruptured saccular aneurysms. SAH is often a devastating event that causes significant mortality and high morbidity among survivors.

Case Report:

A 65-year-old male patient came to the emergency department with general condition disorder and loss of consciousness. Vital blood pressure was 160/95 mmHg. In the physical examination of the patient, the pupils were anisochoric, the left babinski was positive, and the patient had a vulpian symptom on the right. In the patient's brain tomography, an image compatible with hyperdense acute hemorrhage filling the right lateral ventricle and cerebral sulcus, more intense in the right frontotemporal area, was observed (Figure 1). In the CT angiography of the patient, 15 mm diameter saccular aneurysm sac with irregular wall was observed distal to the right MCA M1 segment (Figure 2).

The patient was admitted to the neurosurgery service to be operated with the diagnosis of aneurysm rupture.

Conclusion:

Neurological examination may guide us in the preliminary diagnosis of patients who come to the emergency department with confusion. The symptoms in the patient's neurological examination made us think that the patient may have a central hemorrhage or ischemia The diagnosis was confirmed after imaging of the patient.

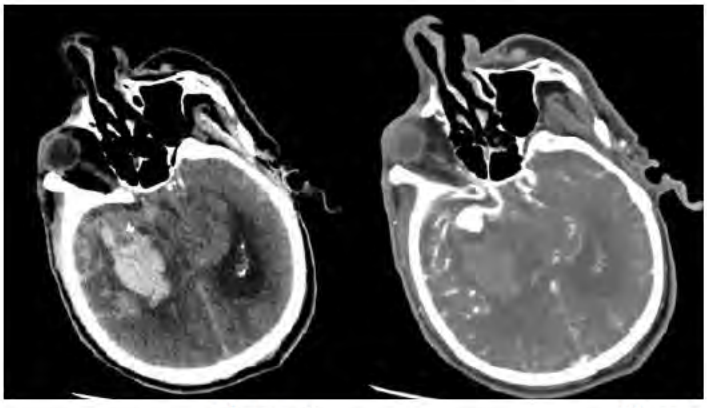

Figure 1 Figure 2

KEYWORDS: Subaraknoid Hemoraji, Emergency, Headache,

Pub No: OP-093

Trauma Scores in The Emergency Department With Thoracic Trauma

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Introduction and Purpose: Traumatic injuries can range from minor isolated to life-threatening complicated multiple injuries. Thoracic trauma is the cause of approximately one out of every four deaths from blunt trauma (1,2). In this study, the superiority of trauma scores over each other in predicting intensive care unit admission and mortality was evaluated.
Materials and Methods: The study was conducted prospectively on 150 patients over the age of 18 who applied to the 3rd Level University Hospital Emergency Medicine Clinic with thoracic trauma and recorded Glasgow Coma Scale (GCS), Injury Severity Score (ISS) and Revised Trauma Score (RTS) at the time of admission.
Results and Conclusion: It was determined that 12.7% of the cases included in the study were intubated, 22% were discharged, 26.7% were hospitalized, 50% were hospitalized in the intensive care unit, and 1.3% exitus. It has been observed that ISS can predict mortality, probability of survival and length of stay in the ICU more accurately than RTS, and that ISS is a superior score in trauma cases. Compared with RTS and GCS, it was determined that RTS alone can predict early mortality better, while GCS alone predicts late mortality (3,4,5). It has been determined that ISS values evaluated at the time of admission in cases admitted to the emergency department with thoracic trauma are associated with prognosis independently of other parameters.
Keywords: Emergency Department, Injury Severity Score, Revised Trauma Score, Glasgow Coma Scale, Thorax Trauma

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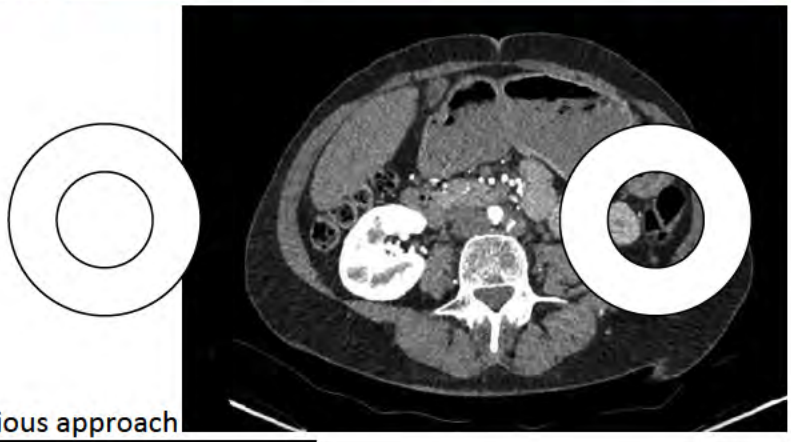
Pub No: OP-095

İn the patients who presents with loss of strength in the lower extremity, agood history and physical examination always gain

Uz. Dr. Omay SORGUN[1], Uz. Dr. Özgür BOZKURT[2]

[1]Tepecik Training and Research Hospital
[2]Çiğli Regional Training and Research Hospital.

Introduction and Purpose: Emergency services are extremely busy units throughout our country. Intensity but after a good triage,(green, yellow, red)with a detailed history and physical examination after referral to a correct examination area manageable.In this case, we describe the adventure of the loss of strength in the left leg of a 49-year-old female patient. recovery of the power loss that occurred after a short period of time, a patient who only wants to be discharged with the request for painkillers.A well-questioned patient gives us a high rate of preliminary diagnosis,which leads to a conclusion in a proper examination.
Materials and Methods: Female patient, 49 years old,with no history of drug use of a previously known disease. She is admitted to our hospital with a sudden loss of strength after low back pain at home. However, when he arrived at the hospital, she said there was no pain or loss of strength. Sinus bradycardia on ecg , routine blood is within normal limits , no abnormalities on physical examination , neurological examination within natural limits , a loss of 4/5 strength in the right leg was noticeable. Both lower extremity pulses were normal and peripheral filling was normal, there was no temperature difference with any diameter difference. In the bedside ultrasound performed by the emergency room physician to the patient , on the appearance of flap in the ascending aorta ,Consent was obtained from the patient ,Thoracoabdominal angio tomography was performed.
Results and Conclusion: On tomography, dissection extending from the descending aorta to the iliac bifurcation was seen. The patient was taken to emergency surgery. With a successful operation, hemiarc replacement of the ascending aorta was performed. The patient was discharged on the tenth postoperative day in a healthy way. .The fact that almost everything is close to normal in the examination findings can be explained by a single aortic flap. In this way, since the circulation was restored, the loss of strength in the leg was corrected and the pulses returned to normal. As a result, a difficult case has been restored to



health with a cautious approach





Pub No: OP-097

A RARE CAUSE OF ABDOMİNAL PAİN: VAGINAL FOREIGN BODY

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[1]karaman eğitim ve araştırma hastanesi

Abdominal pain is one of the most common causes of admission to the emergency department. There are many causes of abdominal pain, which complicates the differential diagnosis. Anamnesis is of great importance in the differential diagnosis. Vaginal foreign bodies, which is one of the causes of abdominal pain, is a clinical condition that can be encountered with various symptoms and in women of all ages, and it is not always possible to take anamnesis. One of the reasons that makes it difficult to take anamnesis may be the patient's embarrassment and desire to hide.

Vaginal foreign bodies are more common in children in the literature, but they can also be seen in adults for various reasons. Vaginal foreign bodies can be used to provide sexual stimulation, birth control, curettage, to prevent uterine prolapse, in cases of harassment and to hide illegal substances.

Vaginal foreign bodies may vary according to age groups. While toys and household items are common in the pediatric age group, tampons, condoms, menstrual cups and items used for sexual satisfaction are common in adults.

Symptoms may vary in age groups. In adults, it can be seen as discharge, bleeding, abdominal pain. These symptoms have a wide differential diagnosis.

Although intravaginal foreign bodies are diagnosed with anamnesis, they can also be detected by gynecological examination or imaging methods in cases where the anamnesis is insufficient.

In our case, a 43-year-old female patient presented to our emergency department with abdominal pain. The patient was drunk and anamnesis could not be taken. Laboratory tests and abdominal X-ray

were requested from the patient. In laboratory tests, pregnancy test was negative and other parameters were within the reference range, and there was no pathological value. There was a foreign body image on the X-ray (PICTURE1), but pelvis X-ray was also taken for the full image. Foreign body (PICTURE2) was also seen in the pelvic X-ray. The patient underwent a rectovaginal examination. The patient, who had foreign body in vaginal external examination, was consulted with a gynecologist and obstetrician. He was taken to emergency operation. The foreign body was removed during the operation (PICTURE3). During the operation, bladder and rectal injury, which can be seen in such cases, was not observed, but there was a serious injury to the side wall of the vagina.



Picture1: standing direct abdominal X-ray, the foreign body is not completely visible.



Picture2: pelvic X-ray, foreign body-glass



PICTURE3: Foreign body removed during the operation (glass)

Complications that may occur due to foreign bodies remaining in the vagina are of clinical importance. These complications can be infection, ulceration, bleeding and fistula.
Vaginal bodies should be kept in mind in case of abdominal pain and additional symptoms in female patients of all ages presenting to the emergency department.

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Pub No: OP-100

A Case Report: Leriche Syndrome in The Emergency Department

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ABSTRACT

Leriche syndrome is a disease characterized by thrombotic occlusion in the aorta, often in the distal renal arteries, and its classic symptoms are pain that occurs with exercise in the lower extremity (claudication), inability to palpate femoral pulses, and impotence in male patients. (1,2)

Anamnesis, physical examination and imaging methods are important in making a differential diagnosis. Failure to palpate bilateral femoral pulses during physical examination should suggest leriche syndrome. In cases with Leriche syndrome, color Doppler ultrasonography can show that there is no flow in both iliac arteries. In these patients, thrombotic occlusion in the aorta should be confirmed by computed tomography angiography. (2) This case we present is a case of Leriche Syndrome who was admitted to the hospital with the complaint of claudication.

We will present this case because this disease, whose incidence is unknown, needs to be included in the differential diagnosis among the increasing cardiovascular pathologies and the correct differential diagnosis can prevent mortality.

CASE REPORT

A 64-year-old male patient was admitted to the emergency department as an outpatient with the complaint of pain in his left leg for 1 day. The patient's general condition was good, and he was oriented and cooperative. GKS:15. On physical examination, there is no difference in diameter in the legs, no paresthesia, no paralysis, level 2 in the left leg (extremity raised 60 degrees, pallor lasting less than 60 seconds), no coldness, but there is pulselessness in the left leg.

Vitals: TA: 140/90mmHg Pulse: 98 beats/min fever: 36.4 sPo2: 98. The general condition of the patient, who has a history of chronic obstructive pulmonary disease (COPD) and smoking, is in good general condition. There is no shortness of breath or tachypnea.

The patient's left lower extremity arterial system ultrasonography was interpreted as no flow coding was observed in the external iliac distal section, common femoral, superficial femoral artery, popliteal, tibialis anterior, posterior and dorsalis pedis arteries in the left lower extremity. (acute arterial occlusion). The patient was consulted to cardiovascular surgery.

It was decided to perform angiography-computed tomography (CT ANJIO). CT ANGIO: Calf arteries (anterior tibial artery, posterior tibial artery and peroneal artery) are observed in normal width up to the ankle. Stenosis compatible with significant stenosis was observed in the external iliac artery on both sides. Calibration of both superficial femoral arteries decreased on both sides. Diffuse calcific plaque was observed in the abdominal aorta and iliac artery. The abdominal aorta measured approximately 55 mm distal to the renal artery bifurcation and appeared dilated. There are calcifications on its wall. Its lumen appears

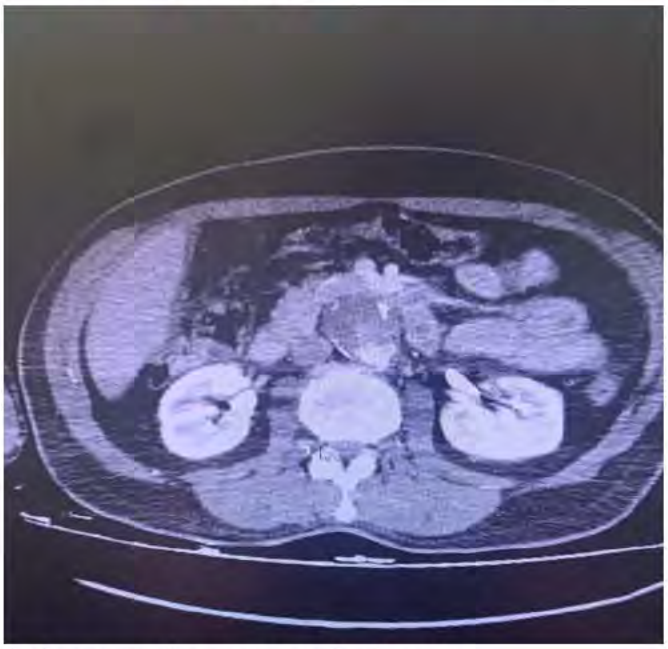
thrombosed. The right external iliac artery and the circumflex femoral artery are filled with collaterals.

Laboratory findings; creatinine: 0.62 Alkaline Phosphatase 103. Aspartate Aminotransferase 90. Lactate Dehydrogenase: 384 Amylase:104. C-reactive protein: 20.8 White Blood Cell: 12.26, other laboratory values were within reference ranges and normal.

During the patient's follow-up in the emergency room, the complaint of pain in his left leg increased and the paleness of his skin began to become apparent without elevation of the extremity. The patient's pain symptom was relieved with analgesia. Preoperative preparations were made and the patient was admitted to the cardiovascular surgery intensive care unit. The patient was operated on. No complications developed. The follow-up of the patient, who was taken to the service on the second postoperative day, continued. No complications or mortality developed in the patient. He was called for outpatient clinic controls and was followed up by the cardiovascular surgeon.



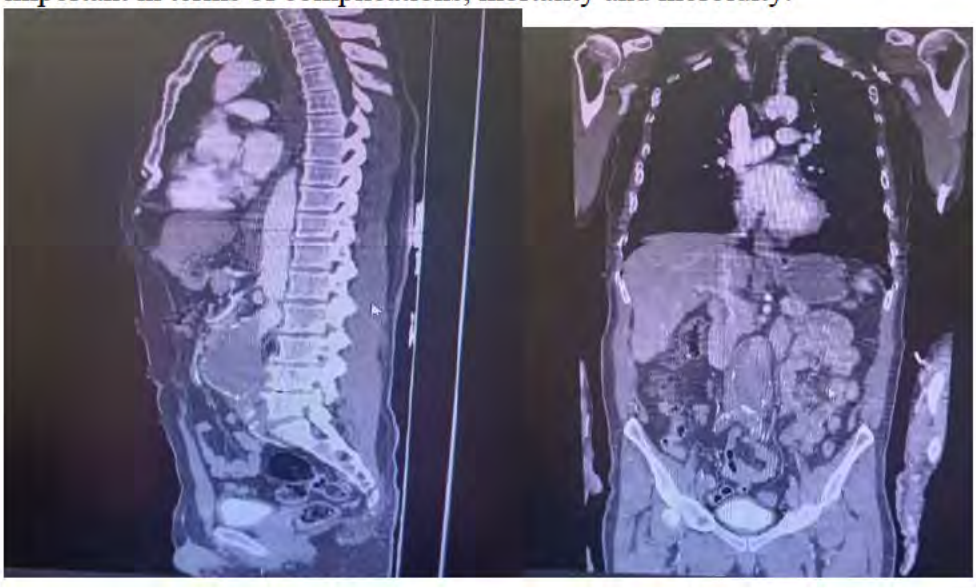
*Filling defect is observed in the iliac arteries.



*55 mm aortic aneurysm is observed.

DISCUSSION

Claudication is only a symptom and may be of vasogenic or neurogenic origin. In the pathogenesis of vasogenic claudication, the metabolic needs of the lower extremity cannot be met due to arterial insufficiency. (5) In Leriche syndrome, thrombotic occlusion in the aorta usually occurs due to atherosclerotic changes. This obstruction in the distal aorta results in reduced blood flow in the pelvis and lower extremities. (3,6) These ischemic changes in the lower extremity cause vasogenic claudication. Although both pathologies cause leg pain and activity-limiting symptoms, their pathogenesis is different. Making a differential diagnosis of these two pathologies, which can occur with the same symptoms, is very important because the treatment processes are completely different. In addition, early diagnosis and treatment are important in terms of complications, mortality and morbidity.



*Aortic aneurysm, widespread calcifications in the aortic wall and filling defect at the renal level are observed.

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Pub No: OP-103

Evaluation of patients with pneumonia admitted to intensive care unit from emergency department

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Introduction: Pneumonia is a significant problem which is quite commonly encountered by emergency physicians and intensivists. It is the most frequent cause of inpatient deaths associated with communicable diseases. This study aimed to evaluate patients with pneumonia admitted to the intensive care unit (ICU) from the emergency department (ED) and to find out which parameters can predict mortality in this special patient group.
Material Method: Patients with pneumonia admitted to ICU from ED between January 1, 2016 and July 31, 2020 were recruited into the study. Their age, gender, past medical history, vital signs, Glasgow coma score (GCS), laboratory parameters and 28-day and 90-day mortality information were gathered retrospectively. Categorical variables were presented as number (n) and percentages (%), and continuous variables with normal distribution as mean ± standard deviation, and those without normal distribution as median, interquartile range and minimum and maximum values. Patients were grouped according to their gender, age, GCS, first lactate level, mean arterial pressure (MAP) and PaO2/FiO2 ratio. Groups were compared in terms of mortality rate using $\chi 2$ test.
Results: Seventy two (55.4%) of 130 patients were male, and 58 (44.6%) patients were female. Mean age was found 75.5±12.74 years. High frequency of cardiovascular disease history (n=

106; 81.5%) was remarkable (Table 1). Patients' vital signs and major laboratory parameters – including arterial blood gas analysis- are provided in Table 2 and Table 3, respectively. Fifty three (40.8%) patients have died within 28 days, and 75 (57.7%) patients have done so within 90 days. Gender was found to be not associated with neither 28-day nor 90-day mortality ($p > 0.05$ for both evaluations). Age, GCS and the first lactate level were seen to be related to 90-day mortality ($p= 0.027$, $p= 0.030$ and $p= 0.030$ respectively). MAP and PaO2/FiO2 ratio were found to be associated with 28-day mortality ($p=0.034$ and $p= 0.037$, respectively) (Table 4).

Discussion: Mortality rates of pneumonia patients admitted to ICU range from 20% to 50%; mortality rates of our sample (28-day and 90-day) were closer to the upper limit of this range (41% and 58%, respectively). Chen and Li demonstrated that lactate predicts 28-day mortality better than CURB-65 in all patients with pneumonia (not only those admitted to ICU). In our analysis, it was not found predictive of 28-day mortality though an apparent difference was seen between the mortality rates of the groups (36% vs 53%) but it was predictive of 90-day mortality. The same was also true for age and GCS. On the other hand, MAP and PaO2/FiO2 ratio were seen to predict 28-day mortality but not 90-day mortality though obvious differences were present between the mortality rates of the groups (76% vs 55% and 61% vs 46%, respectively). We suggest, different statistical methods might detect the significance of the differences in those parameters with visible difference without statistical significance.

Conclusion: The results of this study imply that age, GCS, the 1st lactate level, MAP and PaO2/FiO2 ratio may have some mortality-predictive value in patients with pneumonia who need ICU admission, but new studies, preferably prospective and with a larger sample, which support these findings are needed.

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Tables

Table 1. The summary of past medical history of the patients

	Present		Absent	
	n	%	n	%
Cardiovascular	**106**	**81.5**	24	18.5
Neurologic	56	43.1	74	56.9
Endocrine	41	31.5	89	68.5
Respiratory	37	28.5	93	71.5
Renal	29	22.3	101	77.7

Cardiovascular: Ischemic heart disease, dysrhythmias, right/left-sided heart failure; Neurologic: All types of intracranial diseases, seizure disorders, neuromuscular diseases; Endocrine: Diabetes Mellitus, hypo/hyperthyroidism, Cushing's Disease, adrenal insufficiency; Respiratory: Chronic obstructive pulmonary disease, asthma, pulmonary embolism history, obesity hypoventilation syndrome, restrictive lung diseases, interstitial lung diseases; Renal: Chronic renal diseases

Table 2. The summary of vital signs of the patients

	Mean ± Std. Deviation	Minimum	Maximum
Body temperature (°C)	36.33 ± 0.68	34.50	38.70
Pulse rate (beats/min)	101.32 ± 23.48	35	170
Mean arterial pressure (mmHg)	79.31 ± 17.78	27.00	128.30
Respiratory rate (breaths/min)	24.45 ± 6.56	15	45

Table 3. The summary of the results of major laboratory tests

	Mean ± Std. Dev.	Median	Interquartile Range	Minimum	Maximum
Glucose (mg/dL)	169 ± 76				
Creatinine (mg/dL)	1.83 ± 1,60				
CRP (mg/L)	14,3 ± 12,9				
WBC (x10^6/L)	14027 ± 7285				
Neu (%)	84 ± 14				
Hgb (g/dL)	11 ± 2				
Plt (x10^6/L)	244408 ± 122080				
pH	7.34 ± 0.12				
PaO2 (mmHg)	116 ± 67				
PaCO2 (mmHg)	41 ± 15				
HCO3 (mEq/L)	21.7 ± 6				
Lactate (mmol/L)	2.7 ± 2.1				
ALT (IU/L)		16.8	11.8 – 26.4	1	3237
AST (IU/L)		28.8	19.1 – 54.3	6	6214

CRP: C-Reactive protein, WBC: White blood cell count, Neu: Neutrophil, Hgb: Hemoglobin, Plt: Platelet count, PaO2: Partial pressure of arterial oxygen, PaCO2: Partial pressure of arterial carbon dioxide, ALT: Alanine aminotransferase, AST: Aspartate aminotransferase

Table 4. Comparison of the groups in terms of mortality rate

		28-day mortality			90-day mortality		
		n (cases / total group)	**%**	**p**	**n (cases / total group)**	**%**	**p**
Gender	**Male**	31 / 72	43.05	0.554	43 / 72	59.72	0.602
	Female	22 / 58	37.93		32 / 58	55.17	
Age	**18-64 years**	7 / 24	23.33	0.200	9 / 24	37.50	**0.027**
	≥65 years	46 / 106	43.39		66 / 106	62.26	
GCS	**>8**	27 / 78	34.61	0.080	39 / 78	50.00	**0.030**
	≤8	26 / 52	50.00		36 / 52	69.23	
1st lactate	**≤3**	35 / 96	36.45	0.093	50 / 96	52.08	**0.030**
	>3	18 / 34	52.94		25 / 34	73.52	
MAP	**<65 mmHg**	13 / 21	61.90	**0.034**	16 /21	76.19	0.067
	≥65 mmHg	40 / 108	37.03		59 / 108	54.62	
PaO2/FiO2 Ratio	**≤300**	47 / 103	45.63	**0.037**	63 / 103	61.16	0.166
	>300	6 / 26	23.07		12 / 26	46.15	

GCS: Glasgow Coma Score, MAP: Mean Arterial Pressure, PaO2: Partial pressure of arterial oxygen, FiO2: Fraction of inspired oxygen

Pub No: OP-104

Nutcracker Syndrome

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ENTRANCE:

Nutcracker syndrome is a very rare, hard-to-diagnose syndrome that can cause unexplained abdominal pain, proteinuria, hematuria, flank pain, pain during sexual intercourse and varicose veins in the genital area. Nutcracker syndrome causes clinical symptoms as a result of pressure increase and dilatation in the renal vein as a result of the compression of the left renal vein by the abdominal artery and the superior mesenteric artery.

CASE:

A 30-year-old male patient was admitted to our emergency department with intermittent abdominal pain, hematuria, flank pain, and pain during sexual intercourse. The patient stated that he had recurrent complaints with these complaints before and that he was relieved after symptomatic treatment. In the physical examination of the patient, who had no known drug use or chronic disease, there was tenderness in the abdomen and varicose veins in the genital region on the inner side of the leg. His vitals were minimally hematuria on natural urinalysis, creatinine, BUN, liver function tests, white blood cell were normal and there was gas and stool output. Since the patient had recurrent applications and his clinic was not comfortable, the patient was examined and visualized in our emergency department. Contrast-enhanced abdominal tomography showed that the left renal vein was compressed between the aorta and the superior mesenteric artery (Picture 1).

CONCLUSION:

Nutcracker syndrome should be kept in mind in patients with unexplained pain under the abdomen, isolated proteinuria, flank pain, hematuria, pain during sexual intercourse and varicose veins in the genital area.

KEYWORD:

Nutcracker, Proteinuria, Hematuria, Genital varices, Flank pain

Picture 1:



Pub No: OP-107

WARFARIN RELATED RETROPERITONEAL HEMORRHAGE

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SUMMARY

Warfarin is an anticoagulant agent used as a prophylaxis in the risk of thromboembolism and in the treatment after thromboembolism has developed. It shows its effect on factors 2, 7, 9, 10. These factors are synthesized in the liver. These inactive factors become active with reactions in which vitamin K is a cofactor. It can cause major bleeding as a side effect. In our case, a 67-year-old male patient presented with dyspnea and abdominal pain. The patient's abdominal pain was mostly in the form of bloating and gas stool was present. On the other hand, the shortness of breath was not a sudden onset, but because of cerebrovascular disease (CVO) and gradually increasing after discharge, the patient did not have cough and sputum complaint. There was no increase in the aspirate from the patient's tracheostomy. Lung sounds were decreased bilaterally and there were rales in the left basal. The abdomen was distended, there was tenderness in the abdomen, but there was no defensive rebound and there was gas and stool. There was an ecchymosis descending to the left scrotum around the penile region. The patient was using warfarin. In the imaging of the patient, pleural eff and retroperitoneal hemorrhage were detected on the left. In our case, bleeding was observed while the INR value was not very high. Although major hemorrhages are observed mostly in case of coumadin overdose, similar cases have been reported in our case.

KEY WORDS: Acute abdomen, retroperitoneal hemorrhage, warfarin

INTRODUCTION

Warfarin is an anticoagulant agent used as a prophylaxis in the risk of thromboembolism and in the treatment after thromboembolism has developed. It shows its effect on factors 2, 7, 9, 10. These factors are synthesized in the liver. These inactive factors become active with reactions in which vitamin K is a cofactor. It can cause major bleeding as a side effect.

CASE:

In our case, a 67-year-old male patient presented with dyspnea and abdominal pain. The patient's abdominal pain was mostly in the form of bloating and gas stool was present. On the other hand, the shortness of breath was not a sudden onset, but because of cerebrovascular disease (CVO) and gradually increasing after discharge, the patient did not have cough and sputum complaint. There was no increase in the aspirate from the patient's tracheostomy.

He had a sequela of left hemiplegia due to ischemic cerebrovascular disease that he had about 1 month before his admission. The patient had a history of atrial fibrillation,

hypertension and a trecheostomy that was opened 22 years ago due to laryngeal ca. When he questioned the drugs he used regularly, it was found that amlodipine and warfarin 5 mg (started 1 month ago due to CVO).

The general condition of the patient was good. His vitals were stable. SpO2: 80%, blood pressure: 110/80 mm/hg, pulse: 92 /min. Lung sounds were decreased bilaterally and there were rales in the left basal. The abdomen was distended, there was tenderness in the abdomen, but there was no defensive rebound and there was gas and stool. There was an ecchymosis descending to the left scrotum around the penile region.
Pathological values in laboratory values; WBC: 19.82 K/uL , HGB: 7.7 g/dL , Creatinine: 1.17 mg/dL , INR: 2.22 INR , CRP: 173.8 mg/L , BLOOD GAS: Ph: 7.479 , pCO2: 34.9 , pO2: 67.5, HCO3std: 26.1, Lactate: 1.25. Other parameters were in the reference range.

Imaging was performed due to ecchymosis areas, high infective values, and low hemoglobin. In imaging radiology reports; '' TORAX CT: Mild pleural effusion was observed in the left hemithorax. Abdominal CT: Heterogeneity with long segment hemorrhagic fluid soft tissue densities, reaching approximately 10 cm in diameter at the widest part of the left retroperitoneum, was detected. In this part, the ileopsoas muscle is thick. It was evaluated as '.

Urology, general surgery and thoracic surgery consultations were performed due to bleeding in the abdomen and thorax and widespread ecchymosis in the genitourinary system. Blood and blood product preparations were made for the patient, who was not considered for emergency surgical intervention by the physicians of the relevant department. Vitamin K treatment was planned, and he was hospitalized in the intensive care unit for follow-up and treatment.

RESULT AND DİSCUSSİON

It has been reported that the annual bleeding frequency due to warfarin is 15-20%. During warfarin administration,

- Especially the first 30 days of warfarin treatment,
- Low glomerular filtration rate,
- Advanced age may increase the risk of bleeding.

In our case, bleeding was observed while the INR value was not very high. Although major hemorrhages are observed mostly in case of coumadin overdose, similar cases have been reported in our case.

An example of this is the case of retroperitoneal and right biceps brachii bleeding without excessive anticoagulant response 4 days after starting warfarin. When this case is examined, it is seen that the 94-year-old patient has high creatinine.

Considering the side effect profile in patients who will be started on warfarin, parameters such as age and kidney function values should be taken into consideration, and treatment should be determined according to the profit and loss calculation. Patients who are started on warfarin should be followed up regularly in terms of bleeding control, especially in the first month of treatment.

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Pub No: OP-108

A Rare Cardiac Cause of Syncope: Ventricular Standstill

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INTRODUCTION AND AIM:

Ventricular standstill is a cardiac rhythm disorder that occurs because the impulses from the sinoatrial node cannot be transferred to the ventricles and manifests itself as the appearance of only P waves on ECG and absence of accompanying QRS waves (1). While syncope may cause complaints of impaired consciousness in short-term episodes, it is a serious condition that may lead to sudden cardiac death in long-term episodes (2).

In this case report, we aimed to present a patient who presented to the emergency department with syncope and was found to have short-term ventricular standstill rhythm on ECG rhythm.

CASE: A 57-year-old male patient was admitted to the emergency department with syncope by the 112 emergency team. According to the history taken from the patient's relatives, the patient had syncope attacks lasting up to 3 minutes for 3 months. The patient regained consciousness after syncope attacks and had no additional complaints. Therefore, the patient was evaluated by cardiology, neurology and internal medicine units and no pathology was detected. However, the patient's syncope episode lasted longer in this complaint and he was admitted to our hospital via 112 emergency service. The patient had a history of asthma and diabetes mellitus. The patient's vital parameters were blood pressure 80/40 mmHg, pulse rate 40 beats/min, respiratory rate 14/min, temperature 36,0 °C, oxygen saturation 96%, Glasgow Coma Score 9. Physical examination and laboratory findings were normal and ventricular standstill rhythm was observed on ECG (figure 1). The patient spontaneously returned to sinus rhythm (figure 2) without any additional intervention in a short period of

time. His vital values were 130/80 mmHg, pulse rate was 87 beats/min and Glasgow Coma Score was 15. The patient who remained stable during follow-up was referred to an advanced center with a cardiology unit.

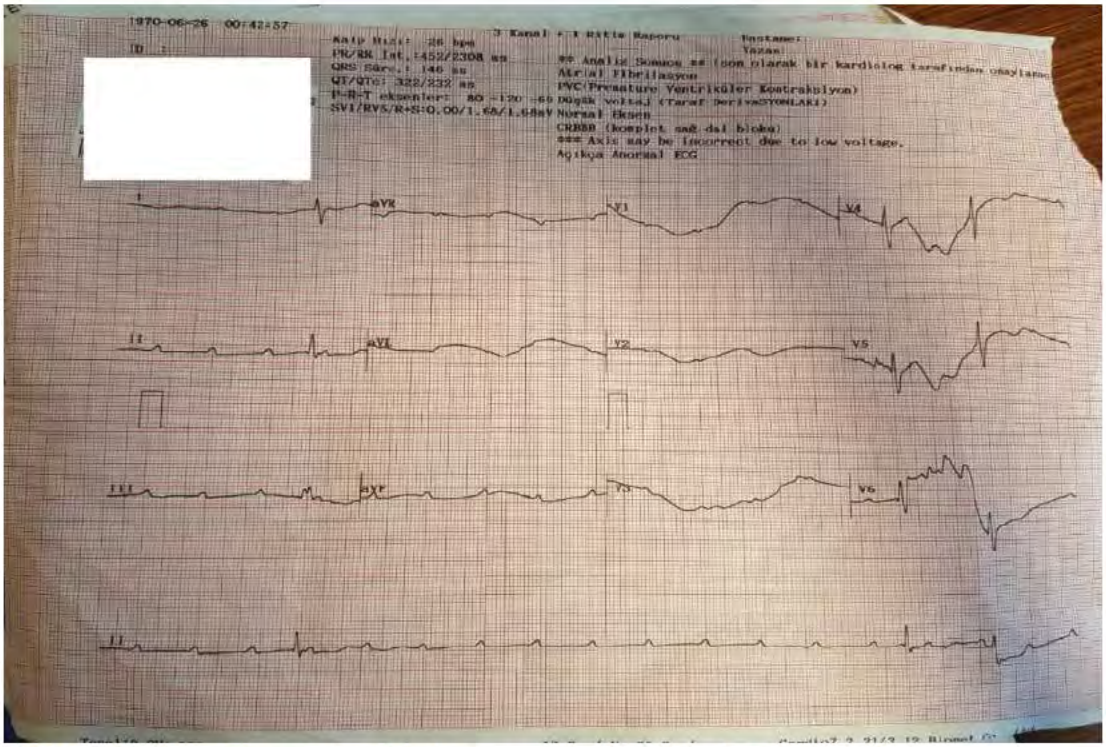

FIGURE 1: ECG of the patient during syncope - Ventricular Standstill

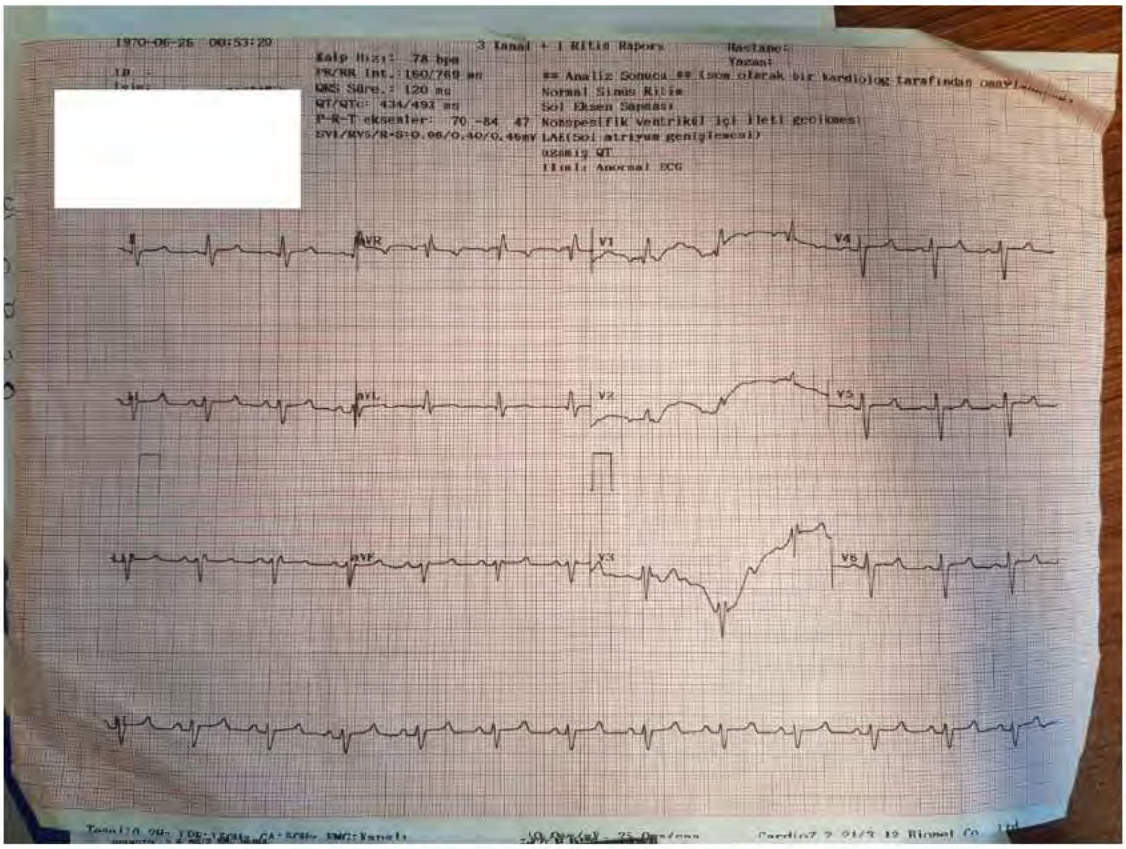

FIGURE 2: ECG of the patient after syncope attack - Sinus Rhythm

DISCUSSION and CONCLUSION:

Ventricular standstill is a fatal condition that occurs due to AV node blockade and requires rapid intervention. Patients frequently require cardiopulmonary resuscitation because of prolonged ventricular asystole (3). When the literature was examined, it was found that the number of cases that terminated spontaneously without medical intervention in a short period of time was not frequent.

Ventricular standstill is a condition whose frequency increases in the presence of structural heart disease, but it may also occur without a pre-existing heart disease. Conditions that occur in the presence of pre-existing heart disease are called primary ventricular standstill and are caused by conditions such as myocarditis, acute coronary syndrome and cardiomyopathy. Secondary ventricular standstill is the name given to ventricular standstill conditions without cardiac cause such as hypoxia, acidosis, hypokalemia, hyperkalemia, hypothermia, pulmonary embolism, antiarrhythmic drugs and cocaine overdose (4). Treatment usually requires

temporary cardiac pacemaker and then permanent cardiac pacemaker implantation. In our patient, there was no need for a temporary pacemaker because of a short-term episode that ended spontaneously and had a stable course; however, it was found that a permanent pacemaker was implanted in the patient in the advanced center. Cardiac monitoring and recognition of dysrhythmias are of vital importance in patients presenting with syncope. Fatal rhythm changes such as ventricular standstill should be considered as a cause of recurrent syncope episodes in patients.

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Pub No: OP-110

TRAUMATIC CATARACT

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SUMMARY:
Eye trauma is common in emergency departments (1). One of the important causes of unilateral blindness in developing countries is these ocular traumas (2). Ocular trauma can have serious consequences that threaten vision and the eye. Traumatic cataracts are present in 27%-65% of eye traumas, and lens damage is present in approximately 50% of them (3)(4). A 16-year-old male patient who entered a bush area and fell off his motorcycle presented with a motorcycle accident. The general condition of the patient was good, vitals were stable. There were multiple linear abrasions on the face and head, and blurred vision in the left eye as a result of foreign body exposure. There was an opacity in the lens of the left eye, figure (1). The patient was consulted with eye diseases due to blurred vision. In the examination performed by an ophthalmologist, there was corneal perforation and lens perforation in the left eye. Studies estimate that 90% of ocular traumas are preventable.(5) Protective equipment and measures to be taken will contribute to the prevention of eye traumas.
KEYWORDS: Eye, Cataract, Trauma

INTRODUCTION

Eye trauma is common in emergency departments (1). One of the important causes of unilateral blindness in developing countries is these ocular traumas (2). Ocular trauma can have serious consequences that threaten vision and the eye. Traumatic cataracts are present in 27%-65% of eye traumas, and lens damage is present in approximately 50% of them (3,4). A thorough ocular and, if necessary, radiological examination following a detailed history is therefore a very important part of any trauma assessment.

CASE

A 16-year-old male patient who entered a bush area and fell off his motorcycle presented with a motorcycle accident. The general condition of the patient was good, vitals were stable. There were multiple linear abrasions on the face and head, and blurred vision in the left eye as a result of foreign body exposure. There was an opacity in the lens of the left eye, figure (1). Lung and abdominal examination were normal. There were superficial abrasions on the left kneecap.

No acute pathology was detected in laboratory values. In their viewing; No acute pathological finding was detected in brain CT. In orbita CT, both globe contours, dimensions and intravitreal density were normal. The morphology of the lenses was normal. Both optic nerve thicknesses and densities were normal. Retrobulbar fat planes were clear. The

thickness of the extra-ocular muscles was normal. There was no finding in favor of fracture in the bone structures included in the study area.



FİGURE 1.

The patient was consulted with eye diseases due to blurred vision. In the examination performed by an ophthalmologist, there was corneal perforation and lens perforation in the left eye. The patient, who also had a preliminary diagnosis of traumatic cataract, was recommended to be referred to an advanced center.

RESULT AND DİSCUSSİON

Our patient, whom we evaluated with eye trauma, which is one of the most common traumas, had lens damage and traumatic cataract, consistent with the rates in the literature.

Studies estimate that 90% of ocular traumas are preventable.(5) Protective equipment and measures to be taken will contribute to the prevention of eye traumas.

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Pub No: OP-114

Incidental alveolar hydatid cyst

ÖZCAN AĞYÜREK[1], ATIF BAYRAMOĞLU[1]

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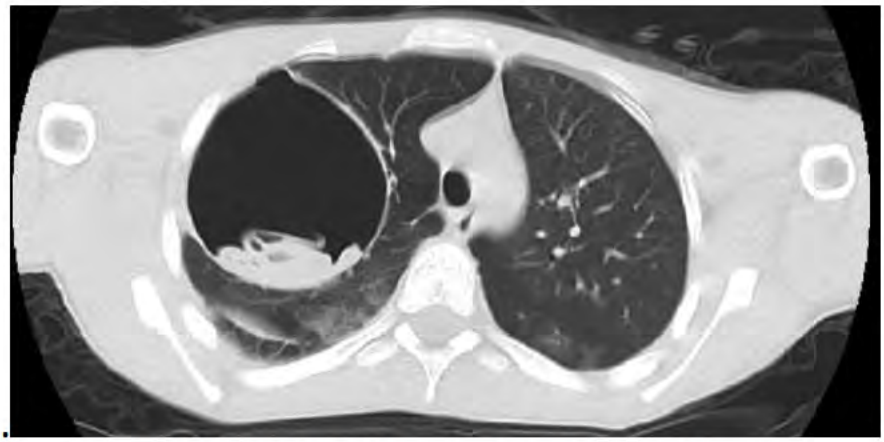
Introduction: Hydatid cyst, a parasitic disease, is caused by the flatworm of the Echinococcus species. There are two main types of this disease in humans: hepatic hydatid cyst and alveolar hydatid cyst. The disease can remain asymptomatic for years, but it can also present with symptoms such as abdominal pain, loss of appetite, indigestion, jaundice, darkening of urine, weight loss, nocturnal teeth grinding, drooling, and anal itching. The pulmonary form of the disease can lead to symptoms like chest pain, shortness of breath, cough, and hemoptysis.

The disease is transmitted by ingesting the parasite's eggs orally or through direct contact with infected animals like cats and dogs. The eggs are released through the feces of animals that consume meat and are infected with the parasite. Diagnosis is often made using ultrasound, computed tomography (CT), or magnetic resonance imaging (MRI). Biopsy and blood tests to detect antibodies against the parasite can also be helpful. Hepatic hydatid cysts are generally treated with medication or surgery, while alveolar hydatid cysts are treated with medication followed by surgery. Alveolar disease can lead to death.

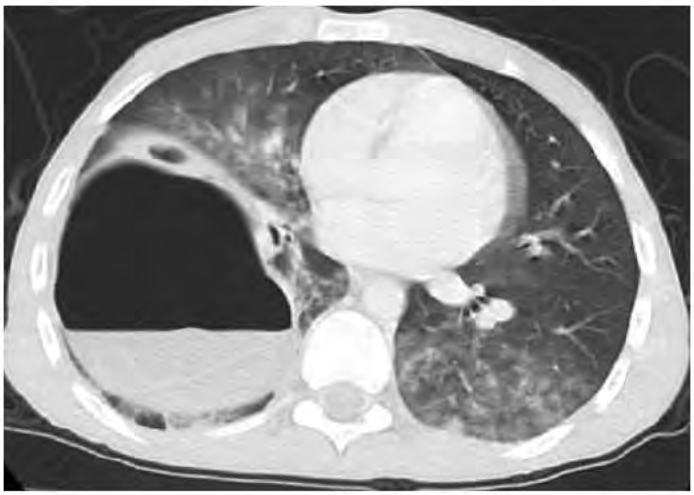
Case: A 15-year-old male patient was brought to the emergency department with a complaint of falling from his own height. The patient had no known history of systemic diseases, and vital signs were stable with a Glasgow Coma Scale (GCS) score of 15. Physical examination revealed tenderness in the upper right quadrant of the abdomen, decreased breath sounds and dullness on percussion in the right upper, middle, and lower lung lobes. The primary considerations were traumatic liver laceration, intra-abdominal bleeding, or other pathology. Hemogram, biochemistry, bleeding parameters, and blood type tests were ordered, along with abdominal and chest CT scans. The patient's test results showed a white blood cell count (WBC) of 14.69 x 10^3/µL and hemoglobin (Hb) of 10.7 g/dL. Radiological imaging revealed an approximately 7-8 cm alveolar hydatid cyst with parasites inside, causing a mass effect in the right lung. The patient was transferred to the thoracic surgery clinic for follow-up and treatment.

Result: When patients with abdominal trauma present to the emergency department, especially if there are upper abdominal examination findings, radiological evaluation should include the thorax to avoid missing possible thoracic pathologies.

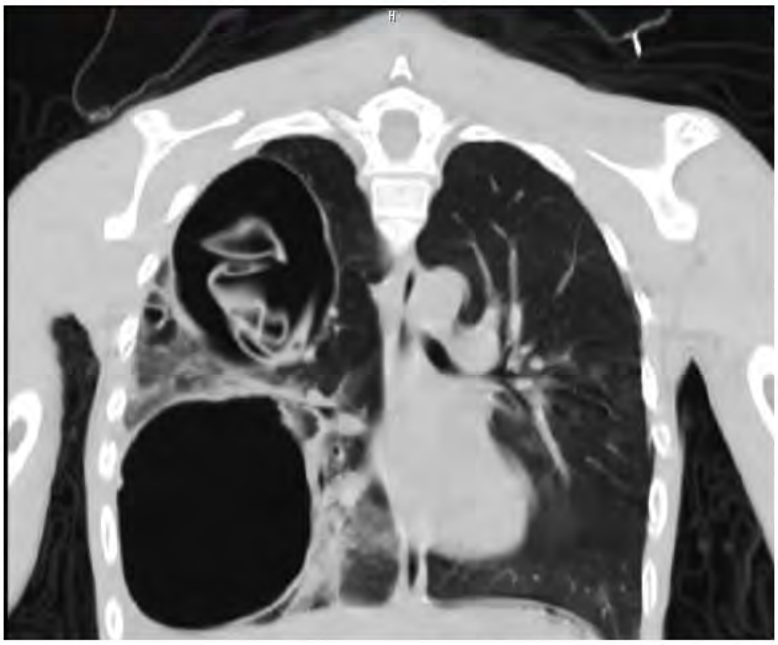
Keywords: alveolar hydatid cyst, hepatic hydatid cyst, Echinococcus alveolaris, Echinococcus granulosus.



"Figure 1: Cyst in the right lung with parasite content."



"Figure 2: Cyst with fluid level in the right lung."



"Figure 3: Two giant cysts in the right lung."

Pub No: OP-115

Steakhouse Syndrome: An Emergency Caused By Insufficiently Chewed Meat

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ABSTRACT

Esophageal obstruction occurs when the esophagus narrows or becomes blocked due to an object or substance inside or around it. This condition can result from the impaction of a swallowed object or food in the esophagus. Foreign body or food impaction in the esophagus is a common gastrointestinal emergency. While it is frequently seen in the pediatric age group (6 months to 6 years), it also occurs in adults, particularly in individuals without teeth, those with psychiatric disorders, and heavy alcohol users. Special occasions such as Eid al-Adha (Kurban Bayramı), during which sacrificial meat is consumed, may pose certain risks related to meat consumption. In adult esophageal foreign body cases, the most common cause in Western countries is meat products, while in Eastern countries, fish bones are frequently implicated. In the adult population, the majority of cases (80-90%) pass through the gastrointestinal system spontaneously without the need for external intervention. However, intentional ingestion of foreign bodies or individuals with neuropsychiatric disorders often require endoscopic or surgical intervention. The size and shape of the foreign body or food are important factors in determining potential complications. Irregularly shaped and large foreign bodies, in particular, can lead to life-threatening complications such as esophageal perforation by creating pressure, edema, ischemia, and mucosal erosion in the esophageal wall. Foreign body and food impactions in the esophagus most commonly occur at physiological junctions between striated and smooth muscles and at sites associated with the aortic arch. Patients often present with retrosternal pain, dysphagia, and odynophagia. Approximately 25% of these cases are reported to have an underlying esophageal disorder. The most common underlying diseases are strictures (33.9%), hiatal hernias (20.2%), and esophageal webs or Schatzki rings (17.1%). Here, we will discuss the management of a patient with esophageal obstruction who presented to the emergency department with chest pain and difficulty swallowing after consuming a meal.

Keywords: Eid al-Adha, esophagus, obstruction, steakhouse

INTRODUCTION

Esophageal obstruction occurs when the esophagus narrows or becomes blocked due to an object or substance inside or around it. This condition can result from the impaction of a swallowed object or food in the esophagus (1, 2). Foreign body or food impaction in the esophagus is a common gastrointestinal emergency. While it is frequently seen in the pediatric age group (6 months to 6 years), it also occurs in adults, particularly in individuals without teeth, those with psychiatric disorders, and heavy alcohol users (3, 4). Special occasions such as Eid al-Adha (Kurban Bayramı), during which sacrificial meat is consumed, may pose certain

risks related to meat consumption. In adult esophageal foreign body cases, the most common cause in Western countries is meat products, while in Eastern countries, fish bones are frequently implicated. In the adult population, the majority of cases (80-90%) pass through the gastrointestinal system spontaneously without the need for external intervention (5). However, intentional ingestion of foreign bodies or individuals with neuropsychiatric disorders often require endoscopic or surgical intervention. The size and shape of the foreign body or food are important factors in determining potential complications. Irregularly shaped and large foreign bodies, in particular, can lead to life-threatening complications such as esophageal perforation by creating pressure, edema, ischemia, and mucosal erosion in the esophageal wall (6). Foreign body and food impactions in the esophagus most commonly occur at physiological junctions between striated and smooth muscles and at sites associated with the aortic arch. Patients often present with retrosternal pain, dysphagia, and odynophagia. Approximately 25% of these cases are reported to have an underlying esophageal disorder. The most common underlying diseases are strictures (33.9%), hiatal hernias (20.2%), and esophageal webs or Schatzki rings (17.1%). Here, we will discuss the management of a patient with esophageal obstruction who presented to the emergency department with chest pain and difficulty swallowing after consuming a meal.

CASE

An 88-year-old male patient presented to the emergency department with chest pain and difficulty swallowing after a meal. The patient had a medical history of hypertension, coronary artery disease, and atrial fibrillation. Upon physical examination, the patient was conscious, cooperative, oriented, with a Glasgow Coma Scale (GCS) score of 15. Vital signs were as follows: blood pressure (BP) 145/90 mmHg, pulse rate 95 beats per minute, respiratory rate 18 breaths per minute, oxygen saturation 97%, and body temperature 36.4°C. Systemic examinations did not reveal any pathological findings. An electrocardiogram (ECG) showed atrial fibrillation without any other significant findings. Following the evaluation, laboratory tests were ordered, and the patient was placed under observation. Based on the patient's symptoms, medical history, and test results, acute coronary syndromes were ruled out, and suspicion arose regarding esophageal foreign body or obstruction. Therefore, a computed tomography (CT) scan was performed. The CT scan revealed diffuse dilation of the esophagus up to 44 mm and signs of obstruction in the distal esophagus, indicating the presence of a foreign body (Figure 1). Gastroenterology consultation was requested for urgent upper gastrointestinal endoscopy, and anesthesia preparations were completed before the procedure. During the endoscopy, it was noted that inadequately chewed meat had been removed from the esophagus. Following the procedure, the patient remained complication-free for 24 hours and was discharged in good health.

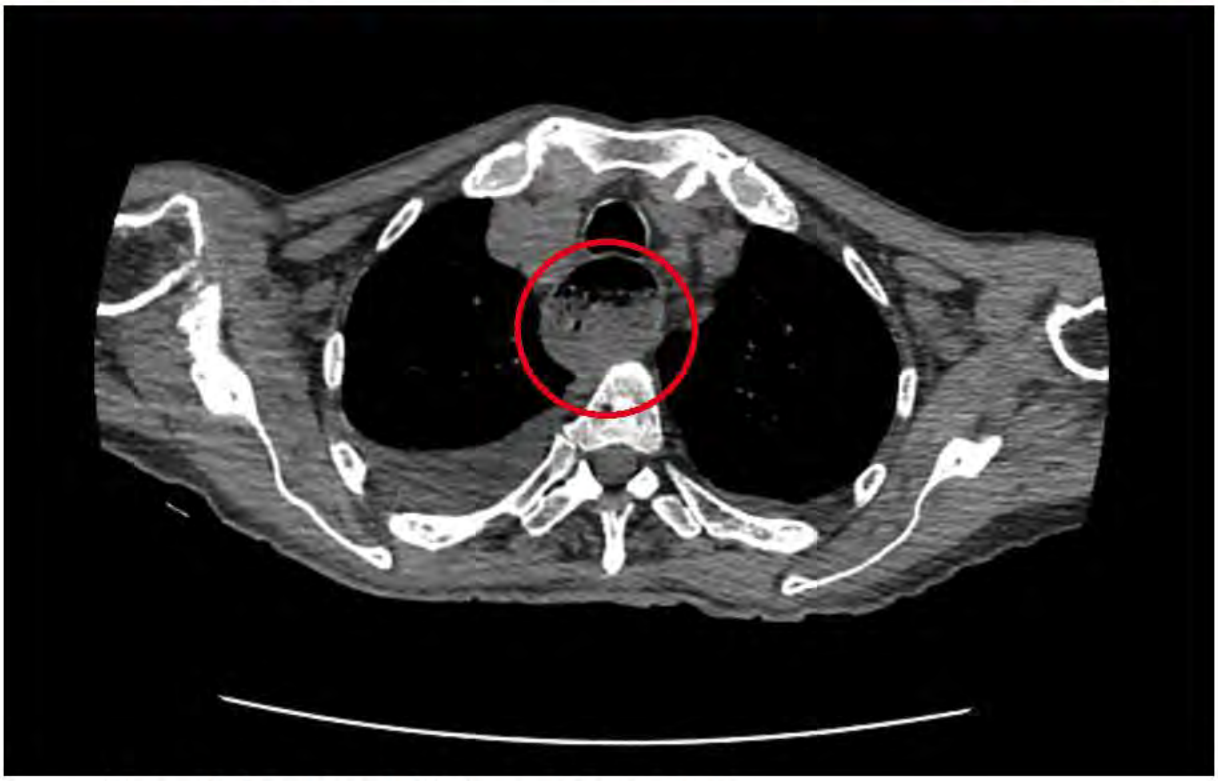

Figure 1: Esophageal dilation and foreign body

DISCUSSION-CONCLUSION

"Steakhouse syndrome" is generally associated with mechanical or functional diseases that narrow the lumen of the esophagus. Various underlying diseases can be responsible for this condition. These include esophageal malignancies (primary or metastatic), malignancies involving the gastroesophageal junction, strictures (peptic or post-treatment), diverticula, hiatal hernias, and Schatzki rings as mechanical causes. Functional causes among differential diagnoses include achalasia, nutcracker esophagus, and diffuse esophageal spasm (7). Recently, eosinophilic esophagitis has also been described as a hidden condition that can lead to food impaction in the esophagus (8). The most crucial clue in diagnosis is a characteristic history. Patients often report sudden difficulty swallowing liquids or solid foods while eating. However, some patients may develop substernal chest pain mimicking ischemic heart disease, necessitating an electrocardiogram and ruling out potentially fatal thoracic syndromes. Other critical conditions such as esophageal rupture, pneumomediastinum, and aspiration should also be excluded. Following the removal of the foreign body, the prognosis is generally favorable. However, since many cases require treatment for underlying diseases, every patient should undergo a comprehensive diagnostic workup (1).

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Pub No: OP-119

Rhino-orbital mucormycosis with sudden vision loss: a rare case in Emergency Department

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İntroduction and Purpose

Mucormycosis, which occurs especially in patients with immune insufficiency or diabetes mellitus and caused by fungi of the "Mucorales" class, is an invasive fungal infection resulting in high mortality and morbidity. [1] While disseminated or pulmonary forms are more common in patients with immune insufficiency, rhino-orbito-cerebral form is more common in patients with diabetes mellitus.[1] Wide surgical debridement of all infected tissues, administration of amphotericin B and control of underlying diabetes mellitus or immune insufficiency are the three main components of treatment of the disease. [2] Then, the patient should be taken into surgery without waiting. All infected tissues should be debrided. Radical action should be taken during this procedure. The patient should also be started on medical treatment and long-term amphotericin B should be administered. [2]

Case

Materials and Methods

A 52-year-old woman was admitted to our hospital because of sudden vision loss, periorbital pain, edema in face and eyes .Physical examination of the patient revealed right peripheral facial paralysis, right periorbital edema, induration of the cheek soft tissues, total ophthalmoplegia and complete vision loss on the right, and necrotic lesions in the right oral cavity. Cranial CT revealed mucosal thickening in the right ethmoidal and sphenoidal sinuses, edema in the preseptal areas within the orbit. No pathological findings were detected in the brain parenchyma. In the evaluation of the patient, who was using oral antidiabetic medication due to diabetes mellitus, it was understood that he was in diabetic ketoacidosis. The result of histopathological examination of necrotic tissue samples taken from the nose was reported as "Mucormycosis ".

Conclusion and Results

Upon this diagnosis, the patient was consulted to the ear, nose and throat clinic and hospitalized. Insulin for blood sugar regulation and liposomal amphotericin B as antifungal treatment were started at a dose of 150 mg/day.

Amphotericin-B Deoxycholate 1-1.5 mg/kg/day

Liposomal Amphotericin-B (LAB) 5-10 mg/kg/day

Right orbital exenteration was performed on the patient on the 2nd day of hospitalization. On the 5th day of hospitalization, the patient developed a change of consciousness. In the imaging performed, invasion of the skull base was detected and extensive debridement was recommended to the patient. The patient did not accept major surgical intervention and died on the 7th day of hospitalization. This case emphasizes the importance of early diagnosis and management of the underlying disease together with surgical debridement and antifungal treatment of the rhinocerebral mucormycosis, which has a very poor prognosis.[3] It should be kept in mind that the dialogue between the clinician, radiologist and pathologist is

important for the correct and early diagnosis of the patient, and mucormycosis may also occur in cases where the disease cannot be detected histologically. [4]

Keywords: Diabetes mellitus; mucormycosis; emergency medicine

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Pub No: OP-126

Evaluation of Blood Gas Results of Patients Presenting to the Emergency Department with Diabetic Ketoacidosis

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Introduction: Diabetic ketoacidosis (DK) is an acute, life-threatening complication of Diabetes Mellitus. Increased ketone levels in serum causes increased anion gap metabolic acidosis and ketonuria. Studies have reported that blood gas is 97.8% sensitive and 100% specific for the diagnosis of diabetic ketoacidosis. The aim of this study is to evaluate blood gas analysis in patients presenting to the emergency department with diabetic ketoacidosis. Method: This study was planned retrospectively on 62 patients over the age of 18 who were diagnosed with DK by applied to the emergency department. According to the criteria of the American Diabetes Association, DK is defined as serum glucose ≥250 mg/dL, serum anion gap >10 mEq/L, bicarbonate ≤18 mEq/L, pH ≤7.30, and ketones in urinalysis. The blood gas results of the patients were compared with the clinical severity of the patients (mild, moderate, severe) based on these criteria. Results: The mean age of the patients was 34.9. Of these patients, 40.32% were female and 59.68% were male. Of the patients, 45.2% mild, 38.7% moderate, 16.1% severe DK patients. There were differences in pH and bicarbonate values among all clinical severity groups ($p=0.000$). Although there were differences in the adjusted significance levels, significant differences were revealed between our clinical severity groups in values such as pCO2 , anion, chlorine, creatinine, leukocytes, and urine ketone ($p<0.001$).
Conclusion: In our study, when we compared the clinical severity groups of DK with the comorbidity, age, and some blood gas results such as glucose, lactate, base excess, C-reactive protein, sodium, potassium, and urea, we could not find a statistically significant difference between the clinical severity groups.
Key words: Diabetic ketoacidosis, blood gas, anion gap, serum

Pub No: OP-128

Interesting Diagnosis of HIV

Sümeyye Tuğba Sarkı Cander[1], Oğuz Altınyuva[1], Cemal İlker Cander[2]

[1]Bursa Çekirge Devlet Hastanesi
[2]Bursa SBÜ Yüksek İhtisas Eğitim ve Araştırma Hastanesi

Introductions

Human immunodeficiency virus (HIV) infection is seen with increasing frequency nowadays and the variety of clinical presentation makes the diagnosis difficult. Neurological complications are seen in 40-50% of patients diagnosed with Acquired Immunodeficiency Syndrome (AIDS), and in 10% of patients, the first complaint and findings are related to the nervous system. In autopsy series, the rate of central nervous system involvement varies between 75-90%(1). The virus can cause neurological involvement in the entire nervous system through direct effects or opportunistic infections. Cerebral toxoplasmosis, progressive multifocal leukoencephalopathy (PML), cryptococcal infection, cytomegalovirus (CMV) infection, central nervous system tuberculosis, nocardial infection, central nervous system lymphoma are opportunistic infections and cancers seen in HIV-infected patients (2).

Case

A 50-year-old male patient presented to the emergency department with complaints of inability to speak, blurred consciousness and fever. In his anamnesis, it was learned that after the clouding of consciousness that started 15 days ago, he was completely unconscious for 3 days and had occasional fever. The patient, who had a history of suspected substance use 15 years ago, was unremarkable in his familial history. In the patient's vital signs, blood pressure: 100/70 mmHg Pulse: 65 beats/minute Saturation: 100% Fever: 37.1. Physical examination revealed unconscious, disorientated and uncooperative GCS score:10 aphasic and spastic and suspicious nuchal rigidity of the extremities. Examination of the patient was requested. Contrast-enhanced cranial MR and Diffusion MR were requested from the patient, after laboratory tests revealed Wbc:6070 Hb:12.7 pH:7.48 Crp:21, and Cranial CT: Multiple cranial lesions and surrounding edema were reported in imaging studies. The patient was consulted to neurosurgery, after the contrast-enhanced MRI report reported multiple cranial lesions, edema around the lesions, leptomeningeal involvement, and effacement and abscess formation in the sulci. Cranial mass was not considered in the patient who was evaluated by neurosurgery, and hepatitis and HIV markers were recommended to be sent from the patient. Upon the result of HIV+ in the studied markers of the patient, cranial lesions were diagnosed as cerebritis secondary to HIV? Considering leptomeningitis and abscess due to secondary infection, no intervention was considered by the neurosurgeon. Afterwards, the patient was consulted to Infectious Diseases. The patient was started on HIV treatment and the patient was referred to the intensive care unit, whose follow-up was recommended under intensive care conditions.

Keywords: emergency room, hiv, confusion

Conclusions

HIV can affect both the central and peripheral nervous system and mimic all kinds of neurological diseases. Patients may present with a wide variety of clinical presentations such as headache, visual disturbances, paresis, ataxia, rapidly progressive dementia, and neuropathy. Since neurological involvement is the first finding in approximately 10% of patients, the first diagnosis can be made in neurology clinics. HIV should be considered in patients with neurologic findings whose diagnosis cannot be clarified. Expected neurological complications occur mainly by three different mechanisms. These; Neurological complications due to opportunistic infections developing in an HIV-infected person are neurological complications secondary to HIV-related intracranial mass formations and neurological conditions due to the direct effect of the virus. Complications due to the direct effect of HIV virus can be listed as acute aseptic meningitis, chronic meningitis, HIV-associated encephalopathy, vascular myelopathy, peripheral neuropathy and myopathy (3).

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Pub No: OP-129

Kounis Syndrome: An Allergic Acute Coronary Syndrome Due to a Scorpion Sting

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INTRODUCTION

Kounis Syndrome is a confluence of acute coronary syndromes such as coronary spasm, myocardial infarction, and stent thrombosis, which is precipitated by allergic or hypersensitivity reactions and anaphylaxis. It is a consequence of mast cell activation (1).

Our case report focused on a thirty-five-year-old patient with no preexisting medical issues who experienced chest pain and ST segment elevation on ECG following a scorpion sting. Taking into account the concomitant emergence of hypersensitivity or allergic reactions as well as acute coronary syndrome, Kounis Syndrome was considered.

CASE

A 35-yr-old female patient was presented with a complaint of vomiting and pain on her chest. It was ascertained that her symptoms began after a scorpion sting on the posterior side of the fourth finger of her right foot. She had no previous known comorbidities. On physical examination, she was conscious, GCS: 15, SpO2: 98%, heart rate: 110 beats/min, respiratory rate: 20breath/min, blood pressure: 110/70 mmHg, body temperature: 36.7 ^{0}C. Laboratory tests revealed WBC: 11000 /µL, hemoglobin: 11.3 g/dL, INR: 1.73, Troponin: 0.008 ng/mL, creatinine: 0.67 mg/dL, glucose: 92 mg/dL. Venous blood gas pH: 7.52, pO2: 94.6 mmHg, pCO2: 25.6 mmHg, bicarbonate: 20.6 mmol/L, lactate: 1.86 mmol/L. Other laboratory tests were unremarkable. The first ECG showed normal sinus rhythm. Control ECG taken when the patient's chest pain increased. Control electrocardiogram revealed ST segment elevations with cardiac arrhythmia. The patient was admitted to the coronary intensive care unit. Results of the coronary angiography revealed no abnormalities in the coronary arteries. A diagnosis of type 1 kounis syndrome was established for the patient. With the abatement of symptoms and no active complaints, the patient was discharged after seven days of care, with recommendation given.

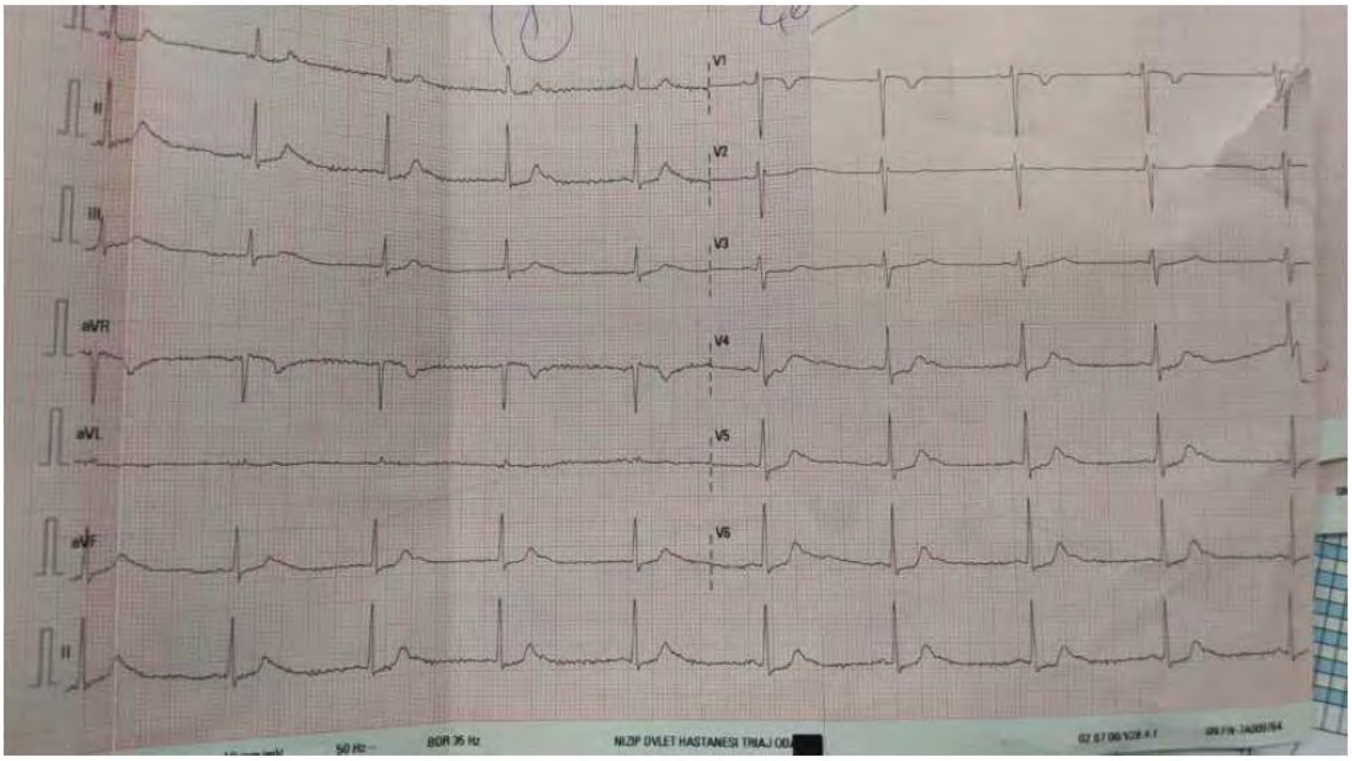

Figure 1. The first ECG showed normal sinus rhythm

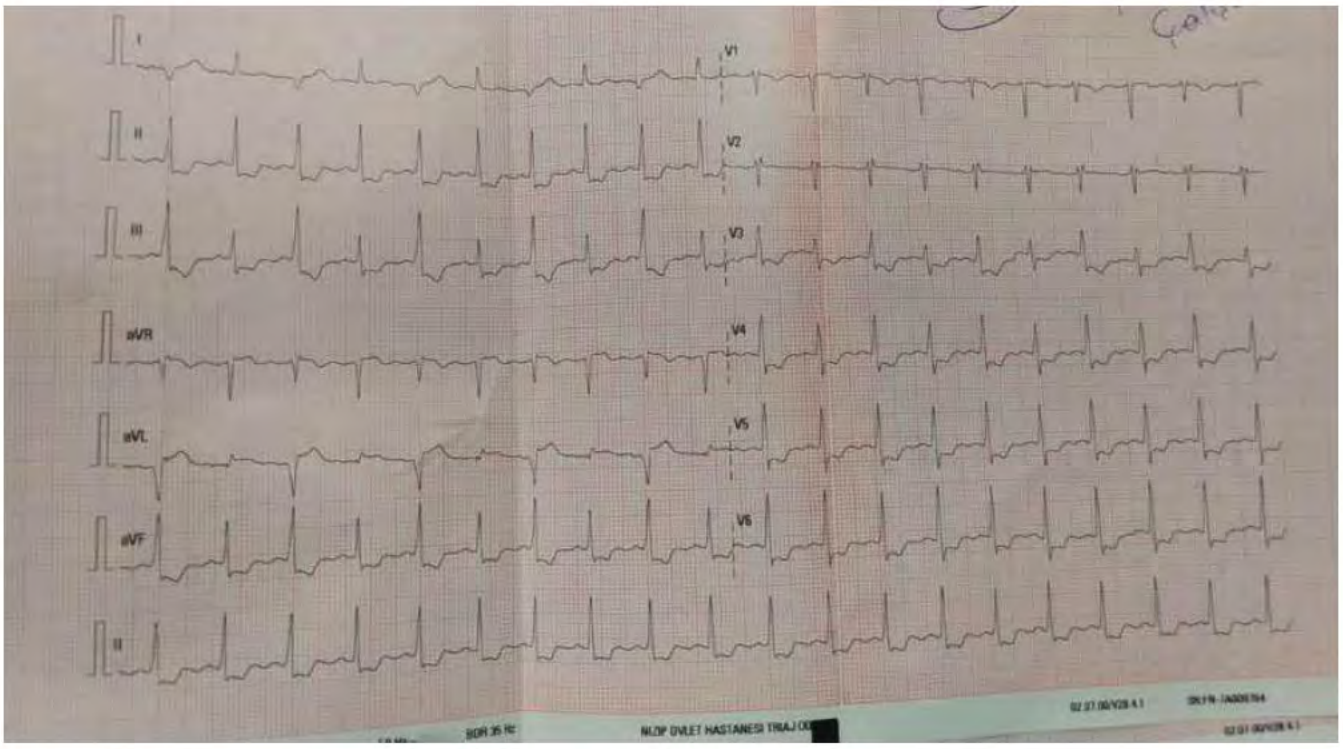

Figure 2. Control ECG taken when the patient's chest pain increased

DISCUSSION

There are three types of Kounis syndrome. *Type 1,* vasospastic allergic angina, transpires when allergic substances emitted in the lack of any coronary artery pathology provoke coronary vasospasm without elevated cardiac enzymes. *Type 2* allergic myocardial infarction presents with a clinical picture of acute coronary syndrome in the presence of pre-existing coronary artery disease. Allergic mediators are responsible for vasoconstriction, plaque fragility or plaque rupture. *Type 3,* stent thrombosis associated with occlusive thrombus infiltrated with eosinophils and mast cells. Histamine, neutral proteases, arachidonic acid products, platelet activating factor and various cytokines and chemokines may be the mediators causing Kounis syndrome (2,5).

Kounis syndrome has been predominantly reported in southern Europe, with a particularly high prevalence in Spain, Italy, Greece and Turkey. The incidence of Kounis syndrome is increasing, but the diagnosis of Kounis syndrome is underdiagnosed and easily overlooked. It has been thought that the actual occurrence rate is much greater across all nations, including Turkey, and cases are going undetected (1,6).

In addition to the clinic, elevated histamine, tryptase, IgE antibodies, and eosinophils are all corroborative of a diagnosis of Kounis Syndrome (3). These tests cannot be executed in emergency settings so the serum levels of the patient were unidentified.

The presence of vasospasm and ST segment elevations on the ECG without elevated cardiac enzymes are consistent with the diagnosis of *Type 1 Kounis Syndrome (*72.6%) which is the most common form (6,8).

Treatment of Kounis syndrome should managed like acute coronary syndrome and anaphylaxis. Adrenalin should be administered selectively to patients due to its impact of augmenting the heart's oxygen demand and heightening the possibility of vasospasm and arrhythmia. *Calcium channel blockers* and *nitrates* are recommended to reduce vasospasm (1,7).

Despite the obscure etiology of Kounis syndrome, the voluminous amount of cases reported in recent years indicates that it should be included in the differential diagnosis of acute coronary syndrome. Kounis syndrome should be kept in the mind when treating individuals who demonstrate acute coronary syndrome and concomitant allergic symptoms due to medication allergies or insect bites.

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Pub No: OP-130

A predictive model can classify diabetes mellitus and determine the associated risk factors

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Abstract:

Introduction and Purpose: Diabetes mellitus is a chronic disease characterized by hyperglycemia. It may cause many complications. According to the growing morbidity in recent years, in 2040, the world's diabetic patients will reach 642 million, which means that one in every ten adults in the future is suffering from diabetes. Since the early symptoms of diabetes are not obvious and the relationship between symptoms and diabetes is complex, the self-diagnosis results based on patients' own experiences are not accurate. The process of Machine Learning is to train a computational algorithm for prediction based on a big dataset. Logistic regression is one of the machine learning models for predicting that can be used to find out the relationship between dependent and predictor-independent variables and control the confounding variables. The aim of this study was to determine the rate of effective variables in diabetes and the estimation of the logistic regression model for prediction.

Materials and Methods: In this work, we collected 520 patient records from the University of California, Irvine (UCI) machine learning repository of Sylhet Diabetes Hospital, Sylhet. The logistic regression method was used in the study to evaluate the relationship between the factors causing diabetes and for diabetes prediction modeling. Accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score were used as performance evaluation criteria.

Results and Conclusion: Multivariate logistic regression analysis method related to factors predicting diabetes showed that; gender (female; $p<0.001$; OR=77.570), polyuria (Yes; $p<0.001$; OR=84.736), polydipsia(Yes; $p<0.001$; OR=159.245), polyphagia (Yes; $p=0.025$; OR=3.299), genital_thrush (Yes; $p=0.001$; OR=6.447), irritability (Yes; $p<0.001$; OR=10.389), and the partial_paresis (Yes; $p=0.027$; OR=3.188) were independent factors for predicting diabetes. Logistic regression can be effective in predicting diabetes. It will be valuable for

disease and preventive medicine applications for medical experts with this successful classification performance.

Keywords: Diabetes, Logistic regression, Prediction, Risk factors.

Introduction

Diabetes has grown increasingly common in people's daily lives, as living standards have risen. Diabetes, often known as diabetes mellitus, is a chronic disorder caused by an increase in blood glucose levels (1). This illness can be detected using a variety of physical and chemical testing. Diabetes that goes undiagnosed and untreated can impair important organs such as the eyes, heart, kidneys, foot, and nerves, as well as cause mortality (2, 3).

Diabetes is a chronic disease that has the potential to wreak havoc on world health. Recent studies published by the World Health Organization (WHO) demonstrate an increase in the number and mortality of diabetes patients worldwide. Diabetes is expected to be the sixth largest cause of death by 2030, according to the WHO (4, 5). According to the International Diabetes Federation (IDF), there are presently 537 million diabetics in the globe, with a projected increase to 643 million by 2030 (5, 6).

The best way to avoid diabetic complications is to detect and treat the condition early. Diabetes identification is critical since consequences worsen over time (7). An accurate and quick diagnosis can assist patients in preventing diabetes and determining whether they have diabetes at an early stage (6). However, medical resources are limited, and doctors can only diagnose a limited number of patients in a limited amount of time. As a result, most people base their decision on their own experiences and symptoms. However, most individuals lack professional medical expertise and rely on their diagnosis only on what they know and what they hear, making it impossible for patients to make reliable diagnoses for themselves. As a result, it is vital to develop an efficient prediction model that may save medical resources while also assisting patients in properly performing a self-test (8).

Diabetes prediction is important for appropriate treatment to prevent further complications of the disease. According to a recent study, a large number of ML (machine learning) algorithms have been used to identify and predict diseases. The machine learning process is like computer algorithms learning through experience rather than humans, which means they are much more efficient than humans (9, 10). Logistic regression, also known as logarithmic probability

regression, is a classification model suitable for the fitting of numerical binary output data. After the input data are linearly weighted, a sigmoid function is used to process the input data to obtain the output probability result, and then, the probability result is transformed into binary output by a symbol function. The parameters of the input model are obtained by maximum likelihood estimation, which distinguishes it from conventional logistic regressions (11).

The primary aims of this research are to predict diabetes at an early stage so that people can take proper steps to control it, and to find out the relation between different symptoms and factors that cause diabetes.

Materials and Methods

Data Description

The UCI Machine Learning library's databases have been compiled. It was created using direct survey questions from Sylhet Diabetes Hospital in Sylhet, Bangladesh. The dataset included information from 520 patients. Of the 520 individuals, 320 have diabetes, whereas the remaining 200 are not diabetic. The dataset has seventeen parameters. Only one of these factors is the output variable, while the remaining sixteen variables are input variables(12).

Logistic regression

Logistic regression analysis is one of the methods used to assign the observations in the considered data set to the groups. In the logistic regression analysis of which the number of classes is known, the classification model is obtained by using the existing data, and thanks to this model, new observations to be added to the data can be assigned to the classes(13).

At the same time, logistic regression is a method used to determine the cause-effect relationship with independent variables in cases where the dependent variable, that is, the class variable, has two or more categories. In the logistic regression analysis, it is examined whether the relationship between the independent variables and the dependent variable is important, and the predicted values obtained for the cases where the variable of interest exists in the model or not, and the observed values are compared. Independent variables in the applications of logistic regression models, especially in the field of medicine; Risk variables are the variables that determine whether a disease will occur or not. Detection of these variables has an important place in early diagnosis and in the fight against the factors that cause the disease.

Table1: The names, types, and explanations of dataset* variables

Variable	Description	Type

Age	Age of patients (in years)	Continuous
Gender	Gender (male/female)	Categorical
Polyuria	Whether the patient experienced excessive urination or not. (0=No, 1=Yes)	Categorical
Polydipsia	Whether the patient experienced excessive thirst/excess drinking or not. (0=No, 1=Yes)	Categorical
Sudden Weight Loss	Whether patient had an episode of sudden weight loss or not. (0=No, 1=Yes)	Categorical
Weakness	Whether patient had an episode of feeling weak. (0=No, 1=Yes)	Categorical
Polyphagia	Whether patient had an episode of excessive/extreme hunger or not. (0=No, 1=Yes)	Categorical
Genital Thrush	Whether patient had a yeast infection or not. (0=No, 1=Yes)	Categorical
Visual Blurring	Whether patient had an episode of blurred vision. (0=No, 1=Yes)	Categorical
Itching	Whether patient had an episode of itch. (0=No, 1=Yes)	Categorical
İrritability	Whether patient had an episode of irritability. (0=No, 1=Yes)	Categorical
Delayed Healing	Whether patient had an noticed delayed healing when wounded. (0=No, 1=Yes)	Categorical
Partial Paresis	Whether patient had an episode of weakening of a muscle/group of muscles or not. (0=No, 1=Yes)	Categorical
Muscle Stiffness	Whether patient had an episode of muscle stiffness.	Categorical
Alopecia	Whether patient experienced hair loss or not. (0=No, 1=Yes)	Categorical
Obesity	Whether patient can be considered obese or not using his body mass index. (0=No, 1=Yes)	Categorical
Class	Presence of Diabetes (Diabetes/No Diabetes).	Categorical

Results

Multivariate logistic regression analysis showed that age ($p=0.044$; OR=0.950), gender (female; $p<0.001$; OR=77.570), polyuria(Yes; $p<0.001$; OR=84.736), polydipsia (Yes; $p<0.001$; OR=159.245), polyphagia (Yes; $p=0.025$; OR=3.299), genital_thrush (Yes; $p=0.001$; OR=6.447), itching (Yes; $p<0.001$; OR=0.061), irritability(Yes; $p<0.001$; OR=10.389), and the partial_paresis (Yes; $p=0.027$; OR=3.188) were independent factors for predicting diabetes. Detailed information about multivariate logistic regression analysis is summarized in Table 1.

Table1. Determination of factors predicting diabetes using Enter logistic regression model

Variables	Beta	SE	Wald statistic	*p*	OR	CI for OR	
						Lower	Upper
Gender (Female)	4.351	0.598	52.910	**<0.001**	**77.570**	24.017	250.538
Polyuria(Yes)	4.440	0.705	39.625	**<0.001**	**84.736**	21.269	337.594
Polydipsia(Yes)	5.070	0.829	37.420	**<0.001**	**159.245**	31.370	808.368
Sudden Weight Loss(Yes)	0.190	0.548	0.121	0.728	1.210	0.414	3.539
Weakness(Yes)	0.817	0.537	2.317	0.128	2.264	0.791	6.483
Polyphagia(Yes)	1.194	0.534	5.007	**0.025**	**3.299**	1.160	9.388
Genital Thrush(Yes)	1.864	0.553	11.345	**0.001**	**6.447**	2.180	19.070
Visual_Blurring (Yes)	0.916	0.651	1.978	0.160	2.499	0.697	8.955
İrritability(Yes)	2.341	0.591	15.712	**<0.001**	**10.389**	3.265	33.054
Delayed Healing(Yes)	-0.392	0.550	0.507	0.476	0.676	0.230	1.987
Partial Paresis(Yes)	1.159	0.525	4.880	**0.027**	**3.188**	1.140	8.917
Muscle Stiffness(Yes)	-0.729	0.580	1.578	0.209	0.483	0.155	1.504
Alopecia(Yes)	0.150	0.620	0.059	0.808	1.162	0.345	3.919
Obesity(Yes)	-0.289	0.544	0.282	0.595	0.749	0.258	2.177
Constant	7.535	1.594	22.335	<0.001	1873.103		

Table 2 shows the outcomes of the performance metrics derived from modeling using Logistic regression.

Table 2. Metrics related to the classification performance of the model

Metric	Value
Accuracy	0.933
Balanced accuracy	0.929
Sensitivity	0.915
Specificity	0.944
Positive predictive value	0.91
Negative predictive value	0.947

F1-score	0.913

Discussion

In recent decades, diabetes has tragically ascended the ranks of human mortality's harbingers. Its relentless surge, attributed to modern dietary trends, sedentary routines, and the pervasive availability of unhealthy sustenance, has propelled diabetes to the forefront of public health concerns. The emergence of a diabetes prediction model assumes the role of a guiding star in clinical decision-making. Gaining insights into the constellation of potential risk factors and discerning those perched on the precipice of high risk at an early juncture presents an invaluable compass for diabetes prevention. This early identification, akin to uncovering hidden treasures, not only fortifies the arsenal of disease prevention but also shapes the contours of healthcare, heralding a profound shift in the landscape of well-being (14).

As revealed by the findings from logistic regression analysis, a striking disparity emerges in diabetes likelihood between genders, with women exhibiting an astounding 77,570-fold increase in risk compared to men. The presence of polyuria ushers in a profound surge in diabetes susceptibility, elevating the odds by a factor of 84,736 in contrast to those without this symptom. Similarly, individuals experiencing polydipsia witness a remarkable escalation in diabetes probability, with the likelihood soaring by 159,245 times. In the realm of polyphagia, the odds tip by a factor of 3.299, highlighting its association with heightened diabetes risk. Notably, genital thrush raises the likelihood by a factor of 6.447, while irritability emerges as a significant predictor, amplifying the odds by 10,389. Moreover, partial paresis stands as a substantial contributor, reflecting a 3.188-fold increase in diabetes likelihood compared to those without this condition.

As a result of modeling, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value and F1 score of the performance metrics were obtained as 93.3%, 92.9%, 91.5%, 94.4%, 91%, 94.7% and 91.3%, respectively. This study presents a predictive equation of diabetes to provide a better understanding of risk factors that could assist in classifying high-risk individuals, make the diagnosis, and prevent and manage diabetes. In addition, Logistic Regression has been shown to be one of the efficient algorithms in building prediction models. The accuracy of the model does not only depend on the algorithm chosen, but also on other factors.

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Pub No: OP-131

How Is The Proper Transfer Of CBRN Patients With The 112 Ambulance?

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Introduction and purpose:

The development of occupational health and safety in the world and in our country varies parallel to the historical developments in the work life (1). It has been determined that occupational accidents are increasing in developing countries or where new industrialization is taking place, and constantly changing working conditions have brought new risks in the field of occupational health and safety. The International Labor Organization (ILO) reported in 2003 that 358,000 fatal and 337 million non-fatal occupational accidents occurred worldwide, and 1.95 million people died from occupational diseases (2). In our country, it was reported that 74,871 occupational accidents occurred in 2012 and 744 of these cases resulted in death (3), and in 2019, it was reported that 423,551 people had only occupational accident records (4). The ILO defines an occupational accident as "an unexpected and unplanned event that causes certain harm or injury", while the World Health Organization (WHO) defines an occupational accident as "an unplanned event that often leads to personal injury, damage to machinery, equipment and tools, and a temporary halt in production" (5; 6; 7). The Occupational Health and Safety Law No. 6331 in our country was published in the Official Gazette No. 28339 dated 30/6/2012, and the provisions related to the law were gradually put into effect as of 1/1/2013 (8; 9). According to the Occupational Health and Safety (OHS) Law No. 6331, an occupational accident is defined as an event that occurs in the workplace or due to the conduct of work, causing death or physically or mentally disabling the integrity of the body (10). Occupational safety covers all activities and measures to be taken and maintained for the protection of the health of employees in the workplace (11). In the Hazard Classes List Related to Occupational Health and Safety, hospitals are listed under "very dangerous jobs" (12). The professional groups exposed to occupational accidents where health services are provided in hospitals consist of various professional members such as doctors, nurses, midwives, dieticians, physiotherapists, biologists, pharmacists, laboratory, anesthesia, X-ray, and other health technicians. The working conditions of hospitals directly affect the safety of employees and patients, and the effectiveness and efficiency of health services (13). Among the occupational accidents health workers are most exposed to are blood-body fluid contact, sharp instrument injury, violence, falls, and radiation (14; 15). The direct and indirect damages of occupational accidents are a societal problem of vital importance for the development of the country. The World Health Organization reports that deaths due to occupational accidents or occupational diseases create a very large social health burden, and the cost of this burden covers 4-5% of the world's Gross Domestic Product (GDP) (16; 17).

his study aims to evaluate the occupational accidents reported by healthcare workers, to determine the situations causing occupational accidents according to professions, and to compare the rates of occupational accidents involving healthcare workers over the years.

Materials and Methods:

This study included 708 healthcare workers who had experienced an in-hospital occupational accident and applied to the emergency department between January 2018 - April 2022, retrospectively, at the Istanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital, which is a tertiary hospital.

Patient data scanned from our hospital's patient registration operating system, the International Classification of Diseases (ICD-10) diagnostic coding system, and the root cause analysis form of occupational accidents, used to define sociodemographic and clinical characteristics, were used to determine the variables of the research.
The study was conducted on occupational accident data between January 2018 and April 2022. The data was transferred to the IBM SPSS Statistics 26 program and completed. While evaluating the study data, frequency distributions (number, percentage) were given for categorical variables. The Chi-square test was used to examine the relationship between categorical variables. $p<0.05$ was accepted as significant.

Result and Conclusion:

While there is no statistically significant relationship between the years and the subject of the incident ($p>0.05$), there is a statistically significant relationship between the years and professions, and the status of job loss ($p<0.05$). Accordingly, the rate of occupational accidents in nurses is significantly higher in the period before and including 2019 compared to 2020 and onwards, while the rate of occupational accidents in doctors is significantly higher in the period of 2020 and onwards compared to before and including 2019. In addition, the rate of job loss in 2019 and 2020 is significantly higher than in 2018.

- It was determined that doctors reported the most occupational accidents in August with a rate of 33.3% in 2018, in July with a rate of 28.6% in 2019, in June with a rate of 40% in 2020, in July with a rate of 53.3% in 2021, and in February with a rate of 40% in 2022.
- It was found that nurses applied for occupational accidents in February and March with a rate of 100% in 2018, in March with a rate of 61.1% in 2019, in April with a rate of 50% in 2020, in April with a rate of 72.2% in 2021, and in March with a rate of 30.8% in 2022.

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Pub No: OP-132

A Rare Case; Wolf Parkinson White Syndrome

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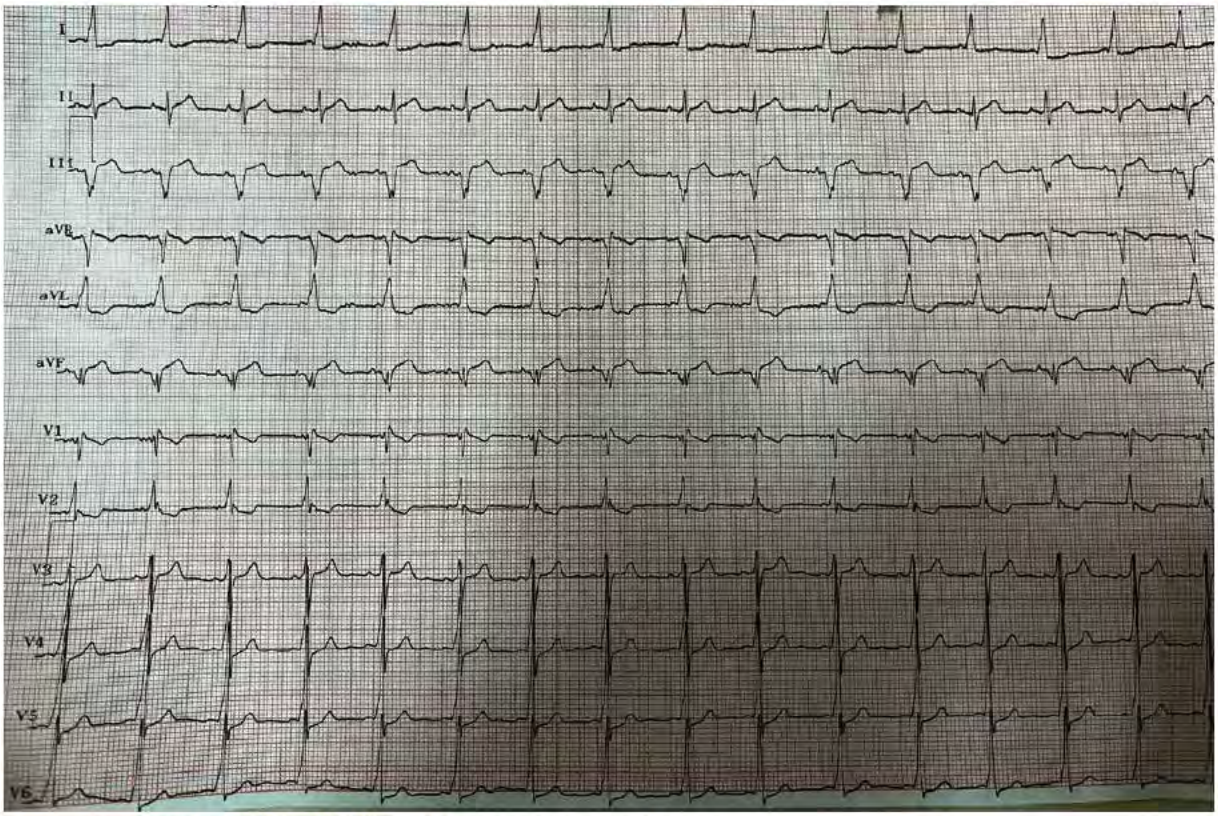
Introduction: Wolff-Parkinson-White (WPW) syndrome, first described by Louis Wolff, John Parkinson and Paul Dudley White in 1930, is a combination of congenital accessory pathway and tachyarrhythmia episodes. WPW syndrome is the combination of accessory pathway and tachyarrhythmia attacks. WPW has typical ECG findings characterized by short PR interval (<120ms), delta wave and wide QRS complex (>120ms) in sinus rhythm.

Case: A 18-year-old male patient applied to the emergency department with complaints of palpitations and chest pain. He had no known comorbidities, but he had been intermittently having recurrent palpitation epizodes. However, he had never admitted to a hospital for that. In the patient's examination, blood pressure was 126/71 mmHg, heart rate was 86, and oxygen saturation was 98. No pathological findings were detected in the systemic examination. An ECG was planned for the patient. In the ECG, the PR interval was short, the QRS wave was wide and in addition the Delta wave was observed. Thereupon, it was decided to study cardiac markers from the patient. There were no pathological findings in the blood tests performed. Cardiac markers were negative. The patient was consulted to the cardiology clinic for his current condition, Wolf Parkinson White syndrome. The patient was planned for elective ablation by the cardiology clinic. The patient was discharged from the emergency room to apply to the cardiology outpatient clinic.



patient's ECG: *Wolff parkinson white syndrome*

Conclusion: Wolf Parkinson White syndrome is an important arrhythmia that causes mortality and morbidity over the years. Many patients with the WPW pattern are asymptomatic. Common symptoms of this syndrome occur due to arrhythmias manifesting as palpitations and syncope. There is a risk of sudden death, especially in symptomatic cases. In asymptomatic people, this risk is low and this rate is calculated as approximately 0.1% patient/year. Ventricular fibrillation was found to develop in 2.2% of symptomatic patients. In some patients, ventricular fibrillation may be the first manifestation of this syndrome. It has been determined that there is a 3-4% annual risk of sudden death in with symptomatic patient. Early diagnosis and intervention reduces morbidity and mortality in the patiens with WPW syndrome.

Keywords : arrhythmia , dysrhythmia , short PR , WPW

Pub No: OP-133

A Case of Late-Onset Interstitial Lung Disease Due to Leflunomide Use

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Rheumatoid arthritis is an autoimmune disease-causing joint inflammation, and leflunomide (LEF) is a disease-modifying drug used to control it. However, LEF can lead to rare and severe side effects, including interstitial lung disease (ILD). We present a case of late-onset ILD due to LEF treatment for RA.

A-75-year-old male with a history of chronic obstructive pulmonary disease (COPD), diabetes, and previous prostatic adenocarcinoma, was admitted with dyspnea, cough, and fever. He had been using various medications, including LEF for 18 months. Despite regular bronchodilator use, his dyspnea worsened over the past four days. His initial vital signs showed low oxygen saturation, high heart rate, high blood pressure, and fever. Bilateral lung crackles were heard, but there were no joint deformities. Laboratory results indicated hyperglycemia and hypoxemia. A chest x-ray revealed lung opacities, and a chest CT confirmed interstitial lung involvement. The patient was diagnosed with drug-related ILD and hospitalized. His condition improved with treatment, including discontinuing LEF, administering azathioprine, high-dose steroids, and antimicrobial agents. Follow-up imaging showed regression of lung opacities.

Notably, our case is unique as it exhibited late-onset lung involvement after 18 months of LEF use, contrasting with typical cases occurring within 20 weeks. LEF-ILD is a rare but potentially lethal side effect. Its incidence varies among populations, with higher rates in

Korean and Japanese RA patients compared to Western populations. Leflunomide inhibits lymphocyte proliferation and antibody production, making it effective against RA. However, physicians should be vigilant when RA patients on LEF present with dry cough, dyspnea, fever, and elevated CRP levels. Imaging features include ground glass opacity, reticular densities, and honeycomb appearance. Risk factors for LEF-ILD include male gender, Asian descent, smoking, chronic RA, and pre-existing lung disease. In conclusion, physicians should consider drug-related complications, including LEF-ILD, in RA patients presenting with respiratory symptoms, even if the drug was initiated months before. Early recognition and prompt intervention are crucial to managing this rare but serious side effect

Introduction:

Rheumatoid arthritis (RA) is a common autoimmune disease characterized by symmetric polyarticular arthritis and destruction of joint structures accompanied by synovial inflammation. Its worldwide prevalence is between 0.5-1% [1] . The drugs that have ability to control the synovial joint inflammation are usually named as "disease modifying anti-rheumatic drugs" (DMARDs) [2]. Leflunomide (LEF) is a member of this drug group and used as a second line therapy. It heals the symptoms of RA such as joint swelling and pain, and slows down joint destruction [3] . The most commonly reported side effects are diarrhea, nausea, headache, rash and liver dysfunction. Interstitial lung disease caused by leflunomide (LEF-ILD) is a rarely and serious side effect that may be fatal. Its frequency varies among the races [4]. Here, we aimed to present a patient that has late onset interstitial lung disease caused by leflunomide treatment for rheumatoid arthritis.

Case Report:

A 75-year-old male patient was admitted to our emergency service with the complaints of dyspnea, cough and fever. He had chronic obstructive pulmonary disease (COPD) for 20 years and was receiving bronchodilator treatment (salmeterole xinafoate-fluticasone propionate 2x250 mcg/day, thiotripium bromide 18 mcg/day, and teophylline 2x200 mcg/day). Even though he used bronchodilators regularly, dyspnea was increased for the past 4 days. The patient, who has 40 pack/year of smoking, had left that for last 7 years. He had diabetes for 15 years and was using sitagliptine 100 mg/day, insulin detemir 30 units/day, insulin aspart 30 units/day. For RA, he was using sulfasalasine 2 g/day, methylprednisolone 12 mg/day and leflunomide 20 mg/day. Leflunomide had started 18 months ago. Five years ago, prostatic adenocarsinoma was diagnosed but cure was obtained. His vital signs were as follows: oxygen saturation 75%, heart rate 122 beats/minute, blood pressure 171/81 mm/Hg, body temperature 37.8 °C. Bilateral crackles up to the middle zone were heard. There was no evidence of any joint deformity. His laboratory findings showed hyperglycemia (glucose: 315 mg/dl) and hypoxemia. Other findings were normal. Primarily, we thought COPD exacerbation, and oxygen inhalation 2 lt/minute, iprathropium bromide, salbutamole, methylprednisolone 80 mg (iv) was given but the complaints continued. Chest x-ray revealed ground-glass opacities, reticular pattern and increasing opacity in the peripheral areas (figure 1a). Previous chest x-ray was unremarkable. Unenhanced chest computerized tomography (Siemens Somatom Definition Flash, a 256-slice double tube) showed interlobular and interstitial thickness plus increased reticular density pronounced at right side (figure 1b). The patient was consulted with a pulmonologist, than he was hospitalized with the diagnosis of

drug related interstitial lung disease. His FEV1 was 1.05/ liter (45%), FVC 1.77 / liter (54%), and FEV1 / FVC was 59%. Blood and sputum culture were negative. Leflunomide was stooped and azathioprine 100 mg/day was given instead. Also methylprednisolone 100 mg/day, ampicillin/sulbactam 1g/day IV and mucolytic therapy were given. The patient's complaints regressed, the rales were decreased and the infiltration in the lungs disappeared in the chest x-ray during follow up. He has been discharged from the hospital on the 14th day of the oral steroid treatment. Three months after discharge, the patient's chest radiograph (Figure 1c), and thoracic CT (Figure 1d) showed the regression of opacity and reticular pattern in the lungs.

Discussion:

Our case report is the first by means of late onset lung parenchymal involvement shown by CT as ground glass opacity, interlobular and interstitial thickness plus increased reticular density. Many case reports stated that LEF-ILD occurred within about twenty weeks after initiation [5]. Our case differs as the changes appeared after eighteen months. LEF-ILD is the lethal side effect of the drug and its mechanism is not completely explained yet. The incidence of LEF-ILD ranged from 1% to 1.2% in Korean and Japanese RA patient population [4, 6]. This rate is relatively low in the western countries (<0.1%) [4, 5].

Leflunomide, an antiproliferative immunomodulator drug, first introduced in 1998 in USA and now can be found in more than 70 countries. It is a synthetic derivation of isoxazole. After converting into the active metabolite A77 1726 in the gastrointestinal lumen and plasma, it inhibits dihidroorotate dehydrogenase enzyme in the mitochondria that is rate limiting enzyme in the de-nova synthesis of pyrimidine ribonucleotides [2, 3]. Activated lymphocytes

need high levels of ribonucleotide pyrimidines during their cell cycle. So, T-cell proliferation and antibody secretion by B-cells are reduced by LEF [2].

Physicians should be in suspicion when a patient using LEF with RA has additional dry cough, dyspnea, fever, crackles and high CRP levels [4, 5, 7]. Main tomographic features are ground glass opacity, reticular interstitial densities, honey comb appearance [5]. Our case had similar symptoms and imagining findings. Especially individuals using methotrexate, have former chronic or interstitial lung disease are in higher risk. Other risk factors for LEF-ILD include male, Asian descent, smoking and chronic RA [4, 6].

There is no compromised algorithm for the treatment. Leflunomide should be ceased immediately. Additionally, high dose steroids and/or antimicrobial agents can be given. Cholestyramine can be used for the elimination of Leflunomide [6]. For our patient we tried all the aforementioned therapy.

Pulmonary fibrosis may occur due to many reasons. It can be idiopathic or due to drugs, viral infections, chemotherapy, radiotherapy, RA, soft tissue disorders such as systemic sclerosis [3]. For patients with RA, life time risk for ILD is approximately 7.7% [6]. As clinical, radiological and histopathological findings are both non-specific and share common characteristics with RA related interstitial lung disease, it is hard to differentiate [5]. The clues for LEF-ILD in our patient were as follows: previous chest x-rays in our patient with chronic RA had no signs of fibrosis, the symptoms and radiologic findings occurred after the use of LEF and remission was seen after withdrawal.

In conclusion; in patients with dyspnea in ED, the physicians should be alert about the drugs that the patient use. If the patient who use LEF have respiratory symptoms, the differential diagnosis should include LEF-ILD even the initiation of the drug was months before.

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Pub No: OP-134

Synchronized Presentation of AVNRT in a Mother and Daughter: A Case Report

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Abstract

Atrioventricular nodal reentrant tachycardia (AVNRT) is a common arrhythmia and accounts for approximately 45-65% of paroxysmal supraventricular tachycardias. Patients may present with palpitations, syncope, dizziness, nausea, or sudden cardiac arrest. Although a few studies and case reports investigate the familial and genetic features of AVNRT, these mechanisms are unclear. This report aims to present the cases of a mother and her daughter who contributed to the emergency department with simultaneous AVNRT attacks and draw attention to the familial nature of AVNRT.

Introduction

Atrioventricular nodal reentrant tachycardia (AVNRT) is a common arrhythmia and accounts for approximately 45-65% of paroxysmal supraventricular tachycardias [1]. The average adult heart rate is 60-100 beats/min. However, in AVNRT, this rate is usually higher than 150/min. Patients may experience palpitations, dizziness, nausea and syncope. This can even lead to a sudden cardiac arrest [2]. While the frequency of AVNRT in the general population is estimated to be 1 in 1,000 people, the probability of occurrence in 2 family members reaches approximately 1 in 1,000,000 people [3].

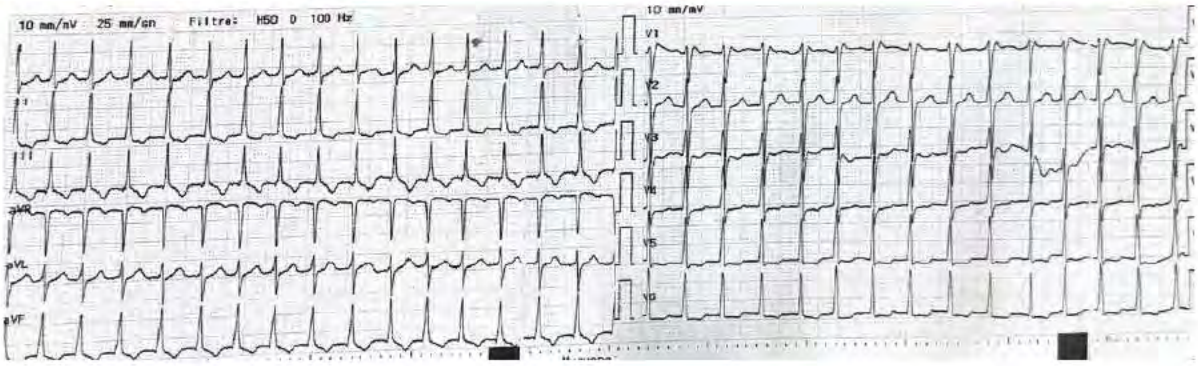
It is known that fast and slow nodal reentry circles play a role in the mechanism of AVNRT and can be treated with radiofrequency ablation[4]. Many previous studies have reported that familial predisposition and genetic factors are effective in many structural heart diseases and supraventricular tachycardias such as wolf Parkinson white (WPW) syndrome[2,5]. However, few studies and case reports investigate the familial and genetic features of AVNRT[1-6]. This report aims to present the cases of a mother and her daughter who contributed to the emergency department with simultaneous AVNRT attacks and draw attention to the familial nature of AVNRT.

Case Presentation

Case 1 - Mother:

A 54-year-old female patient presented to the emergency department with a sudden onset of palpitations, dizziness and nausea. In the patient's medical history, it was found that she had had similar complaints on 3 or 4 previous occasions. However, she was not diagnosed with these conditions. The patient's Vital signs were blood pressure: 130/80 mmHg, pulse rate 180/min, respiratory rate: 14/min and saturation: 97%. Other system examinations were regular. The patient's 12-lead electrocardiography (ECG) showed tachycardia, a narrow QRS complex, and a standard, rapid ventricular response. This ECG was evaluated as AVNRT (Figure 1a). The patient was given 6mg adenosine intravenously. The patient, who returned to sinus rhythm and no pathology was observed during follow-up, was discharged with recommendations (Figure 1b).

a



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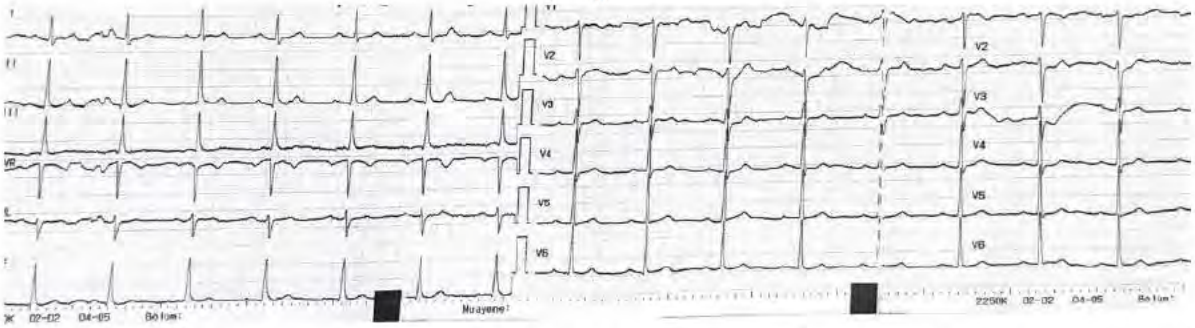


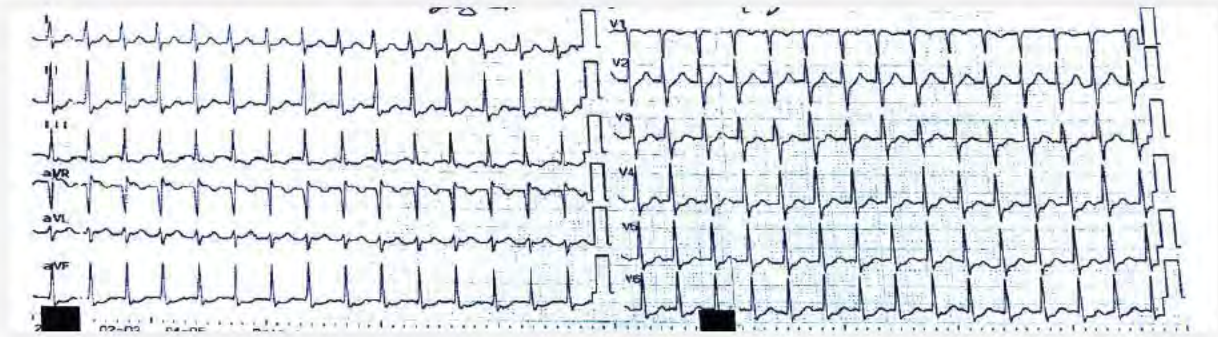
Figure 1. a: Mother's 12 lead ECG: supraventricular tachycardia (probably AVNRT). Narrow rhytmic QRS complexes. Rate about 180. There is no p wave before QRS. There are P waves after QRS complexes at V1-3 leads **b:** Mother's second ECG after adenosine administration. It shows normal sinus ryhthm.

Case 2 - Daughter:

A 19-year-old female patient came to the emergency department with her mother. She had no active complaints when she arrived. During the follow-up (probably due to emotional stress), palpitations, dizziness and weakness occurred. It was learned that the patient had previously received radiofrequency ablation treatment for AVNRT but had fewer attacks after treatment. Vital signs of the patient were blood pressure: 120/70 mmHg, pulse: 175/min, respiratory rate: 13/min, saturation: %97 was measured. Other system

examinations were routine. ECG showed regular tachycardia with narrow QRS and rapid ventricular response. The patient's history and ECG findings were evaluated as AVNRT (figure 2a). The patient was given 6mg adenosine intravenously. Sinus rhythm was obtained, no additional pathology was found during follow-up, and the patient was discharged with her mother with recommendations (figure 2b) .

a



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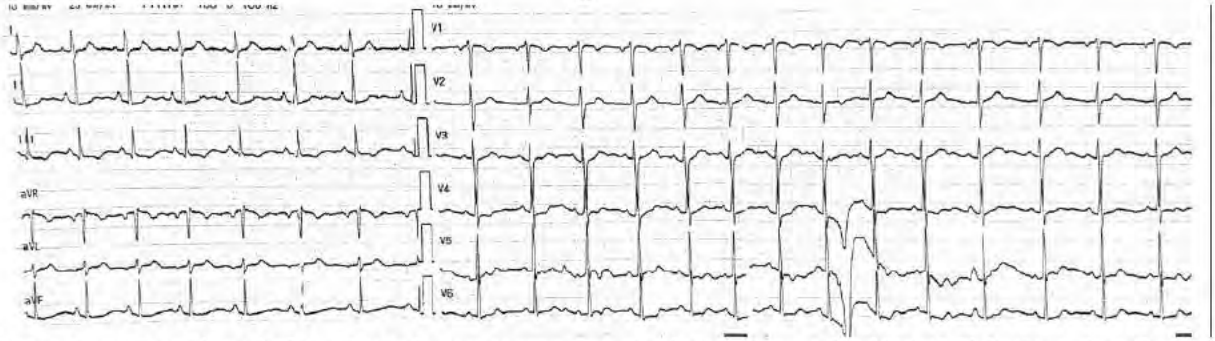

Figure 2. a: Daughter's first ECG shows supraventricular tachycardia (AVNRT) **b:** Daughter's second ECG after adenosine administration

Discussion

Until recently, paroxysmal supraventricular tachycardia caused by AV accessory pathways or dual AV node physiology was attributed to randomly occurring congenital anomalies of pathological substrates from birth [7]. Various responsible mutations in the autosomal dominant PRKAG2 gene have been identified for WPW syndrome, a common cause of

supraventricular tachycardia[8]. However, the genetic and familial characteristics of AVNRT are not precise. There are limited studies and case reports on this subject in the literature. A previous study conducted in Poland reported a familial relationship in 2.91%-4.02% of patients with AVNRT [1]. In another study conducted in 2022, the pathological gene was tried to be identified in sporadic and familial AVNRT cases. This article reports that three possible pathological genes (TRDN, CASQ2 and WNK1) may be responsible for domestic AVNRT cases [2]. Another study said that genes such as SCN1A, PRKAG2, RYR2, CFTR, NOS1, PIK3CB, GAD2 and HIP1R are probably responsible for AVNRT [4]. Further studies are needed to elucidate the genetic pathologies and familial characteristics responsible for AVNRT.

When the literature is reviewed, few case reports are related to familial AVNRT. The mother and son presented in 2012 [6] who were diagnosed with ANVRT, and the father and two sons gave in 2017 [7] can be shown among these. This case report mentioned a mother and her daughter diagnosed with AVNRT and presented to the emergency department with a simultaneous attack. This is the first case of familial AVNRT presenting with simultaneous attacks in the literature.

Conclusion

Although familial and genetic aspects are unapparent, this case report supports that AVNRT may be familial and genetic. It is important to remember that relatives of patients who present to the emergency department with an AVNRT attack may also have an AVNRT attack, which may be triggered by emotional stress.

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Pub No: OP-135

Crimean-Congo Hemorrhagic Fever

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Abstract

Crimean–Congo hemorrhagic fever (CCHF) is an acute infectious disease that affects multiple organ systems and is characterized by extensive ecchymosis, internal hemorrhage, and hepatic dysfunction. The mortality rate from CCHF is approximately 30%. It is frequently transmitted by *Hyalomma* ticks, which are endemic in the Northeast Anatolia region of Turkey in spring and summer.

Introduction

Crimean-Congo hemorrhagic fever (CCHF) is a tick-borne disease described in more than 30 countries in Europe, Asia and Africa. The causative agent is the Crimean-Congo hemorrhagic fever virus (CCHFV), which is a member of the genus Nairovirus of the family Bunyaviridae (1). The virus circulates in a number of tick genera, but Hyalomma ticks are the principal source of human infection. CCHF occurs most frequently among agricultural workers following the bite of an infected tick, and to a lesser extent among slaughterhouse workers exposed to the blood and tissues of infected livestock and medical personnel through contact with the body fluids of infected patients (2). After a short incubation period, CCHF is characterized by a sudden onset of high fever, chills, severe headache, dizziness, back, and abdominal pains. Additional symptoms can include nausea, vomiting, diarrhea, neuropsychiatric, and cardiovascular changes. In severe cases, hemorrhagic manifestations, ranging from petechiae to large areas of ecchymosis, develop (3,4). There is currently no specific treatment for CCHFV infection and the efficacy of ribavirin is controversial. In the absence of an effective vaccine, prevention is based mainly on vector control, protection measures, and information to increase the awareness of the population and of healthcare workers (1).

Case Report

A 46-year-old male was admitted to the ED with nausea, vomiting and diarrhea. He went to the other hospitals emergency departments 4 times with a complaint of fever due to sunstroke that happened 1 week ago. He said that he had been defecating black colored stool for 4 days. When the current complaint was added, we started to suspect CCHF and started asking questions about it. We found out that he had removed a tick 1 week ago.In his anemnesis he said that he didn't think it was important to share this information in his previous emergency visits. There was no distinctive feature in his medical history. His body temperature was 36.1, blood pressure was 94/65 mmHg, heart rate was 123 beats/min, respiratory rate was 18/min, SpO2 was 97% and the

Glasgow Coma Scale was 15 points. On physical examination, there were multiple purple ecchymosis on the body and black stool was present with digital rectal examination. In the laboratory; sodium was 126.5 mmol/L, potassium was 5.34mmol/L, the white blood cell (WBC) count was 5.88, C-reactive protein (CRP) was 41.89 mg/L, urea was 58 mg/dl, aspartate aminotransferase (AST) was 488 U/L, alanine aminotransferase (ALT) was 239 U/L, hemoglobin value was 10.8 g/dl, albumin was 2.9 g/dl and the platelet count was 16 /uL. Prothrombin time (PT) was 13.3 sec., activated partial thromboplastin time (APTT) was 48 sec. and the INR value was 1.18. In blood culture Acinetobacter Baumannii was detected. Abdominal contrasted computed tomography showed 197 mm enlargement in the liver, diffuse edematous gallbladder wall thickening, 13 mm stone in gallbladder lumen and intermediate level intra-abdominal fluid (Fig.1). Patient transferred to an intensive care unit(ICU).



Gastroenterology and infectious disease service consultation requested. An infection disease specialist ordered Meropenem and a gastroenterologist ordered PPI infusion for mucosal hemorrhage. Necessary erythrocyte suspension and fresh frozen plasma were transfused to the patient .On the fourth day, the patient's liver enzymes elevated and he started to behave agitated. AST value increased to 2300 U/L and ALT increased to 970 U/L. Since acute hepatitis can be observed in the course of CCHF, no new treatment was added. Psychiatrist thought of delirium onset due to infection behind his agitated behaviours and added antipsychotic drugs to treatment. After a week in ICU, the patient was transferred to an infectious disease service . He was discharged from the infectious disease service after no bleeding symptoms for four days. Polyclinic control adviced a week later.

(Fig 1:197 mm enlargement in the liver, diffuse edematous gallbladder wall thickening, 13 mm stone in gallbladder lumen and intermediate level intra-abdominal fluid)

Discussion

Crimean-Congo hemorrhagic fever (CCHF) is the most important tick-borne viral disease of humans(1). The geographical distribution of . corresponds most closely with the distribution of members of the tick genera, and Hyalomma ticks are the principal source of human infection(4).CCHF is a medical emergency, so its important to recognize its symptoms right away. The initial symptoms are common to other infectious syndromes with fever, headache, myalgia and gastrointestinal symptoms. The hemorrhagic syndrome occurs during the second phase with sometimes major bleeding in and from the mucous membranes and the skin(2). Treatment options for CCHF are limited. Immunotherapy and ribavirin have been tried with varying degrees of success during sporadic outbreaks but no licensed vaccines or speciic antivirals exist to treat CCHF(3).

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Pub No: OP-138

Intracranial Bleeding In Methanol Intoxication Cases

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Introduction: Methyl alcohol, which is mainly used in the industrial industry, has also been widely used in our country to obtain cheap drinks. It is a colorless, volatile liquid with a distinct odor. Even 8-10 ml of methanol taken into the body from outside is toxic. Approximately 25-30 ml of methanol can lead to intoxication, which can cause permanent blindness, and ingestion of 1 ml/kg or 100 ml of methanol is fatal. Of course, the best method for the definitive diagnosis of methyl alcohol poisoning is blood methanol level measurement. >20 mg/dL is toxic. >50 mg/dL causes severe central nervous system toxicity and 150-200 mg/dL is fatal. In emergency departments, if metabolic acidosis cannot be explained by any reason, poisoning should be considered and methanol poisoning should be a priority among the diagnoses considered. In these patients, putaminal necrosis and intracranial hemorrhage (SAH, putaminal intraparenchymal hemorrhage) may develop.

Case: A 50-year-old male patient has a history of continuous home-made alcohol consumption. He had a history of drinking alcohol and sleeping before presenting to the emergency room. The patient, who had visual impairment and confusion after waking up, was brought to the hospital by 112 Emergency Ambulance Service. The patient's anamnesis, examination findings and first blood gas suggested methanol intoxication in the patient.The patient was electively intubated after the initial evaluation.The methanol value measured during ICU admission was: 194 mmol/L. The patient was considered to have died on the 4th day of methanol intoxication after ICU admission.

Conclusion: Putaminal necrosis and intracranial hemorrhage, which are rare, may develop in patients with suspected methanol intoxication. Intracranial hemorrhage should be kept in mind in patients diagnosed with methanol intoxication in the emergency department.

Keywords: methanol intoxication, emergency department, intracranial hemorrhage

Introduction: Methyl alcohol, which is mainly used in the industrial industry, has also been widely used in our country to obtain cheap drinks. It is a colorless, volatile liquid with a distinct odor. It is highly and rapidly absorbed from the GI tract (within 60-90 minutes). After absorption, most of the methanol (90-95%) is eliminated by the liver, 2-5% by the kidney, and a minimal portion by the lungs. The cause of toxicity is the conversion of methanol to formaldehyde and formic acid by the alcohol dehydrogenase enzyme in the liver. Formic acid accumulation is associated with clinical symptoms and formic acid is responsible for the toxicity and has fatal toxicity. It creates a very fatal toxication due to high anion gap metabolic acidosis. Formaldehyde formation in the retina leads to optic papillitis and retinal edema, which causes blindness, especially defined as blind drunk. End-organ damage begins when the methanol level exceeds 6 mmol/L.

Case: 50-year-old male patient with no known comorbidities. There is a history of constantly drinking homemade alcohol. He had a history of drinking alcohol and sleeping before presenting to the emergency room. The patient, who had visual impairment and impaired consciousness after waking up, was brought to the hospital by 112 Emergency Ambulance Service. The patient's arrival vitals: Temperature: 36.5 C, BP: 132/79 mmHg, HR: 92/min, Spo2: 96%, BG: 217 mg/Dl ABG: pH:6,94 pCO2:27 pO2:131 HCO3:7,2 Lactat: 8 When the patient was admitted to the emergency room, his GCS was: 3, breathing was superficial, pupils were fixed-dilated. The patient was electively intubated after the initial evaluation. Right femoral dialysis catheter was opened. ECG: Sinus rhythm The patient's vitals were taken every hour. He was taken to hemodialysis for 4 hours with the opinion of nephrologist. After 4 hours of hemodialysis in the emergency department, the pH in the blood gas was 7.13. The patient with stable vitals was taken to the radiology unit for brain CT. Brain CT revealed hemorrhage in the basal ganglia bilaterally. Brain surgery did not consider surgery. Ketax 60 mg iv, Myocron 30 mg iv push, NaHCO3 10 amp iv push, 10% Ethanol 800mg iv-30 min infusion, Ca folinate 50 mg iv (4x1), 5% Dextrose 500 cc iv (250cc/h) infusion, Mannitol 6x75 ml iv infusion, 10% Ethanol 500 cc iv infusion (80 cc/h), 10% Ethanol 500 cc iv infusion (125cc/h) (during HD), 10% Dextrose 500cc + 18 iu HR insulin iv (500cc/h) When the patient became hypotensive during HD at the 3rd hour of admission, inotrope support was started. Steradin 2 amp + 0.9% SF 100cc (20cc/h) iv, Dopamine 2 amp+ 0.9% SF 100cc (10cc/h) iv The patient was followed up in the General ICU on the 2nd day after admission. The methanol value

measured during ICU admission was: 194 mmol/L. The patient was considered to have died on the 4th day of methanol intoxication after ICU admission.



picture 1: bilateral hemorrhage in the basal ganglia

Discussion: Variable morbidity and mortality rates can be quite high due to the suspicion of methanol intoxication. When a case is encountered, a rapid and complete evaluation should be made, and the possibility of intracranial bleeding should not be overlooked.

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Pub No: OP-140

Decreased Pain Perception And Self Destruction In Schizophrenia

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ABSTRACT
Pain perception of schizophrenia patients decreases and emotional expression of the pain changes. Failed pain sensitivity can lead to delay for diagnose and treatment of diseases and even increased morthality and morbidity in schizophrenia patients. Also variable pain perception can be an important factor to self destruction or to other people.
Case: 61 yeras old male patient who had diagnoze of schizophrenia with agressor behaviour attacked to everyone in their village. Eventually the patient injured himself first to his chest and than neck with knife. The knife was sticked upto handle into his neck just right side of the trachea. Also there were 8 cutts each one about 2-3cm at the lateral side left breast. Contrast CT of brain, neck, thorax and abdomen were taken. Carotis CT angiography was taken. Imaging results showed that the knife was sticked to the sixth cervical vertebrae, passed througt right transverse process and foramen transversarium. So right common carotid artery and thyroid gland were injured. Hemopneumothorax was determined at left side. Subcutan emphysema was present at left chest wall. The patient was transferred to the another hospital which had 3rd level intensive care unit and operated by cardiovascular surgeon there. Common carotid artery injury was recovered and knife was taken out from his neck. He was extubated at 8th day and transferred Psychiatry service at 15th dat with GCS 15.
Conclusion: It must be taken into consideration that pain tolerence can be very high like in our case and this situation may lead to increase possibility of self injuries or for other people.

KEY WORDS: schizophrenia, pain perception, self destruction, self injury

INTRODUCTION

Reduced pain percepion is a situation which was commonly reported but frequently missed out in schizophrenia patients. This situation could be lead to harmful vital effects on physical and mental health of this patient population.
A meta-analysis study that collected experimental studies using painfull stimulus was made between schizophrenia patients and control groups. Decreased experimental pain perception in schizophrenia patients was stated at eight studies. There was not found any difference regarding pain perception at nine study within this meta-analysis study between schizophrenia patients and healty control groups (1).
Many hypotheses were proposed about the reason of reduced pain perception in schizophrenia patients. More pain tolerance and reduced activation at pain processing sites of brain were showed and this situation could not be explained only with antipsychotic medications. Data processing abnormalities, decreased pain expression due to communication deficiencies and

biochemical changes at nociceptive parameters were also suggested as a reason of decreased pain. (2)

CASE

61 yeras old male patient who had diagnoze of schizophrenia with agressor behaviour attacked to everyone in their village. The corps of gendarmes were called, also he attacked to them. Eventually the patient injured himself first to his chest and than neck with knife.

The patient was brought to our hospitals ER with 15 Glaskow Coma Scale by 112 Emergency team.

The patient was monitorized and physical examination was made. With physical examination: General situation was moderate, conscious was open. Arriwing GCS was 15

Body temperature:36,7 Celcius

Pulse:106/min

Blood pressure: 100/70 mmHg

O_2 Saturation (SpO_2): 92%

There were about 2 cm one cutt at left side of midline of the neck and 0,5 cm one cutt at midline of the neck

The knife was sticked upto handle into his neck just right side of the trachea (Picture of the patient when he was taking from the 112 ambulance) (Figure 1)



Figure 1

Respiratory sounds have decreased. There were 8 cutts each one about 2-3cm at the lateral side left breast (Picture of the patient when he was taking from the 112 ambulance) (Figure 2)



Figure 2

Herniation (about 30 cm) at right inguinal region irrelevant with trauma (old)
Blood samples of the patient were taken.
Tetanoz SC, Setriakson 2gr, Gentamisin 40 mg, Ampisilin/Sulbactam 1gr/500mg, Halloperidol 10 mg, Biperidem 5 mg were administrated.
1000 cc SF (Normal saline solution) was started.
4units of erythrocyte suspension and 4 units of frozen plasma were claimed and prepared for patient.
The patient was consulted with Cardiology and bedside ECO was performed. The finding of pericardial effusion or tamponade was not determined.
Contrast CT of brain, neck, thorax and abdomen were taken. Carotis CT angiography was taken. Imaging results showed that the knife was sticked to the sixth cervical vertebrae, passed througt right transverse process and foramen transversarium. So right common carotid artery was injured and also thyroid gland was injured. (Figure 3,4,5)

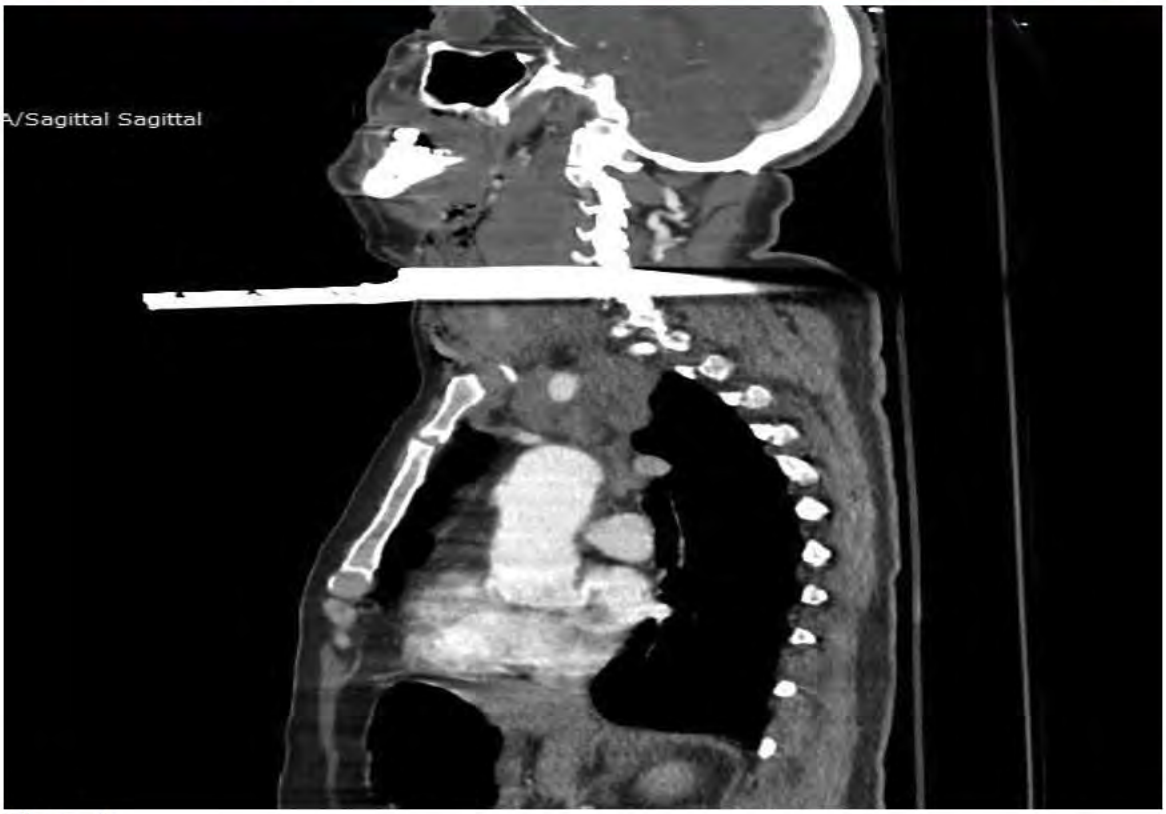

Figure 3

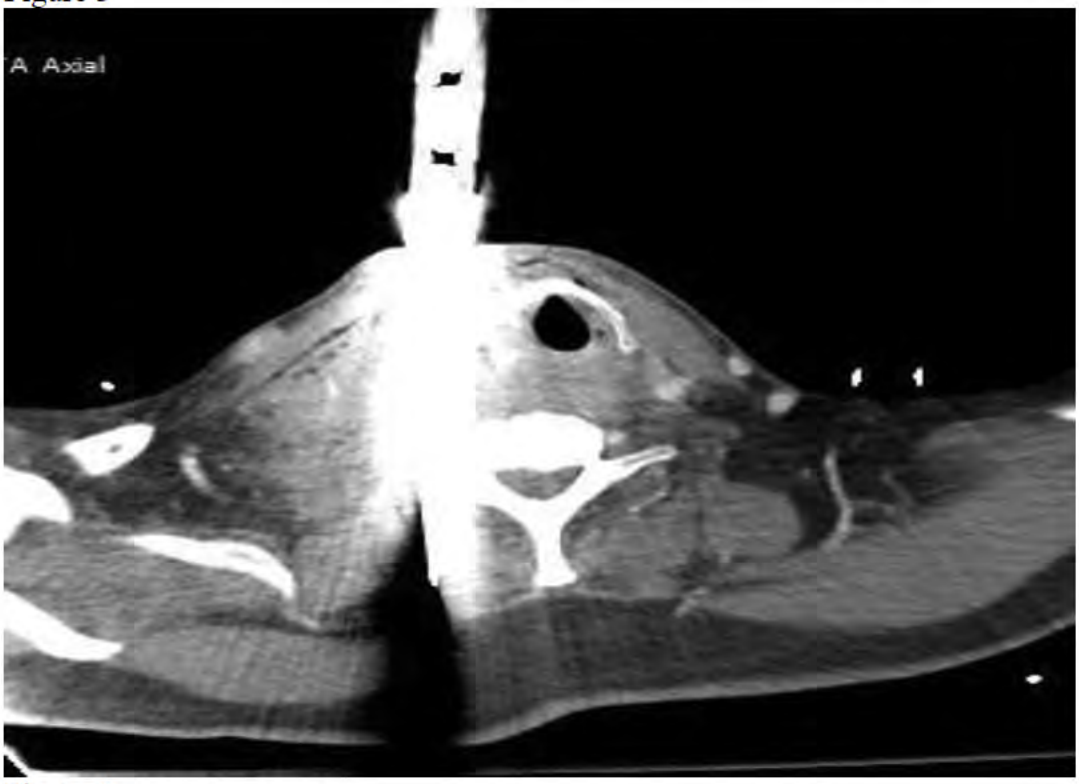

Figure 4

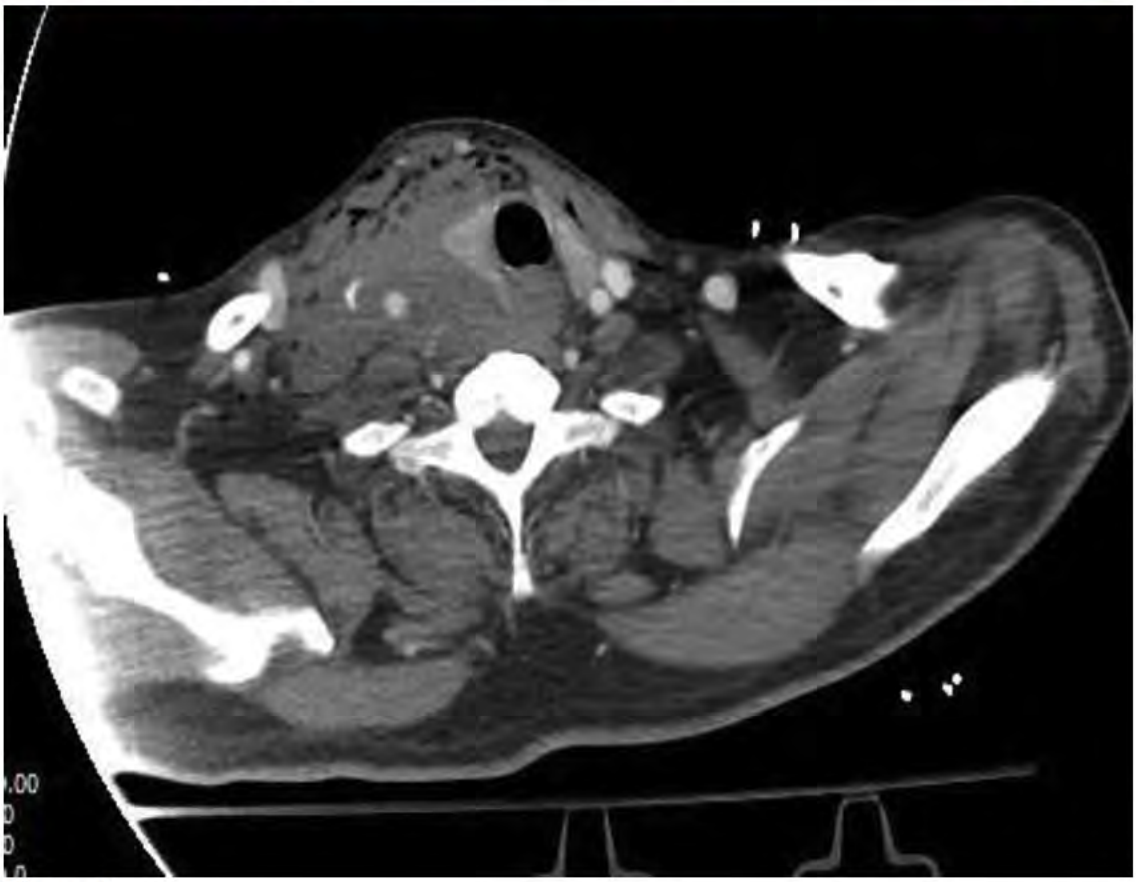

Figure 5
Hemopneumothorax was determined at left side. Subcutan emphysema was present at left chest wall (Figure 6).



Figure 6

ENT, Cardiovascular Surgery and Neurosurgery consultations were performed. Chest tube was putted on left hemithorax. The patient was intubated. The patient arrested just after he was intubated. Pulse and rhythm came back with 2 minutes CPR. Sedoanalgesia was started to the patient and he tied up to mechanical venthilator.

Lab results of patient were: Urea 29 mg/dl, Creatinin 1,11 mg/dl, AST 23U/L, ALT 15 U/L, WBC 14,3K/Ul, Hb 15,8 g/dl, Plt 233 K/Ul.

Hemogram follow up was performed. During follow up Hb was 7,4 g/dl and erithrocyte sustension was administrated.

Transfer to the another hospital of the patient was planned by cardiovascular surgeon, because of absence of chest surgeon and no place at 3rd level intensive care unit. The patient was transferred to the another hospital which had 3rd level intensive care unit via 112 Emergency ambulance.

The patient was operated by cardiovascular surgeon at the hospital he transferred. Common carotid artery injury was recovered and knife was taken out from his neck. He was extubated at 8th day and transferred Psychiatry service at 15th dat with GCS 15.

DISCUSSION

Feeling the pain is an important clue that facilitate determination of acute and chronical disorders. Subjective pain sensibility should evaluate carefully for schizophrenia patients within their routine medical care. Variable pain perception could be an important factor to self injury or others. Failed pain sensitivity can lead to delay for diagnose and treatment of diseases and even increased morthality and morbidity in schizophrenia patients.(3).

It is pointed out that pain perception of schizophrenia patients decreases and emotional expression of the pain changes. If think about many organic disease may cause to symptom of pain, it is obvious that this failure can effect diagnose and treatments of diseases in schizophrenia patients. (4)

Similar headache ratios were determined in schizophrenia patients with general population. But they are less suffering of this disorder. (5). Decreasing sensitivity or loosing ability of response to pain were concerned about deficiency of motivational, cognitive processes and sensorial perception. (1)

Decreased perception of pain is observed also in physiologic level. For example, decreased pupil responses, different reactions against of painful stimuli and other weak physiologic responses like that. Lower serum norepinephrine levels were determined in schizophrenia patients by comparison with control group in a study that required of forceful duties. This situation suggested that schizophrenia patients have less sympathetic activity. (1).

Especially, different neural responses against to painful stimuli were observed between schizophrenia patients with or without antipsychotic treatment. (6,7). The role of antipsychotic treatment on pain perception is controversial. A meta-analysis study showed that most of studies on experimental low pain sensation includes schizophrenia patients without medication. (1). Another meta-analysis study determined that patients with or without antipsychotic treatment had decreased pain perception than control group. (8). A study reported that schizophrenia patients without antipsychotic treatment had higher pain tolerence than control group (7).

It is obvious that more studies should be made to determine clinical and biological connections of hypoalgesia in schizophrenia besides results of social and medical issues. It must be taken into consideration that pain tolerence can be very high like in our case and this situation may lead to increase possibility of self injuries or for other people.

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Pub No: OP-142

The effect of the COVID 19 pandemic on the number of judicial case applying to emergency department

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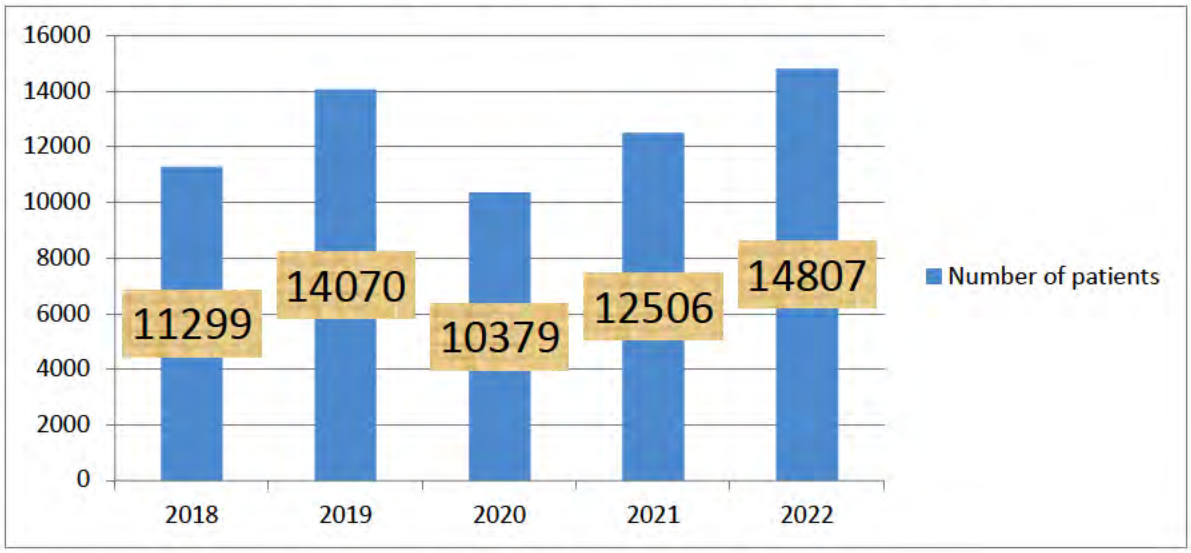
[1]Nevşehir Devlet Hastanesi

Introduction: In order to reduce the contagiousness of the disease during the Covid 19 pandemic period, there have been restrictions on people's going out in many countries. In this study, it was investigated whether there was an effect on the number of forensic cases admitted to the emergency department with the transition of people to a more passive lifestyle.

Materials and Methods: This study was carried out by retrospectively scanning the patients who were registered as forensic cases in the emergency department between 01.01.2018 and 31.12.2022 in a secondary level state hospital through the information operating system. In the study, all patients with forensic case records such as assault and force examination, traffic accident, suicide attempt and work accident were evaluated.

Results: During the five year period in which the study was analyzed, it was seen that there were 63061 patients with a forensic case record in the emergency department. When the distribution of the patients according to the years was made, it was seen that the least number of cases were in 2020 and the highest number of cases were in 2022 (Figüre 1).



Figüre 1. Number of patients evaluated as forensic cases by years

The distribution of patients by months and years is given in Table 1. According to the table, there has been a significant decrease in the number of cases since March 2020, when the pandemic was declared and the restrictions began. When compared with other years, it is seen that the number of cases in 2020 is lower.

Table 1. Number of forensic cases admitted to the emergency department between 2018-2022.

Month/Year	2018	2019	2020	2021	2022
January	830	836	948	908	840
February	868	809	778	841	899
March	1022	1061	690	1039	1023
April	812	928	469	945	853
May	800	969	651	972	1493
June	1025	1030	895	1060	1607
July	1103	1335	1029	1131	1330
August	1093	1292	964	1173	1444
September	904	1385	994	1076	1681
October	957	1617	1080	1169	1270
November	970	1391	992	1094	1074
December	915	1417	889	1098	1293
Total	**11299**	**14070**	**10379**	**12506**	**14807**

Conclusion:

Forensic cases have an important place in emergency service applications (1). Injuries with all kinds of firearms, explosives, cutting, crushing and piercing tools, traffic accidents, falls, assault cases, work accidents, poisonings, burns, electrical and lightning strikes, sexual assaults, mechanical asphyxias, all kinds of suicide attempts, allegations of torture All homicide, suicide, suspicious deaths suspected to be of accidental origin, sudden and unexpected deaths are considered as judicial cases (2).

Coranavirus disease (Covid-19) emerged in december 2019 in Wuhan, China as a new disease caused by the SARS-CoV-2 virus, spreading globally and classified as a pandemic by the world health organization (3). The first case in Turkey was reported on march 11, 2020 by Turkish Republic. It was announced by the ministry of health, and in this process, many hospitals across the country were designated as pandemic hospitals (4). In the literature; It has been reported that previous outbreaks of infectious diseases and natural disasters changed clinical operations and emergency service performance (5). When compared to previous months, it was found that applications to the emergency department decreased with the onset of the pandemic process

(6,7). Social restrictions and the high risk of SARS Cov-2 virus transmission from the hospital have also been found to have an impact on the decrease in admissions (8). In this study, we have seen that the number of forensic case applications admitted to the emergency department during the pandemic period has decreased. In the study conducted by Kılıç et al. on juvenile forensic cases, it was observed that the hospitalization rates of forensic cases increased during the pandemic process (9). Although it is predicted that the rate of forensic cases will decrease with the effect of social restrictions in general, it is predicted that the psychological state disorder caused by the pandemic may also cause an increase in the rate of forensic cases. Therefore, more research on the subject should be done.

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Pub No: OP-146

Purple Urine Bag Syndrome: A Rare Clinical Case in Emergency Departments

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Introduction

Purple urine bag syndrome (PUBS) is a very rare condition, especially in emergency departments, and when seen, it is met with interest. Urine color can be an indicator in many clinical conditions such as the presence of infection, effects of medications, intoxication, and hemolysis.[1] It is generally being elderly, female gender (short urethra), immobilization, prolonged use of a urinary catheter, presence of alkaline urine (bacteria causing release of indoxyl sulfatase), constipation, and chronic renal failure are causative factors.[2] In addition, it can also be seen in pediatric patients with Drummon Syndrome.[3] PUBS is not a new concept and the first official case was reported by Barlow in the Lancet in 1978.[4,5] Pseudomonas aeruginosa, Proteus mirabilis, Providencia spp, Escherichia coli, Klebsiella pneumoniae, Morganelli morganii, Citrobacter spp, methicillin-resistant Staphylococcus aureus, group B streptococci, and Enterococcus spp are the most commonly implicated bacterial species, but all bacteria are thought to cause PUBS.[6,7]

PUBS results from bacteria metabolizing tryptophan breakdown products to release red and blue pigments. Contact of these pigments with a plastic urine bag containing polyvinyl chloride (PVC) produces a purple color. [6-8]

Controlling the underlying risk factors, urinary catheter replacement, appropriate urinary antisepsis, and antibiotherapy are the measures to be taken to treat PUBS.[5,7]

This presentation aims to help clinicians understand the causes of a patient presenting to the emergency department with purple urine and to review the relevant literature.

Case Report

An 87-year-old woman was admitted to the emergency department with complaints of purple color in the urinary bladder, occasional black stool, and general condition disorder. Physical examination revealed no pathology except for melena on rectal touch and purple colored urine in the urinary bag (Figure-1). Known diseases included colon cancer, hypertension, diabetes mellitus, coronary artery disease, hysterectomy, cholecystectomy, and multiple colonoscopies. It was also learned that the patient was immobile and was followed up at home with a urinary catheter. It was learned that the patient had not used any different food and medication recently. In the blood tests of the patient: CRP: 9.37 mg/dL, Alkaline phosphatase (ALP): 324 U/L, Lactate Dehydrogenase (LDH): 574 U/L, leukocytes: 14.29x103, hemoglobin: 7.8 g/dL, no pathology was detected. Complete urinalysis microscopy: 57 erythrocyte H.S, 80 leukocyte H.S, 11 bacterial H.S, +3 leukocyte/ul, +1 erythrocyte/ul. The patient was consulted to the internal medicine department for anemia and melena and to infectious diseases for urinary tract infection. Infectious diseases recommended Cefixime 400 mg 2x1 tablet empirically and evaluation of antibiotherapy with urine culture after 3 days. The patient was discharged with this prescription and recommendations. Escherichia coli growth was observed in the urine culture of the patient, it was observed that

the purple urine started to return to normal gradually and it was learned that he was recommended to continue antibiotherapy.

Conclusion

PUBS is a rare condition in emergency departments. Our patient was an 87-year-old, immobile, female, easily diagnosed patient with multiple etiologic factors. Conditions that could cause purple urine were excluded in the patient's anamnesis and treatment was started rapidly and the current condition was corrected. However, we presented this case to you as a reminder of how emergency physicians should act when they encounter this clinical situation, which is not very common.

Keywords: Purple urine bag, Escherichia coli, Urinary Tract İnfection

Purple Urine Bag Syndrome: A Rare Clinical Case in Emergency Departments

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INTRODUCTION AND PURPOSE

Purple bladder syndrome (PUBS) is a very rare condition, especially in emergency departments, and when seen, it is met with interest. Urine color may be indicative of many clinical conditions such as the presence of infection, effects of medications, intoxication, and hemolysis.[1] Generally, being elderly, female gender (short urethra), immobilization, prolonged use of a urinary catheter, presence of alkaline urine (bacteria causing the release of indoxyl sulfatase), constipation, and chronic renal failure are thought to be causative factors.[2] In addition, it can also be seen in pediatric patients with Drummon Syndrome.[3] PUBS is not a new concept and the first official case was reported by Barlow in the Lancet in 1978.[4,5] Pseudomonas aeruginosa, Proteus mirabilis, Providencia spp, Escherichia coli, Klebsiella pneumoniae, Morganelli morganii, Citrobacter spp, methicillin-resistant Staphylococcus aureus, group B streptococci, and Enterococcus spp are the most commonly implicated bacterial species, but all bacteria are thought to cause PUBS.[6,7]

PUBS occurs as a result of bacteria metabolizing tryptophan breakdown products to release red and blue pigments. Normal bacterial flora degrades tryptophan in the gastrointestinal tract, leading to the formation of indole. The released indole enters the portal circulation and is conjugated by the liver and converted to indoxyl sulfate. Indoxyl sulfate that passes into the urine is converted to indoxyl by the enzymes sulfatase and phosphatase by bacteria colonized in the urinary catheter. Oxidized indoxylin forms indigo (blue) and indirubin (red) pigments. The contact of these pigments with a plastic urine bag containing polyvinyl chloride (PVC) produces a purple color. [6-8]

Controlling the underlying risk factors, urinary catheter replacement, appropriate urinary antisepsis, and antibiotherapy are the measures to be taken to treat PUBS.[5,7]

This presentation aims to help clinicians understand the causes of a patient presenting to the emergency department with purple urine and to review the relevant literature.

Keywords: Purple urine bag, Escherichia coli, Pseudomonas aeruginosa

CASE REPORT

An 87-year-old woman was admitted to the emergency department with complaints of purple color in the urinary bladder, occasional black stool, and general condition disorder. Physical examination revealed no pathology except for melena on rectal touch and purple colored urine in the urinary bag(Figure-1). Known diseases included colon cancer, hypertension, diabetes mellitus, coronary artery disease, hysterectomy, cholecystectomy, and multiple colonoscopies. Drugs she was using Carvedilol 6.25 mg 1x1, Doxazosin 4 mg 1x1, Metformin 1000 mg 1x1, propylthiouracil 50 mg 1x1 p.o. It was also learned that the patient was immobile and was followed with a urinary catheter at home. It was learned that the patient had not used any other food or medication recently. His vitals on admission were as follows: Temperature: 36.5 °C, Pulse: 89/bpm, blood pressure arterial: 108/71 mmHg, TcSO2: 79 %. Complete blood count (CBC), blood for emergency biochemistry and cardiac marker tests, complete urine urinalysis, and urine culture under sterile conditions were obtained. In the patient's blood tests: CRP: 9.37 mg/dL, Alkaline phosphatase (ALP): 324 U/L, Lactate Dehydrogenase (LDH): 574 U/L, leukocytes: 14.29x103, hemoglobin: 7.8 g/dL, no pathology was detected. Complete urinalysis microscopy: 57 erythrocyte H.S, 80 leukocyte H.S, 11 bacterial H.S, +3 leukocyte/ul, +1 erythrocyte/ul. The patient was consulted to the internal medicine department for anemia and melena and to infectious diseases department for urinary tract infection. No urgent pathology was considered by the internal medicine department. The infectious diseases department recommended empirical Cefixime 400 mg 2x1 tablet and evaluation of antibiotherapy with urine culture after 3 days. The patient was discharged with this prescription and recommendations. Escherichia coli growth was observed in the urine culture of the patient, it was observed that the purple urine started to return to normal gradually and it was learned that he was recommended to continue antibiotherapy.

DISCUSSION

Although PUBS has a good clinical course on its own, it is a clinical syndrome that should be kept in mind because underlying pathological factors and urinary tract infections are an important cause of morbidity and mortality and are very rare, especially in emergency departments.[5,8,9] In the literature, cases of PUBS in elderly patients with concomitant constipation, immobilization, chronic renal failure, urinary catheterization, and urinary infection have been reported[5-7]

In a recent meta-analysis, case reports and clinical studies of PUBS in the literature between 1978 and 2017 were reviewed and it was emphasized that female gender (70.7%), constipation (90.1%), immobilization (76.1%), prolonged urinary catheter use (45.1%), dementia (42.8%), recurrent urinary tract infections (14.3%), chronic kidney disease (14.1%) and alkaline urine (91.3%) were the most important causative factors.[10]

Correct recognition of PUBS is important in terms of choosing the right treatment. Concomitant clinical findings are valuable in terms of determining the causative factors and foods such as carrots, blackberries, and beets, medications such as warfarin, L-dopa, and ibuprofen that may change the color of urine should be questioned and the use of dye for diagnostic purposes should be investigated.[6]

Urine analysis with strip, urine microscopy and culture, blood electrolyte, and urea values are common tests used for diagnostic purposes. Appropriate antibiotic choices, cleanliness measures such as changing the urinary catheter, and cause-oriented approaches such as treatment of constipation are important elements of PUBS treatment.[6]

CONCLUSION

PUBS is a rare condition in emergency departments. Our patient was an 87-year-old, immobile, female, easily diagnosed patient with multiple etiologic factors. Conditions that could cause purple urine were excluded in the patient's anamnesis treatment was started rapidly and the current condition was corrected. However, we presented this case to you as a reminder of how emergency physicians should act when they encounter this clinical situation, which is not very common.

Pub No: OP-147

DIABETIC KETOACIDOSIS AFTER SNAKE BITE: A CASE REPORT

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Abstract

Introduction: Snakebite is an environmental and occupational public health problem that causes widespread mortality and morbidity worldwide, especially in rural areas. Snake bite incidents generally occur in rural areas of tropical climate, but there is a lack of data due to inadequate reporting and hospital admissions. In this case report, we aimed to present a case of diabetic ketoacidosis (DKA) after snake bite.

Case: A 75-year-old man was admitted to the emergency department with the complaint of snake bite on the left cruris. The patient had two tooth marks in the anterolateral region of the left cruris and the surrounding area was erythematous and minimally edematous. The patient stated that the swelling and redness were caused by biting and did not increase afterwards. Other than that, no pathology was found on physical examination. The patient's vital values at admission were blood pressure 126/85 mmHg, temperature 36.3°C, pulse rate 86/minute, oxygen saturation 96%. On physical examination, there was a locally moist area in the anterolateral region of the left cruris. It was learned that he had diabetes mellitus (DM). Fingertip spot blood glucose was measured as 255mg/dL. The patient was admitted to the toxicology and pain unit for follow-up. Tetanus prophylaxis, 1g paracetamol, 1 mg/kg dose of methylprednisolone, 45.5mg pheniramine were administered. In the follow-up of the patient, it was found that his orientation was disoriented and personality change was observed. It was observed that the edema in the anterolateral left cruris expanded proximally and erythema increased. The patient underwent 4 vial of antivenoma due to the development of neurotoxicity as a systemic finding and increased local findings. Control spot blood glucose was 496mg/dl and control blood gas examination showed pH: 7.26, bicarbonate (HCO3): 18.8mmol/L, lactate: 18 mmol/L, glucose: 445 mg/dl. Ketone positivity was detected in complete urine examination.

DKA was diagnosed and hydration and insulin treatment was started. The patient was consulted to the endocrinology department. The patient was then hospitalized in the reanimation intensive care unit.

Conclusion: Attention should be paid to neurotoxicity after snake bite in diabetic patients and differential diagnosis of this neurotoxicity should be made.

Key words: Snakebite, Diabetic ketoacidosis, Hyperglycemia, Neurotoxicity

INTRODUCTION

Snakebite is an environmental and occupational public health problem that causes widespread mortality and morbidity worldwide, especially in rural areas. Snake bite incidents generally occur in rural areas of tropical climate, but there is a lack of data due to inadequate reporting and hospital admissions. In this case report, we aimed to present a case of diabetic ketoacidosis (DKA) after snake bite.

CASE

A 75-year-old man was admitted to the emergency department at 16.20 with the complaint of snake bite on the left cruris around 15.30. The patient had two tooth marks in the anterolateral region of the left cruris and the surrounding area was erythematous and minimally edematous. The patient stated that the swelling and redness were caused by biting and did not increase afterwards. Other than that, no pathology was found on physical examination. The patient's vital values at admission were blood pressure 126/85 mmHg, temperature 36.3°C, pulse rate 86/minute, oxygen saturation 96%. On physical examination, there was a locally moist area in the anterolateral region of the left cruris. It was learned that he had diabetes mellitus (DM) and was taking oral antidiabetics (metformin, empaglifozin, vildagliptin, pioglitazone, gliclazide, pitavastatin). Bedside electrocardiogram was in normal sinus rhythm. Fingertip spot blood glucose was measured as 255mg/dL. In the tests obtained from the patient, C reactive protein(CRP):<0.33, pH: 7.38, creatinkinase (CK): 217 U/L, creatinkinase- MB(CK-MB): 45 U/L, Troponin-I: 3 pg/mL, white blood cell count (WBC): 1010^3/uL. The patient was admitted to the toxicology and pain unit for follow-up. Tetanus prophylaxis, 1g paracetamol, 1 mg/kg dose of methylprednisolone, 45.5mg pheniramine were administered. Hydration treatment was started. In the follow-up of the patient, it was found that his orientation was disoriented and personality change was observed. It was observed that the edema in the anterolateral left cruris expanded proximally and erythema increased. The patient underwent 4vialantivenoma due to the development of neurotoxicity as a systemic finding and increased local findings. Control spot blood glucose was 496mg/dl and control blood gas examination showed pH: 7.26, bicarbonate (HCO3): 18.8mmol/L, lactate: 18 mmol/L, glucose: 445 mg/dl. Ketone positivity was detected in complete urine examination. DKA

was diagnosed and hydration and insulin treatment was started. On follow-up examination, the patient was found to be oriented and coopere, aggressive behaviors disappeared and edema in the wound area did not increase. The patient was consulted to the endocrinology department. The patient was then hospitalized in the reanimation intensive care unit. After 2 days of follow-up and treatment in the intensive care unit, the patient was discharged with healing.

DISCUSSION

Snake venoms are diverse protein and peptide structures that act on a wide variety of tissue receptors and are clinically and pharmacologically challenging. Their effects and treatment should be improved by a multidisciplinary approach between clinicians, epidemiologists and toxicologists. Different snakes bite with different toxins and show different clinical symptoms[1].

The main clinical signs of snakebite are the presence of a tooth mark (one or more), localized pain and progressive edema extending from the bite site. Nausea, vomiting, weakness, tingling in the tongue, numbness in the mouth, dizziness, fasciculations, diplopia, dysphonia, urine discoloration and seizures are other signs and symptoms that may be observed. Swelling and edema may start in the first 15-30 minutes or after a few hours. While edema progresses very rapidly in severe poisoning, edema may progress within 1-2 days in patients with mild poisoning[2]. In our case, edema started to increase at the end of the 8th hour and stopped progressing after antivenom treatment.

Tachypnea, tachycardia, hypotension and altered consciousness are the main systemic effects. Progressive edema in any muscle compartment and edema close to the airway may be life-threatening without systemic findings[2]. In our patient, personality change and disorientation may be considered as systemic effects of snake bite envenomation. Since the patient developed DKA simultaneously, the change in consciousness was considered as a complication of DKA.

Ecchymosis, hemorrhagic bullae and low hemoglobin levels may develop as a result of extravasation of blood into the subcutaneous tissue[2]. In our case, local tissue edema and erythema increased and decreased after treatment.

In the clinic, local necrosis is the main cause of permanent disability as a result of biting. Extensive skin lesions may require debridement and amputation[3]. Arthrodesis, chronic ulceration, osteomyelitis and malignant transformation are long-term consequences of biting[2].

Particular attention should be paid to neurologic symptoms in Elapidea bites. Tremor, hyper salivation, dysarthria, diplopia, ptosis, miosis, dysphagia, dyspnea and seizures may develop[2]. Panhypopituarism due to acute hemorrhagic infarction of pituitary and adrenal glands, paralysis of respiratory muscles, CNS damage and cerebral hypoxia secondary to delayed resuscitation may cause permanent neurological deficits[4]. In our

case, neurological problems were thought to be due to DKA. She recovered completely with treatment of hyperglycemia.

Hyperglycemia after snakebite is a rare endocrine complication. Hyperglycemia is thought to occur due to suppression of plasma insulin, depletion of glycogen stores in the liver and kidney, increase in catecholamines or direct effect of snake venom in some species[5].

In the treatment of snakebite, first of all, mobilization of the affected limb is tried to be prevented. The affected limb is bandaged appropriately and a splint is applied to prevent movement. If the bite is on the trunk, firm pressure is applied to the affected area. The need for tetanus and wound culture is evaluated. Antibiotic requirement is evaluated. All analgesics are indicated for pain palliation[2].

In the emergency department, the main treatment of venomous snake bite is antivenom. In case of worsening of the local injury, presence of abnormal laboratory findings or onset of any of the systemic symptoms, antivenom treatment should be administered rapidly. Intravenous antivenom is recommended with an initial dose of 4-6 vials. If clinical deterioration continues, the same dose is repeated. If the patient has seen sufficient benefit, 2 vial doses are repeated at 6.-12. and 18. hours. Steroids should be used in allergic reactions or serum sickness[2].

Steroid use is not indicated in isolated snake bites and may be harmful2. In our case, the patient received I.V steroids at a dose of 1mg/kg. We think that the DKA picture that developed in the patient may be a complication of this treatment.

In our patient, neurotoxicity developed approximately 8 hours after the snake bite and local findings worsened. While antivenom treatment was started, the patient's glucose level was found to be elevated in the hourly routine blood glucose and DKA developed.

There are records that hyperglycemia can be seen due to snake bites and that hyperglycemia is a poor prognostic indicator.

In a retrospective study in Taiwan, hyperglycemia was noted in 15% (7/44) of patients with Bungarus multicinctus envenomation. One patient developed persistent DM after discharge [6].

In a case of an infant bitten on the neck by a snout-horned viper (V. a. ammodytes) resulting in mortality, blood glucose was 480 mg/dl (26.7 mmol/L) in an infant with no known disease after the bite [7].

In a case series of 83 pediatric patients, baseline hyperglycemia on hospital admission was shown to be indicative of high-risk envenomation and was considered a poor prognostic indicator [8].

There is no information in the literature regarding the development of DKA following snakebite. It was thought that the DKA picture that developed in the patient may be a complication of direct snake bite or may develop due to steroid treatment administered in the emergency department. Therefore, in the case of neurotoxicity after snakebite in diabetic patients, care should be taken to determine whether this neurotoxicity

is due to a complication of snakebite or DKA, which is a complication of the underlying DM disease as a result of the treatments administered, and a differential diagnosis of neurotoxicity should be made.

CONCLUSION

Attention should be paid to neurotoxicity after snake bite in diabetic patients and differential diagnosis of this neurotoxicity should be made.

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Pub No: OP-153

HALLUX SESAMOID FRACTURE IN A CHILD PATIENT

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Abstract
Pyogenic flexor tenosynovitis (Pft) is a relatively common hand infection and is an infection of the flexor tendon sheaths. Diagnosis can usually be made by physical examination and Kanavel Findings show high sensitivity in diagnosis. Laboratory findings and imaging methods also help diagnosis. While early presentation can generally be treated conservatively after diagnosis, and full clinical and functional recovery can be achieved, late presentation, incorrect or late diagnosis, and the combination of comorbid diseases may require surgical treatment, and complications and functional loss may be encountered in many patients. In this study, we evaluated three cases that we diagnosed and treated in the emergency department and orthopedics and traumatology outpatient clinic. Two of the cases were admitted to the emergency room and one to the orthopedics outpatient clinic. While full clinical and functional recovery was achieved with conservative methods in both cases who applied to the emergency department, the patient who applied to the orthopedics outpatient clinic had late presentation and comorbid disease. Surgical treatment was applied to the patient due to his clinical condition. The treatment process was prolonged. The patient developed flexion contracture as a sequelae. It caused loss of workforce. Emergency medicine physicians; Pyogenic flexor tenosynovitis, which can lead to amputation after late and incorrect diagnosis and cause poor clinical and functional results; They should be remembered in patients with hand infections and penetrating hand traumas.

Key Words: Pyogenic, flexor tenosynovitis, Kanavel Findings

Introduction

Pyogenic flexor tenosynovitis (Pft) is a microbial infection of the sheaths of the flexor tendons in the hand. It is seen at a rate of 2.5 - 9.5% among all hand infections and usually occurs after penetrating hand injuries (1). Although the most common agent is Staphylococcus aureus with a rate of 75%, factors such as MRSA, staph aureus epidermidis, β-hemolytic streptococcus, and Gram-pseudomonas aeruginosa can also cause it (2,3). Kanavel Findings are very important in diagnosis and have a sensitivity of 91.4 – 97.1% (4). Kanavel Findings: Diffuse 'sausage' swelling (symmetrical swelling of the affected finger), holding the finger in flexion, severe pain on passive extension, and tenderness along the flexor tendon. Among the imaging methods, X-Ray, USG, MRI; Laboratory tests such as WBC, CRP and sedimentation levels, and taking cultures from infective and necrotic tissue are helpful in making the diagnosis. In treatment; i.v. in early-stage cases with good clinical conditions. Antibiotherapy, elevation, cold application, immobilization with splint are applied, while surgical irrigation and debridement are applied in cases that do not respond to

conservative treatment, apply late, have a poor clinical condition, and have tissue necrosis. Pft; It should be distinguished from conditions such as felon (distal pulp infection), interphalangeal or metacarpophalangeal septic arthritis, and cellulitis. Complications; stiffness in the fingers, tendon rupture, spread of infection to the hand, osteomyelitis, and amputation (5). In this study, we planned to present three cases who applied to the orthopedics and traumatology outpatient clinic and the emergency department.

Cases

Patient	**P1**	**P2**	**P3**
Age	38	33	58
Gender	M	F	M
Job	Worker	Housewife	Worker
History & Complaints	1 day ago, the tip of the wire was stuck in the 2nd finger of the right hand.	Swelling, redness, severe pain in the third finger of the left hand after carrying a load	The diabetic patient pierced the second finger of his left hand with a drill 3 days ago. He went to the emergency room 1 day ago. Since the tendon examination and neurovascular examination were normal, he was referred to the infectious diseases outpatient clinic.
Physical Examination	There is increased temperature + redness + tenderness on the flexor tendon + pain on passive extension + swelling, but there is no sausage finger appearance.	There is increased temperature + redness + tenderness on the flexor tendon + pain on passive extension + swelling, but there is no sausage finger appearance.	There is increased temperature and redness. There is a sausage finger appearance and signs of skin necrosis tendency. Tenderness over flexor tendon + pain on passive extension +
Lab	Wbc: 8.9 (3.7-10.4) Crp : 8,6 (0-5)	Wbc: 11.3 Crp : 12.5	Wbc : 15 Crp : 60.2 sedimentation: 33 (0-20)
Radiological imaging	No Features	No Features	No Features
Treatment	Tetanus prophylaxis + prophylactic antibiotic therapy + fingertip supported splint fixing the second finger + elevation + cold application	Prophylactic antibiotic therapy + fingertip supported splint fixing the second finger + elevation + cold application	Emergency surgical debridement and irrigation was performed. i.v. antibiotic therapy + elevation + cold application
Complication	None	None	During his follow-up, it was observed that the contractures and joint movements were limited.

Discussion

Pft is a rare condition that may require orthopedic emergency surgery. We think that it can usually occur after a penetrating trauma, but sometimes with hematogenous transmission after blunt trauma. There are publications in the literature (1,6) that support this, and it was observed that PFT developed in one of our cases despite the absence of penetrating trauma. Factors such as the presence of diabetes, steroid use, substance addiction, and a weak immune system are factors that facilitate the formation of Pft (1). Giladi Am et al. It was stated in a study that the risk of amputation after Pft increased in patients with diabetes, peripheral vascular disease and renal failure (7). One of our cases had a history of diabetes. We think that diabetes is effective in the patient's rapid progression and need for surgery. Early application, diagnosis and initiation of appropriate treatment are important factors for success. In delayed applications, the clinic becomes more complex and surgical treatment may be required. Studies have shown that 10-25% of affected patients cannot perform the full active range of motion (8,9). This situation affects the workforce, especially in young patients. Contracture developed in our case, which was treated surgically after late presentation.

Conclusion

Since Pft is one of the orthopedic emergencies that requires early diagnosis and treatment, it is a condition that emergency medicine physicians should suspect, especially in cases of hand infection and penetrating hand trauma.

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Pub No: OP-156

Clinical Value Of Nt-ProBNP İn Emergency Admissons And Reasons For Elevating Nt-ProBNP Other Than Heart Failure

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INTRODUCTİON: Heart failure (HF), a condition characterized by high mortality and morbidity rates, stands as a prominent cause of hospitalization among individuals aged 65 and older(1). Echocardiography is universally recognized as the gold standard for HF diagnosis(2). In recent years, clinicians have increasingly relied on N-terminal pro-B-type natriuretic peptide (NT-proBNP) as a biochemical marker, not only for diagnosis but also for treatment management and prognosis assessment(3). However, it is of particular importance in investigating potential cardiac and non-cardiac factors that may elevate NT-proBNP levels beyond HF. This study thus seeks to elucidate the correlation between NT-proBNP measurements and echocardiographic (ECHO) parameters in patients admitted to the emergency department (ED) and to identify any additional factors responsible for NT-proBNP elevation.

MATERİALS METHODS: A retrospective analysis was conducted on patients admitted to the PAU Emergency Department between January 1 and July 31, 2023, who underwent NT-proBNP testing. The patients who had ECHO measurements performed subsequent to NT-proBNP assessment were included in the study. The correlations between their ejection fraction values and NT-proBNP concentrations were examined, along with an assessment of biochemical parameters and other clinical conditions contributing to NT-proBNP elevation.

RESULTS: As of January 1, 2023, the NT-proBNP values were assessed in 1009 ED patients, with 95 eligible patients who had ECHO evaluations following NT-proBNP measurements. We factored out their previous ECHO values. Of these patients, 52 were female, with an average age of 66.5 for women and 69 for men. Yet, no significant gender-based differences were evident in NT-proBNP concentrations. In addition, the NT-proBNP values ranged from 127 ng/L (lowest) to 35000 ng/L (highest), with the majority falling within the normal laboratory range of 0-125 ng/L. The study population's NT-proBNP levels were then categorized as

follows: Group 1 (NT-proBNP < 1000 ng/L) included 27 patients, with 33% presenting acute/chronic renal failure (RF), 25% infection, 37% malignancy, 22% pulmonary embolism, 22% elderly fractures or hip fractures, and 10% systolic HF. In Group 2 (NT-proBNP between 1000 and 5000 ng/L), consisting of 35 patients, infection (42%) was the most prevalent cause, followed by RF (25%), malignancy (25%), systolic HF (17%), and elderly fractures or hip fractures (25%). Group 3 (NT-proBNP between 5000 and 10000 ng/L) included 13 patients, with 38% presenting systolic HF, infection, and HF each, and 30% malignancy. Finally, Group 4 (NT-proBNP > 10000 ng/L) encompassed 20 patients, with 70% attributed to RF, 65% infection, 50% systolic HF, and 25% malignancy.

Discussion: Performing quick and accurate diagnosis in patients presenting to the ED with poor general condition and shortness of breath ensures timely and effective initiation of treatment, thus contributing substantially to survival. In its updated guideline, the European Society of Cardiology (ESC) promotes the use of NT-proBNP measurement as a Class I recommendation, both to establish the diagnosis and manage the treatment of acute and chronic HF(4). This guideline also lists the cardiac and non-cardiac causes, other than HF, responsible for elevated NT-proBNP expression. In this context, our study set out to investigate the phenomenon of NT-proBNP elevation among the patients admitted to the ED with poor general condition and shortness of breath. We observed that very high NT-proBNP levels were particularly associated with RF and serious infections, while high NT-proBNP values were detected in malignancy and malignancy-induced diseases. In moderate elevations, such factors as pulmonary embolism, advanced age, and hip fracture proved to be more evident.

CONCLUSİON: All these data suggest that non-cardiac causes may lead to elevated NT-proBNP concentration, and therefore NT-proBNP can provide enhanced clinical utility for assessing the severity of the current disease through indirect cardiac involvement as well as indicating secondary cardiac involvement.

KEY WORDS: NT-proBNP, heart failure, renal failure, malignancy, infection

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Pub No: OP-157

Determination of associated risk factors in the prediction of coronary heart disease with a machine-learning model

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Abstract

Introduction and Purpose: The aim of this study is to classify coronary heart disease and identify risk factors that may be associated with the disease, using an open-access dataset of coronary heart disease, which can be quite lethal with its results.

Material and Methods: The coronary heart disease dataset consisted of 10 input variables associated with the disease of 462 individuals. Random Forest, one of the machine learning models employed in the study, was utilized to classify coronary heart disease. The modeling's performance was evaluated using accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score performance measures. In addition, variable importance values were given to determine the risk factors because of the modeling.

Results: From the performance metrics obtained as a result of the modeling; accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score were obtained as 99.1%, 98.8%, 97.5%, 100%, 100%, 98.7%, and 98.7% respectively. Age, tobacco, LDL, adiposity, SBP, type, obesity, and alcohol variables were obtained as the most important factors associated with the disease according to their variable importance values.

Conclusion:

According to the results obtained from the study, coronary heart disease was successfully classified with the RF model used, and the risk factors associated with the disease were determined in order of importance and presented as factors that could be determinative in the diagnosis of the disease.

Keywords: Coronary heart disease, Classification, Random Forest, modeling.

Introduction

The World Health Organization's (WHO) "Non-Communicable Diseases 2013-2020 Action Plan" lists cardiovascular illnesses as the leading cause of death in the globe and in our country. It is the leading cause of death and morbidity in industrialized and Western nations, and the disease's likelihood in underdeveloped countries is growing by the day. Cardiovascular illnesses such as peripheral vascular disease, coronary artery disease, heart failure, dyslipidemia, and hypertension (HT) affect 400 million individuals worldwide, representing a diverse range of ethnicities, ages, and genders. According to studies, the global death rate from cardiovascular disorders would rise from 28.9% to 36.3% between 1990 and 2020 (1, 2). People with metabolic disorders such as insulin resistance, glucose intolerance, abdominal obesity, HT, high low-density lipoprotein (LDL), low high-density lipoprotein (HDL), and hypertriglyceridemia are more susceptible to developing cardiovascular disease (3).

Cardiovascular diseases can affect almost every age group and are an important public health problem that can cause serious problems and even be fatal due to their consequences. Despite recent breakthroughs in diagnosis and treatment, it remains one of the leading causes of morbidity and death in our country and other developed countries. Early diagnosis of the disease is very important in the prevention and treatment of the disease. The fact that heart diseases are the leading cause of death in people of all ages is the most important reason for conducting long-term studies on cardiovascular diseases.

The purpose of machine learning, a subset of artificial intelligence, is to anticipate new data as it is presented to it through data-driven learning. The researchers' goal is to teach computers to spot complicated patterns and make data-driven judgments (4). Machine learning methods are one of the technologies that have seen significant use in illness detection and clinical decision support systems in recent years. These techniques have a wide range of applications and have grown in popularity in recent years. In the illness prediction process, machine-learning techniques are frequently used to carry out the categorization process. Machine learning, which has a wide range of applications in the field of health, is the foundation of applications in the determination of genetic illnesses, early detection of cancer and chronic diseases, and pattern recognition in medical imaging. With increased processing power over the previous decade, ML approaches have reached very high performance in the field of health (4). The random forest (RF) approach is one of the machine learning methods that is used to construct a prediction set in decision trees developing in subspaces of randomly picked data (5). Random

forest, which is well-known for producing quick and accurate results, is frequently used in classification and regression operations (6). The random forest approach is an excellent decision tree method for categorical and continuous data, as well as big and small data sets (7). This algorithm has been shown in several studies to be a viable classification approach and an excellent predictor in determining the cause-and-effect connection (6-8).

The aim of this study is to apply the RF model to a dataset of patients with and without coronary heart disease to accurately predict coronary heart disease, thereby classifying the factors associated with coronary heart disease according to their importance.

MATERIAL AND METHODS

Dataset

In this study, it was aimed to accurately predict coronary heart disease and determine factors associated with heart disease using a dataset consisting of individuals with and without coronary heart disease. The dataset used in the study is an open-access material obtained from the address "https://www.kaggle.com/datasets/yassinehamdaoui1/cardiovascular-disease". The dataset consists of 10 input variables that may be associated with the disease of 462 individuals. Input variables are systolic blood pressure (SBP), cumulative tobacco (kg), low-density lipoprotein cholesterol (LDL), adiposity, family history of heart disease, type-A behavior, obesity, current alcohol consumption, and age.

Random Forest

Random Forest (RF) harmoniously melds classification and regression through a democratic voting process. A cluster of interconnected decision trees collaborates to designate the prevailing class through a cumulative vote. The forest's strength lies in its tree autonomy, each cultivated using the bootstrap method, drawing multiple samples from the dataset. These individual trees, uninfluenced by peers, collectively weave an intricate fabric of predictive prowess (9). The RF method makes extensive use of classification trees. All of these classification trees process each piece of incoming data. After each input data is entered into all classification trees and voted, assignments are made to the class with the highest number of votes from the tree structures (10).

Modeling

The RF was employed in the current investigation during the modeling step for the dataset in question. The analyses were carried out using the 5-fold cross-validation method. As

performance assessment criteria, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score were utilized. Furthermore, variable importances were computed, which provides information on how much the input variables contribute to the output variable. R studio 4.2.1 was used for modeling.

Results

The results of the performance metrics obtained as a result of modeling with Random Forest are given in Table 1.

Table 1: The performance metrics obtained with random forest

Performance Metrics	**Value (%)**
Accuracy	99.1
Balanced Accuracy	98.8
Sensitivity	97.5
Specificity	100
Positive predictive value	100
Negative predictive value	98.7
F1-score	98.7

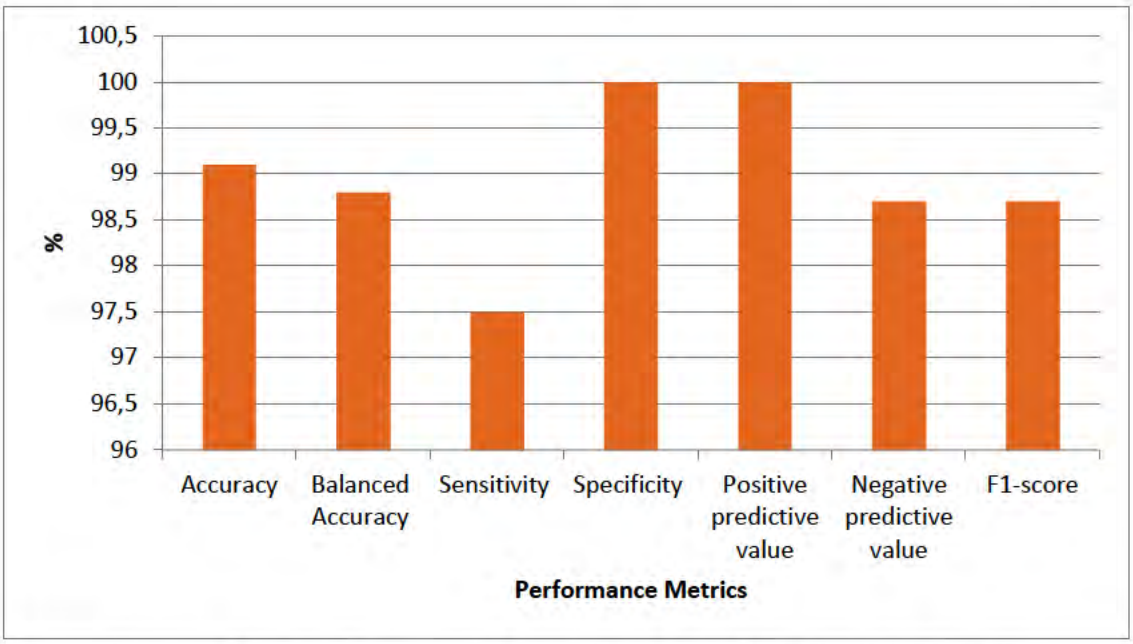

Figure 1. Graphical representation of the values of performance metrics.

Figure 2 shows the graph of the variable importance values determined by the Random Forest model.

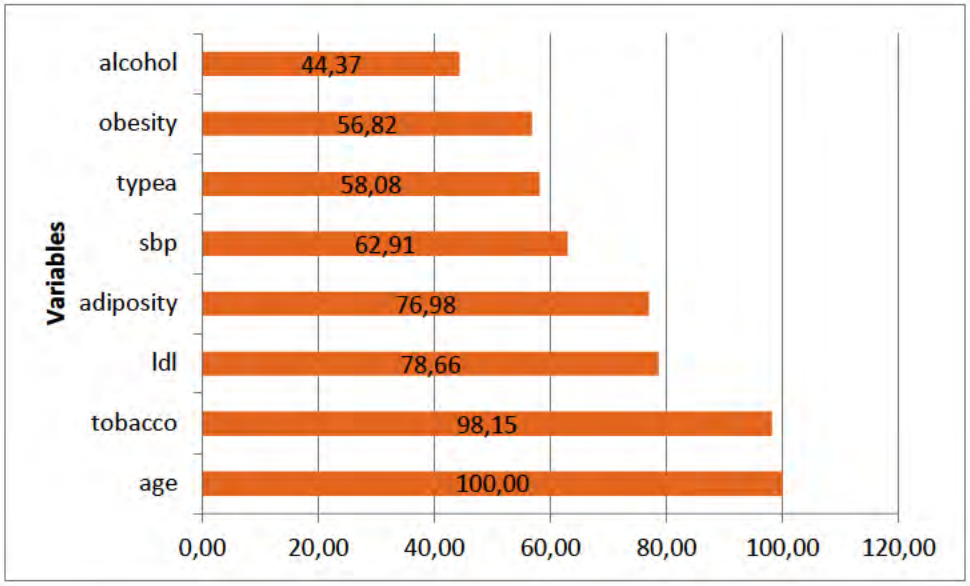

Figure 2: Variable importance graph

Discussion

Cardiovascular disease is responsible for 17.9 million deaths globally each year, or 31% of all fatalities. Cardiovascular illnesses are conditions that affect the heart and blood arteries, such as coronary heart disease, cerebrovascular disease, rheumatic heart disease, and others. The pathophysiology of the majority of cardiovascular disease-related mortality includes ischemic heart disorders. Globally, ischemic heart disorders are a major source of death and morbidity (11, 12). Therefore, it is very important to investigate cardiovascular diseases and develop early preventive treatment strategies. A comprehensive examination of heart disease, which is seen as a public health problem, can identify disease-related factors and be used to develop strategies for disease prevention.

In recent years, clinical decision support systems and the identification of illnesses have both benefited greatly from the application of machine learning techniques. Early illness diagnosis and the identification of the elements influencing the disease are made possible by machine learning techniques, which are commonly applied in the field of health (13, 14) .

In this study, it is aimed to apply the RF method, which is one of the machine learning models, on the open source heart disease dataset and to give the classification prediction. In addition,

the importance levels of factors that may be associated with heart disease were obtained from the model for use in preventive medicine practices.

From the performance metrics obtained as a result of the modeling; accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score were obtained as 99.1%, 98.8%, 97.5%, 100%, 100%, 98.7%, and 98.7%, respectively.

According to the variable importance values obtained as a result of the model, the most important variables that can be associated with coronary heart disease were obtained as age, tobacco, LDL, adiposity, SBP, type a behavior, obesity, alcohol, respectively.

As a consequence, the outcomes of this investigation demonstrated that the classification of coronary heart disease made accurate predictions. Furthermore, the current study calculated the variable importance of the variables related to coronary heart disease, and the factors connected with the condition were discovered.

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Pub No: OP-158

Carbon Monoxide Poisoning in Children and the Systemic Immune Inflammation Index: Investigating Predictive Potential

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Backgrounds: Carbon monoxide (CO) is an odorless and colorless gas that forms when organic materials burn incompletely. Children are more susceptible to CO poisoning than adults because their respiratory and immune systems are still developing. The systemic immune inflammation index (SII) is a marker that reflects the balance between inflammation and immunity.

Objective: In this study, we investigate the relationship between CO poisoning in children and the SII.

Materials and Methods: We conducted a retrospective observational study involving pediatric patients (age <18 years) diagnosed with CO poisoning and treated at Aksaray University Training and Research Hospital, a tertiary medical center, from January 2018 to January 2023. We included consecutive pediatric patients (age <18 years) with CO poisoning who had available clinical and laboratory data and were treated at our hospital.

Results: The study included 393 patients with a mean age of 7.24 (± 4.67) years, of whom 184 (46.8%) were male. When comparing COHb groups, significant statistical differences emerged between the groups regarding GCS, pH levels, occurrences of dizziness, confusion, seizures, lethargy, and prognosis ($p<0.05$). When comparing lactate groups, significant differences were observed between the groups concerning GCS, COHb levels, pH levels, occurrences of confusion, lethargy, prognosis, and LOS ($p<0.05$). Upon evaluating the SII, no statistically significant difference was found between the groups in terms of gender, COHb levels, lactate levels, LOS, and prognosis.

Conclusion: SII cannot be considered a reliable predictor of the severity of carbon monoxide poisoning in children. Despite the evident inflammatory response triggered by exposure to

carbon monoxide, the SII did not consistently correlate with the varying degrees of poisoning severity.

Keywords: Carbon monoxide poisoning, Inflammatory response, Pediatric patients, Severity assessment, Systemic immune inflammation index.

Pub No: OP-159

Giant Stones In The Bladder

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Abstract

Introduction: Urinary system stone disease is usually seen in older men. Bladder stones are often detected incidentally in patients with obstructive urinary system symptoms. Dysuria and microscopic or macroscopic hematuria symptoms may be observed in these patients. Although bladder stones can generally be passed spontaneously, large stones can prevent urine output due to urethral obstruction and cause ureterohydronephrosis and globe vesicale formation

Case : An 88-year-old male patient applied to the emergency department with the complaint of not being able to urinate for 1 day. He has cerebrovascular disease and Alzheimer's disease in his medical history 3 years ago. In the physical examination, there is no bladder globe and no additional features. Vital signs; blood pressure 128/73 mmHg, respiratory rate 12/minute, pulse 88 beats/minute, temperature 36.2°C, SPo2 98%. In the blood values taken from the patient, creatine was 7.59 mg/dl, potassium was 6.2 mmol/liter, and blood gas pH was 7.38. Extraordinarily large stones in the bladder were observed in the abdominal computed tomography taken to clarify the etiology of the patient's acute renal failure. After the Foley catheter was inserted into the patient, 3000 cc of urine was output. During follow-up, the creatinine level decreased to 1.3 mg/dl. The patient was discharged from the service where he was hospitalized for follow-up and treatment, with an opency stolithotomy planned.

Conclusion: It is common for bladder stones to occur together with upper urinary tract stones. Since bladder stones are generally mobile and do not obstruct urine flow, they rarely cause bladder outlet obstruction, leading to renal failure. In our case, bladder stones caused bladder outlet obstruction and caused renal failure. Among the treatment options, open cystolithotomy seems to be the best treatment option in patients with high stone burden. In our patient, open cystolithotomy was preferred due to the high stone burden. As a result, bladder stones should also be considered in anuric complaints and supported by laboratory and imaging methods.

Keywords: bladder stones, urethral obstruction, emergency medicine

Introduction: Urinary system stone disease is usually seen in older men. In cases where the urine in the bladder cannot be completely emptied, it is generally considered to be a secondary cause of urinary system infections, bladder diverticula, foreign bodies, neurogenic voiding dysfunctions, pregnancy and bladder outlet obstruction (1-3).Bladder stones are often detected incidentally in patients with obstructive urinary system symptoms. Dysuria and microscopic or macroscopic hematuria symptoms may be observed in these patients.

Although bladder stones can generally be passed spontaneously, large stones can prevent urine output due to urethral obstruction and cause ureterohydronephrosis and globe vesicale formation (3,4).

Case :An 88-year-old male patient applied to the emergency department with the complaint of not being able to urinate for 1 day. He has cerebrovascular disease and Alzheimer's disease in his medical history 3 years ago. In the physical examination, there is no bladder globe and no additional features. Vital signs; blood pressure 128/73 mmHg, respiratory rate 12/minute, pulse 88 beats/minute, temperature 36.2°C, SPo2 98%. In the blood values taken from the patient, creatine was 7.59 mg/dl, potassium was 6.2 mmol/liter, and blood gas pH was 7.38. Extraordinarily large stones in the bladder were observed in the abdominal computed tomography taken to clarify the etiology of the patient's acute renal failure (Picture 1). After the Foley catheter was inserted into the patient, 3000 cc of urine was output. During follow-up, the creatinine level decreased to 1.3 mg/dl. The patient was discharged from the service where he was hospitalized for follow-up and treatment, with an opencystolithotomy planned.

Discussion: Bladder stones constitute approximately 5% of all urinary system stones (5). Bladder stones are divided into primary and secondary. It occurs in conditions such as secondary bladder stones, benign prostatic hyperplasia, post vesical obstruction, and chronic urinary tract infection (6). Urinary system ultrasonography (USG) or computerized abdominal tomography (BBT) can be used in the diagnosis of non-opaque stones. BCT is also the most reliable method for detecting accompanying upper urinary tract stones. The definitive diagnosis is made by cystoscopy (7). It is common for bladder stones to occur together with upper urinary tract stones. Since bladder stones are generally mobile and do not obstruct urine flow, they rarely cause bladder outlet obstruction, leading to renal failure (8). In our case, bladder stones caused bladder outlet obstruction and caused renal failure. Among the treatment options, open cystolithotomy seems to be the best treatment option in patients with high stone burden (7). In our case, open cystolithotomy was preferred due to the high stone burden. As a result, bladder stones should also be considered in anuric complaints and supported by laboratory and imaging methods.

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Pub No: OP-163

Evaluation of Diagnostic Value of Some Hematologic Parameters and Ratios in SARS-CoV2 VOC-202012/01 Mutant Population

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Introduction and Purpose: In this study we set out to reveal the difference between individuals with and without VOC 202012/01 variant (1,2) in addition to testing positive for SARS-CoV2 Polymerase Chain Reaction (PCR) tests by using less costly complete blood count analytes quickly analyzing the samples and some ratios derived from these analytes. For this purpose, we assessed neutrophil, lymphocyte, platelet, and Red Blood Cell Distribution Width- Standard Deviation (RDW-SD) levels among complete blood count parameters as well as neutrophil-lymphocyte ratio (NLR) and platelet-lymphocyte ratio (PLR), and eventually their statistical effectiveness was discussed.

Materials and Methods: A retrospective cross-sectional study was performed over the course of two months (from May to June, 2021) on 212 patients who presented to the emergency department (ED) of a tertiary hospital with Covid-19 symptoms and took SARS-CoV2 PCR and complete blood count (CBC) tests, respectively. The PCR-confirmed SARS-CoV2 positive patients and their hospitalization data were also gathered from the system. In addition, their VOC-202012/01 mutation status was confirmed by the public health management system.

Results and Conclusion: In our study, RDW-SD, RDW, NLR and PLR indexes in addition to C-reactive protein (CRP), Lactate dehydrogenase LDH values were high in the patients with VOC-202012/01 mutation ($p<0.0001$), while hemoglobin and hematocrit counts and ratio as well as eosinophil and lymphocyte counts remained low ($p<0.0001$).Hematological parameters, NLR and PLR ratios derived from these parameters, and models based on these ratios and RDW-SD are cheaper, more widely-used, and can predict patients' clinical conditions as well as their hospitalization or admission to ICU. The bottomline is that they can serve as reliable predictors in the assessment of patients coming down with the VOC-202012/01 mutation (3).

Keywords: COVID-19 , NLR , PLR , SARS-CoV-2 , VOC-202012/01

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Pub No: OP-164

A Systematic Review and Meta-Analysis: Acute Migraine Treatment in Pediatric and Adolescent Populations

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Backgrounds: The array of medications used to treat acute migraine in adults is extensive, with several now authorized for use in children and adolescents in outpatient settings.

Aims: The aim of this meta-analysis was to evaluate the impact of pharmacological interventions, regardless of the method of delivery, compared to placebo, in treating migraine among individuals aged 18 years or younger.

Materials and Methods: We searched PubMed, EMBASE, and Cochrane Library for comparative RCTs published 30 years before May 2023. We included prospective randomized controlled clinical trials of children and adolescents with migraine, comparing acute symptom-relieving migraine medications with a placebo.

Results: Twelve clinical trials were included in this meta-analysis. The migraine treatment choice and the proportion of patients with complete pain relief at 2 hours post-treatment were analyzed. Ibuprofen (n=2), sumatriptan (n=3), zolmitriptan (n=3), and rizatriptan (n=4) were used for the analysis. Notably, sumatriptan did not exhibit significant differences compared to placebo, despite mixed individual study outcomes (OR:1.35; 95% CI 0.81, 2.27). Rizatriptan displayed varying efficacies across age groups, showing no significant difference in adolescents aged 12-17 years ($p>0.05$). Zolmitriptan showed dose-dependent effectiveness, with higher doses yielding better outcomes (OR:2.18; 95% CI 1.45,3.28). Ibuprofen emerged as the sole non-triptan medication to demonstrate efficacy in achieving pain-free status at 2 hours, with a favorable safety profile (OR:2.54; 95% CI 1.20, 5.37).

Conclusion: These findings suggest that ibuprofen, zolmitriptan, and rizatriptan are potential treatment options for rapidly relieving migraine in children and adolescents. However, ibuprofen may have advantages over triptans, owing to its convenience and cost-effectiveness.

Keywords: Acute migraine treatment, Adolescent, Meta-analysis, Pediatric, Pharmacological interventions, Randomized controlled trials

Pub No: OP-167

Retrospective Evaluation of Pelvic Trauma Patients Admitted to the Emergency Department

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GİRİŞ

Tüm kemik kırıklarının sadece %3'ünü oluşturan pelvis kırıkları, ayrışmamış stabil kırıklardan ölümcül pelvis içi kanamaya sebep olan tamamen ayrılmış pelvik halka kırıklarına kadar geniş bir klinik tablo ile sonuçlanabilir.

Travmanın 15-24 yaş arasındaki hastaların önde gelen ölüm nedeni olduğu ve yılda tüm yoğun bakıma yatışların yaklaşık %30'unu oluşturduğunu düşünürsek, hayatı tehdit edici bir yaralanma olan pelvis travmaları, acil servise başvuran travma hastaları içerisinde önemli bir yer teşkil etmekte ve hızlı tanı almaları tedavi şekillenmesi açısından önem arz etmektedir. Pelvis kırıkları 15-30 ve 50-70 yaş arasında daha sık görülür. 35 yaşın altında erkeklerde pelvis travması daha fazla iken, 35 yaşın üstü kadınlarda daha fazla görülmektedir. Etiyolojiye bakıldığında, araç içi ve araç dışı trafik kazaları pelvik kırıkların yaklaşık %60'ını oluşturur, ikinci sırada ise yüksekten düşmeler yer almaktadır. Pelvis kırıklarına en sık batın içi hasarlanmalar eşlik etmektedir. Etkilenen organlar sırayla karaciğer dalak ve böbrekler olarak belirtilmiştir. Acil müdahale yöntemleri (REBOA uygulaması, pelvik packing gibi), radyoloji (embolizasyon) ve cerrahi yöntemlerdeki gelişmelere rağmen pelvik kırıklarda mortalite ve morbidite oranları hala ciddiyetini korumaktadır. Hemodinamik olarak anstabil olan pelvik kırıklı hastalarda mortalite oranı %50'lerdedir.

AMAÇ

Bu çalışmada, Nisan 2019 ile Nisan 2021 arasında acil servise travma nedeniyle başvuran ve görüntülemelerinde pelvik fraktür olan hastaları retrospektif olarak incelemeyi ve bu iki yıllık deneyimimizi sunmayı amaçladık. Bu amaçla hastaların travma mekanizmaları, pelvis kırık sınıflaması, kanama oranları, tedavileri, mortalite ve morbiditeleri incelenmiştir.

GEREÇ VE YÖNTEM

Araştırmamıza 15.04.2019 – 15.04.2021 tarihleri arasında travma nedeni ile Aydın Adnan Menderes Üniversitesi Uygulama ve Araştırma Hastanesi Acil Servis kliniğine başvuran ve yapılan görüntülemelerinde pelvis fraktürü saptanan tüm hastalar dahil edilmiştir.

Veri toplama aracı olarak, literatür doğrultusunda geliştirilen araştırmacı tarafından hazırlanan olgu rapor formu kullanılmıştır.
Hastaların demografik verileri, ek hastalıkları, vital bulguları, laboratuvar değerleri (hemoglobin, hematokrit, ph, laktat, baz açığı, INR, aPTT, PT), travma mekanizmaları, pelvis dışında travmaya maruz kalan bölgeleri, eşlik eden yarlanmaları (kanama, genitoüriner sistem yaralanmaları, Sinir sistemi yarlanmaları, gastrointestinal sistem yaralanmaları), pelvis kırığı tipleri (Young Burgess Sınıflaması, Judet Letournel Sınıflaması, Denis Sınıflaması), eritrosit süspansiyonu verilme durumu ve miktarı, verilen tedavi, hastaların sonlanımları, ilk 28 gün mortaliteleri ve yatış süreleri değerlendirilmiş ve olgu rapor formuna kaydedilmiştir.

BULGULAR

Çalışmada belirtilen tarihler arasında acil servise başvuran 105036 hastada travma nedeniyle başvuran hasta sayısı 14930 olarak saptanmış, bu hastaların 2552'sinde pelvis travması

düşünülerek görüntüleme yapılmış, pelvis fraktürü tespit edilen 89 hastanın verilerine ulaşılabilmiş ve çalışmaya dahil edilmiştir.

Travma mekanizması ile ilgili özellikler incelendiğinde olguların %25,8'inin yüksekten düştüğü, %22,5'inin AİTK geçirdiği, %19,1'inin aynı seviyeden düştüğü görülmüştür. Travma bölgesi değerlendirildiğinde ise %23,7'sinin toraks, %18,5'inin vertebral kolon, %17,8'inin abdomen bölgesinden yaralandığı görülmüştür. Eşlik eden yaralanmalar incelendiğinde %84,6'sında kanamanın, %7,7'sinde genitoüriner sistem yaralanmasının, %3,8'inde sinir sistemi yaralanmasının, %3,8'inde gastrointestinal sistem yaralanmasının eşlik ettiği görülmüştür. Kanaması olan hastaların kanama bölgesi değerlendirildiğinde %95,4'ünün yumuşak dokuda, %4,6'sının damar sisteminde kanamasının olduğu saptanmıştır.

Hastaların hastanede ortalama 20,9±21,6 gün yattığı tespit edilmiştir. Hastaların %36,0'ının ilk 24 saatte kan ürünü replasmanına ihtiyacı olduğu görülmüştür. Acil serviste uygulanan tedavi incelendiğinde ise hastaların %51,7'sine medikal tedavi+yatak istirahati, %42,7'sine elektif cerrahi, %5,6'sına pelvik kemer+acil cerrahi uygulandığı, tespit edilmiştir. Elektif cerrahi uygulanan 1 hastaya (%1,1) ise cerrahi öncesinde embolizasyon uygulanmıştır.

Hastaların acil servise başvuru özellikleri değerlendirildiğinde %67,4'ünün travma sonrası başvurduğu ilk merkezin acil servisimiz olduğu görülmüştür. Hasta sonlanımı değerlendirildiğinde ise hastaların %73,0'ının yatışının yapıldığı, %27,0'ının taburcu olduğu görülmüştür. Hastalarda ilk 28 gün mortalite incelendiğinde ise hastaların %4,5'unun eksitus olduğu gözlenmiştir. Hastalarda ISS'nin ortanca 12 (4,0-57,0) olduğu görülmüştür. Ek hastalık varlığı taburcu olanlarda, eşlik eden yaralanma varlığı YB yatışı olanlarda istatistiksel olarak anlamlı düzeyde yüksek bulunmuştur.
Tüm bulgular Tablo I., Tablo II. Ve Tablo III'te özetlenmiştir.

TARTIŞMA

Bu çalışmada, literatür ile uyumlu olarak en sık görülen pelvis yaralanma mekanizmaları sırasıyla trafik kazaları (araç içi /araç dışı trafik kazaları ve motorsiklet kazaları), yüksekten düşme ve aynı seviyeden düşmedir.

Mulholland ve ark. 207 erişkin travma hastasında yaptıkları çalışmalarında, ISS 15'in üzerine çıktığında mortalitenin yükseldiğini saptamışlardır. Çalışmamızda hastalarda 28 günlük mortalite değerlendirildiğinde; 4 vakada, % 4,5 oranında mortalite saptanmıştır. Bu çalışmada, literatür ile uyumlu olarak mortal seyreden vakaların ISS belirgin olarak daha yüksekti. Literatür ile uyumlu olarak ISS arttıkça hastaların daha ileri takip ve tedavi gereksinimi olduğu saptandı. Hastaların ISS ve yatış süreleri arasındaki pozitif korelasyon da bu görüşümüzü desteklemektedir.

Çalışmamızda literatür ile uyumlu olarak yoğun bakım ihtiyacı olan hastalarda GKS anlamlı şekilde daha düşük saptandı.

Pelvis kırığında kanamanın kaynağının, vakaların %80-90'ında venöz bir yaralanma ya da kemik fragmanlardan retroperitoneal alana kanama olduğu saptanmıştır. Bu çalışmada literatür ile uyumlu olarak %97,6 oranında kanama venöz sızıntı ya da kemik fragmanlarından kaynaklanmaktadır.

Çalışmamızda literatür ile uyumlu olarak ilk 24 saat içerisindeki transfüzyon ihtiyacı %30 olarak saptandı.

SONUÇ

Bu çalışmada pelvis kırıklarının en sık nedeni trafik kazaları ve yüksekten düşme olarak saptandı. En sık etkilenen grup genç erkekler olarak tespit edildi.

Hastaların tedavi sonlanımları değerlendirildiğinde taburcu olan, servis yatışı yapılan ve yoğun bakım ihtiyacı olan hastaların ISS skorları arasında anlamlı fark saptandı. Skorlama sistemlerinden ISS, pelvis kırıklı hastaların acile başvurularında yoğun bakım ihtiyaçlarının değerlendirilmesinde önemli bir belirteç olabileceği görüşündeyiz. GKS skorunun mortal seyreden vakalarda düşük olduğu saptandı.

Pelvis kırıklarının tipleri değerlendirildiğinde en sık APC, ardından LC, mix ve VS tipte kırıkların olduğu saptandı. Hastaların ek travma bölgeleri değerlendirildiğinde, ilk sırada toraks ardından vertebral kolon ve abdominal travmalar yer almaktaydı. Eşlik eden en sık yaralanmanın kanama olduğu saptandı. Görülen kanamaların büyük çoğunluğu venöz sızıntı ve kemik fragmanlarından kaynaklı kanamalardı. Tedavi yöntemlerine bakıldığında konservatif yöntemlerin daha sık kullanıldığı görüldü. Kırık tipi ve eşlik eden yaralanmaların yöntemlerin belirlenmesinde etkili olduğunu düşünmekteyiz.

Sıklıkla çoklu travmalı hastalarda görülen pelvis yaralanması hayati tehdit eden ciddi kanama nedenlerinden biridir. Ayrıca, son yıllarda, radyografik görüntülemedeki ilerlemeler, çoklu travmalı hastaların yoğun bakım yönetimi ve minimal invaziv cerrahi yaklaşımlar ile spesifik tedavi algoritmalarının geliştirilmesine rağmen pelvis kırıklarına bağlı mortalite oranları özellikle unstabil pelvis kırıklı hastalarda hala yüksektir. Bu nedenle, bu hastalar acil serviste acil hekimleri tarafından hızlıca değerlendirilmeli, erken tanı konmalı ve hemodinamik stabilizasyonları sağlanmalıdır.

		Young Burgess				
		APC(n=28)	LC(n=23)	VS(n=5)	MIX(n=18)	p
		n (%)	n (%)	n (%)	n (%)	
GKS		15,0(3,0-15,0)	15,0(14,0-15,0)	15,0(13,0-15,0)	15,0(8,0-15,0)	0,909
ISS[1]		12,0(4,0-42,0)	9,0(4,0-43,0)	26,0(21,0-57,0)	25,5(4,0-41,0)	**0,001**
Yatış süresi (gün)		15,5(1,0-137,0)	9,0(2,0-58,0)	15,0(5,0-38,0)	25,0(3,0-63,0)	0,052
ES replasmanı (ünite sayısı)		3,0(1,0-7,0)	2,0(1,0-4,0)	3,5(1,0-8,0)	3,0(1,0-17,0)	0,567
Kan Ürünü Replasmanı İhtiyacı (İlk 24 saat)[2]	Var	10 (35,7)	6 (26,1)	4 (80,0)	11 (61,1)	**0,037**
	Yok	18 (64,3)	17 (73,9)	1 (20,0)	7 (38,9)	
Tedavi[3]	Medikal Tedavi+Yatak İstirahati	15 (53,6)	20 (87,0)	0 (,0)	5 (27,8)	**0,001**
	Elektif Cerrahi	12 (42,9)	3 (13,0)	4 (80,0)	12 (66,7)	
	Acil Cerrahi	1 (3,6)	0 (,0)	1 (20,0)	1 (5,6)	
Embolizasyon	Yok	28 (100,0)	23 (100,0)	5 (100,0)	17 (94,4)	0,369
	Var	0 (,0)	0 (,0)	0 (,0)	1 (5,6)	
Hasta sonlanımı[4]	Taburcu	6 (21,4)	10 (43,5)	0 (,0)	2 (11,1)	**0,013**
	Servis yatış	10 (35,7)	4 (17,4)	1 (20,0)	1 (5,6)	
	YB yatış	12 (42,9)	9 (39,1)	4 (80,0)	15 (83,3)	
Hastanede mortalite	Var	1 (3,6)	1 (4,3)	1 (20,0)	0 (,0)	0,256
	Yok	27 (96,4)	22 (95,7)	4 (80,0)	18 (100,0)	

[1] APC – VS (p=0,019), APC – MİX (p=0,003), LC – VS (p=0,021), LC – MIX (p=0,004)ikili grup karşılaştırılmalarında istatistiksel olarak anlamlı fark tespit edilmiştir.
[2] LC – VS (p=0,041), LC – MIX (p=0,024) ikili grup karşılaştırılmalarında istatistiksel olarak anlamlı fark tespit edilmiştir.
[3] APC – LC (p=0,035), LC – VS (p=0,000), LC – MIX (p=0,001) ikili grup karşılaştırılmalarında istatistiksel olarak anlamlı fark tespit edilmiştir.
[4] APC – MİX (p=0,019), LC – MIX (p=0,017) ikili grup karşılaştırılmalarında istatistiksel olarak anlamlı fark tespit edilmiştir.

Tablo I. Young Burgess Sınıflamasına Göre Klinik Özelliklerin, Uygulanan Tedavinin ve Hasta Sonlanımının Değerlendirilmesi

		Hasta sonlanımı			p
		Taburcu(n=24)	Servis yatış(n=23)	YB yatış(n=42)	
		n (%)	n (%)	n (%)	
Ek hastalık[1]	Var	18 (75,0)	6 (26,1)	7 (16,7)	0,000
	Yok	6 (25,0)	17 (73,9)	35 (83,3)	
Ek hastalık	HT	15 (42,9)	3 (33,3)	7 (58,3)	0,533
	DM	4 (11,4)	2 (22,2)	1 (8,3)	
	Osteoporozis	12 (34,3)	3 (33,3)	1 (8,3)	
	Antikoagülan/Antiplatelet ilaç kullanımı	4 (11,4)	1 (11,1)	3 (25,0)	
Travma mekanizması[2]	AİTK	1 (4,2)	7 (30,4)	12 (28,6)	0,004
	ADTK	1 (4,2)	4 (17,4)	7 (16,7)	
	Yüksekten Düşme	6 (25,0)	3 (13,0)	14 (33,3)	
	Motorsiklet Kazası	3 (12,5)	5 (21,7)	4 (9,5)	
	Ateşli Silah Yaralanması	0 (,0)	0 (,0)	1 (2,4)	
	Aynı Seviyeden Düşme*	12 (50,0)	3 (13,0)	2 (4,8)	
	Diğer	1 (4,2)	1 (4,3)	2 (4,8)	
Travma bölgesi	Kafa	1 (8,3)	1 (4,3)	15 (15,0)	0,764
	Boyun	0 (,0)	0 (,0)	1 (1,0)	
	Yüz	0 (,0)	1 (4,3)	5 (5,0)	
	Toraks	2 (16,7)	7 (30,4)	23 (23,0)	
	Abdomen	2 (16,7)	2 (8,7)	20 (20,0)	
	Üst Ekstremite	3 (25,0)	4 (17,4)	8 (8,0)	
	Alt Ekstremite	1 (8,3)	4 (17,4)	10 (10,0)	
	Vertebral Kolon	3 (25,0)	4 (17,4)	18 (18,0)	
Eşlik eden yaralanmalar[3]	Var	5 (20,8)	6 (26,1)	35 (83,3)	0,000
	Yok	19 (79,2)	17 (73,9)	7 (16,7)	
Eşlik eden yaralanmalar[4]	Kanama*	5 (100,0)	4 (57,1)	35 (87,5)	0,020
	Genitoüriner Sistem Yaralanması*	0 (,0)	3 (42,9)	1 (2,5)	
	Gastrointestinal Sistem Yaralanması	0 (,0)	0 (,0)	2 (5,0)	
	Sinir Sistemi Yaralanması	0 (,0)	0 (,0)	2 (5,0)	
	Anorektal Yaralanma	0 (,0)	0 (,0)	0 (,0)	

[1] Taburcu – Servis Yatış (p=0,001), Taburcu – YB Yatış (p=0,000) ikili grupları arasında istatistiksel olarak anlamlı düzeyde fark var.
[2] Taburcu – Servis Yatış (p=0,022), Taburcu – YB Yatış (p=0,001) ikili grupları arasında istatistiksel olarak anlamlı düzeyde fark var.
** Aynı seviyeden düşme grubu istatistiksel olarak anlamlılığı sağlamaktadır.*
[3] Taburcu – YB Yatış (p=0,000), Servis Yatış – YB Yatış (p=0,000) ikili grupları arasında istatistiksel olarak anlamlı düzeyde fark var.
[4] Servis Yatış – YB Yatış (p=0,005) ikili grupları arasında istatistiksel olarak anlamlı düzeyde fark var.
** Kanama ve genitoüriner sistem yaralanması grupları istatistiksel olarak anlamlılığı sağlamaktadır.*

Tablo II. Hasta Sonlanımına Göre Ek Hastalık Varlığının, Travma Mekanizmasının, Travma Bölgesinin ve Eşlik Eden Yaralanmaların Değerlendirilmesi

	Hasta sonlanımı			p
	Taburcu(n=24)	Servis yatış(n=23)	YB yatış(n=42)	
Kan basıncı sistolik[2, 3]	128,5±23,4	127,3±10,2	107,9±21,8	**0,000**
Kan basıncı diyastolik[2, 3]	80,0 (65,0-150,0)	73,0 (70,0-100,0)	70,0 (40,0-105,0)	**0,000**
Nabız[1, 2, 3]	89,0±11,8	81,2±12,3	103,6±19,7	**0,000**
Solunum sayısı[2, 3]	18,0 (14,0-20,0)	16,0 (14,0-20,0)	20,0 (16,0-36,0)	**0,000**
O2 saturasyonu	98,0 (91,0-99,0)	98,0 (93,0-99,0)	97,0 (86,0-100,0)	0,083
Ateş	36,7 (36,4-36,9)	36,7 (36,3-36,9)	36,6 (36,0-37,0)	0,169
GKS [2, 3]	15,0 (15,0-15,0)	15,0 (15,0-15,0)	15,0 (3,0-15,0)	**0,001**
Hemoglobin	12,2±2,6	12,9±2,2	11,6±3,0	0,165
Hematokrit	37,6±6,4	38,6±6,1	34,5±8,0	0,058
Ph[2, 3]	7,4 (7,3-7,5)	7,4 (7,3-7,5)	7,3 (6,8-7,5)	**0,000**
Laktat[1, 2, 3]	1,3 (,9-2,9)	1,9 (,8-3,3)	3,2 (1,0-12,7)	**0,000**
Baz defisiti[1, 2, 3]	1,9 (-7,7-11,5)	-,9 (-8,8-6,6)	-3,1 (-26,9-3,1)	**0,000**
Protrombin zamanı[1, 2, 3]	11,3 (10,0-13,2)	12,1 (9,8-15,0)	12,7 (10,5-27,4)	**0,000**
Aktive Parsiyel Tromboplastin Zamanı[2, 3]	22,0 (17,5-27,6)	22,3 (15,1-28,0)	24,3 (17,8-100,3)	**0,003**
INR[1, 2, 3]	,9 (,8-1,1)	1,0 (,8-1,3)	1,1 (,8-2,5)	**0,000**
ISS[1, 2, 3]	4,0 (4,0-34,0)	10,0 (4,0-29,0)	25,5 (5,0-57,0)	**0,000**
Yatış süresi (gün) [3]	-	9,0 (1,0-61,0)	20,0 (2,0-137,0)	**0,001**
Yaş[1, 2]	79,0 (19,0-94,0)	48,0 (13,0-81,0)	34,5 (7,0-85,0)	**0,000**
ES kaç ünite (ünite sayısı)	2,0 (2,0-2,0)	2,0 (2,0-2,0)	3,0 (1,0-17,0)	0,651

[1] Taburcu ve servis yatış grupları arasında istatistiksel olarak anlamlı düzeyde fark vardır.
[2] Taburcu ve YB yatış grupları arasında istatistiksel olarak anlamlı düzeyde fark vardır.
[3] Servis yatış ve YB yatış grupları arasında istatistiksel olarak anlamlı düzeyde fark vardır.

Tablo III. Hasta Sonlanımına Göre Klinik ve Laboratuvar Değerlerin Karşılaştırılması

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Pub No: OP-168

A Rare Case: Fistulization Of The Liver Hydatid Cyst With The Skin And The Related Subcutaneous Abscess

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Introduction and Purpose: Hydatid cyst disease is a parasitic infection due to the causative agent of Echinococcus granulosus (1). There are differences between regions in the incidence of the disease in our country and it is widely seen in Eastern Anatolia, Southeastern Anatolia and Central Anatolia regions (2). The most common liver and lungs are affected. Most cysts are asymptomatic and may regress spontaneously. The clinical picture may vary depending on the organ affected by the parasitic infection, the size of the cyst and the interaction of the cyst with neighboring organs (3). In this case report, a rare condition, fistulization of the cyst in the liver with the skin and the resulting subcutaneous abscess were described.

Case: 68 year old male patient was admitted to the emergency department with complaints of pain and redness in the right upper quadrant of the abdomen for 15 days. There was no other disease in his history except benign prostatic hyperplasia and liver hydatid cyst. There was a history of cyst drainage 13 years ago. On examination, there was a palpable mass in the right upper quadrant in the area that fits the liver lodge. Erythema was also seen on the skin. Touching the erythematous area, the patient described pain. At the arrival of the patient; blood pressure 135/86, saturation 95, fever 36.8, pulse 83; was in the form of. In blood tests; CRP: 2.27, WBC: 11.860. The patient underwent liver dynamic contrast CT and abdominal USG. Abdominal ultrasonography findings; supports that the described hydatid cyst extends from the defect in the anterior abdominal wall perforated under the skin. The patient was started intravenously with Meropenem 1 gr 2*1 and Ornidazole 500 mg 3*1. 1.5 cm vertical incision was made in the erythematous area of the right upper quadrant and abscess and cyst drainage was provided. Hypertonic mai and povidone iodine solution were injected into the cyst and washed.

Results and Conclusion: Hydatid cyst is a common disease in our country that causes different complications. In order to prevent complications, hydatid cyst patients need to be followed up frequently.

Keywords: Erythema, Emergency Department, Hydatid cyst

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Image 1:



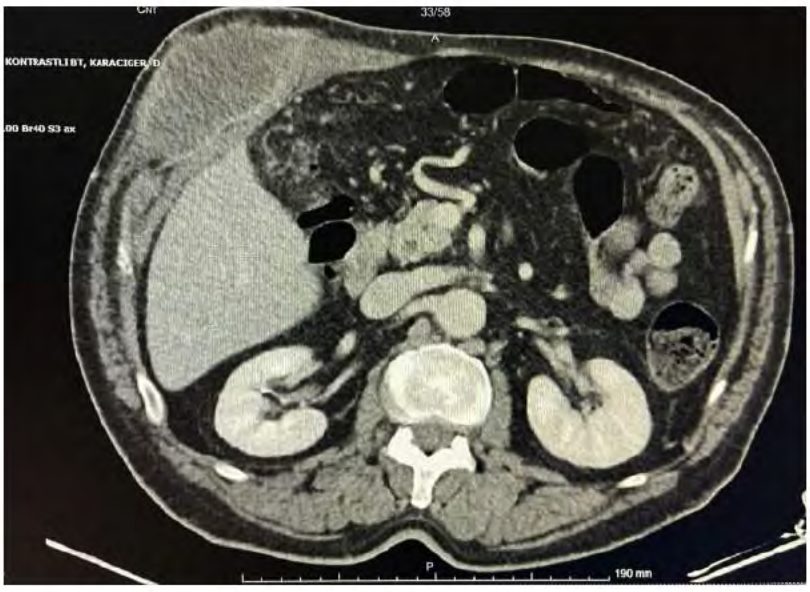
Image 2:



Image 3:



Image 4:



Pub No: OP-171

AN INVESTIGATION OF THE VARIABLES AFFECTING THE EVIDENCE OF HOME RELATED-INJURY IN THE ELDERLY; THE CASE OF TURKEY, LOGIT REGRESSION RESULTS

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1. Introduction

Home-related injuries (HRI) constitute a significant public health issue in both developed and developing nations. (Ferrante et al., 2013). Especially individuals over the age of 65 constitute a high-risk group for home accidents due to their physical, psychological, and social deficiencies. Similarly, issues related to the musculoskeletal system, loss of sensory and motor functions, increase the risk of accidents for elderly individuals(Samanci Tekin & Kara, 2019).

Accidents at home are a significant health problem for the geriatric population, associated with morbidity and mortality. (Altiparmak & Horasan, 2012). 80% of injuries requiring medical care occur at home and two-thirds of these are serious injuries (mainly falls and burns) (Bonnal et al., 2023)

The percentage of elderly individuals in Turkey is steadily rising, approaching the global average. (Umutlu & Tekin Epik, 2019) (TUİK, 2023) To guarantee their safety at home, it is imperative to examine the factors that contribute to the occurrence of household accidents among this demographic. The objective of this research is to investigate the variables that have an impact on such accidents involving elderly people in Turkey.

2. Method

2.1. Data

This study utilizes the microdataset from the 2019 Household Information Technology (IT) Usage Survey conducted by the Turkish Statistical Institute. The Household Information Technology Survey has been conducted since 2004 to collect information on the ownership and use of information and communication technologies by households and individuals. This survey is the primary data source for information regarding the use of these technologies. The data is

obtained through the use of a two-stage clustered sampling method. As a result, the data of 3,595 individuals who participated in the Household Information Technologies Survey in 2019 were analyzed. Data for 2022 will be collected from the system, processed and analyzed, and added to the study in the future.

2.2. Outcome Variables

The dependent variable of the study is the number of HRI resulting in injury in the last 12 months. The participiants were coded "1" if they had an accident during the survey period and "0" if they had not.

2.3. Independent variables

The study will include independent variables that are available from the Household Information Technologies Survey, as well as variables identified through literature research. The variables will be chosen objectively based on their relevance to the research question. The study examined several independent variables, including age, gender, marital status, general health status, and the presence of chronic conditions such as arthritis, urinary incontinence, depression, and alcohol consumption.

Ordinal and nominal variables are defined as binary variables to analyze the impact of all variable categories included within the model.

2.4. Analysis method

SPSS 20 and Stata 15 software were employed to perform data analysis. Frequencies and percentages were calculated for study participant demographics and variables. Logistic regression analysis, a statistical method used to investigate the correlation between the dependent variable and independent variable(s), was utilized to examine the relationship between variables in the study when the dependent variable is dichotomous.

3. Results

3.1. Descriptive Statistics and Crosstabs

The frequencies and percentages of the variables utilized in the study are presented in Table 1. When the table is analyzed, it was determined that 5.8% of women, 6.1% of single people, and 7.6% of people with poor/very poor general health status had a HRI in individuals aged 65 years and over. It was found that 7.3% of individuals with arthrosis, 7.9% of those with urinary incontinence, 8.4% of those with depression, and 3.9% of alcohol users experienced a HRI.

Table 1: Variable related Findings

Variables		Home-related Accident				VIF
		No		Yes		
		n	%	n	%	
Gender	Male	1594	97,6	39	2,4	1,24
	Female	1848	94,2	114	5,8	
Age	60-64	1089	95,8	48	4,2	1,08
	65 and over	2353	95,7	105	4,2	
Marital Status	Married	2419	96,6	86	3,4	
	Single	1023	93,9	67	6,1	1,17
General Health Status	Very good / Good	958	97,9	21	2,1	1,68
	Medium	1529	96,6	54	3,4	1,49
	Poor / Very poor	955	92,4	78	7,6	Ref.
Arthrosis	Yes	860	92,7	68	7,3	
	No	2582	96,8	85	3,2	1,09
Urinary Incontinence	Yes	816	92,1	70	7,9	
	No	2626	96,9	83	3,1	1,11
Depression	Yes	394	91,6	39	8,4	
	No	3048	96,3	117	3,7	1,05
Alcohol use	Yes	294	96,1	12	3,9	
	No	3148	95,7	141	4,3	1,10

3.2. Model Prediction

The results of the analysis of the factors associated with home accidents among the elderly persons in the study are presented in Table 2. In the estimated model, variables such as gender, age, general health status, arthrosis, urinary incontinence, depression, and alcohol use were found to have an effect on the likelihood of experiencing a home accident.

Table 2:Estimated model and marginal effects

Variables	Home-related Accident			
	β	S.E	M.E	S.E
Gender (reference category: Male)				
Female	0,459 [c]	0,229	0,442 [c]	0,222
Age (reference category: 60-64)				
65 and over	-0,393[c]	0,216	-0,376[c]	0,206
Marital status (reference category: Single)				
Married	-0,393[c]	0,196	-0,321[c]	0,188
General health status (reference category: Poor/ Very poor				
Very good/Good 1	-0,800[a]	0,301	-0,768[a]	0,290
Medium 2	-0,664[a]	0,207	-0,636[a]	0,198
Arthrosis(reference category: No)				
Yes	0,710[a]	0,192	0,679[a]	0,183
Urinary Incontinance (reference category: No)				
Yes	0,691[a]	0,210	0,662 [a]	0,201
Depression(reference category: No)				
Yes	0,543[b]	0,220	0,519 [b]	0,208
Alcohol(reference category: No)				
Yes	0,629[c]	0,349	0,597 [c]	0,327
Constant value	-3,241[a]	0,340		

[a]p<.01; [b]p<.05; [c]p<.10

Older women were 44.2% more likely to have a home accident when analyzing Table 2. Individuals aged over 65 were 37.6% less likely to experience a home-related accident than those aged 60 to 64. Married individuals assessed in the study had a 32.1% lower likelihood of experiencing a HRI. Those with very good/good general health status were 76.8% and 63.6%

less likely to have a HRI than those with very bad/poor general health status, respectively. Elderly individuals with arthrosis had a 67.9% higher likelihood of experiencing domestic accidents compared to those without arthrosis. The probability of having a home accident was found to be 66.2% higher in the elderly with urinary incontinence compared to those without urinary incontinence. Elderly people who were depressed were 51.9% more likely to fall compared to those without depression. Compared to non-drinkers, older adults who consume alcohol are 59.7% more likely to have a home accident.

4. Discussion

Conditions that increase injury at home are reported as advanced age, economic difficulties, obesity, comorbidity.(Bonnal et al., 2023). Risk factors for falls include advanced age, a history of falls, muscle weakness, gait and balance problems, poor vision, and chronic medical conditions such as arthritis, diabetes, stroke, Parkinson's disease, dementia, and incontinence (Hopewell et al., 2018). 10-38% of falls among community-dwelling older adults result in non-fatal injury, hospitalization, disability or loss of independence (Bergen et al., 2016; Morrison et al., 2012; Tinetti et al., 1988).

In this study, we analyzed data from 3,595 individuals who took part in the 2019 Household Information Technology Usage Survey conducted by the Turkish Statistical Institute. The study used binary logistic regression analysis to investigate the factors influencing elderly people living in Turkey who had a home-related injury. According to the analysis results, age, gender, marital status, general health status, urinary incontinence, arthrosis, depression, and alcohol consumption were associated with injuries. We found that home-related injuries were more prevalent among females and less frequent among individuals over the age of 65. However, a recent study by Torun et al. examining risk factors for fall prevention in the elderly concluded that these two variables were not significant (Torun et al., 2023).

5. Conclusion

Older adults may also be exposed to trauma from home-related accidents. Trauma in older adults is associated with high morbidity and mortality. Therefore, risk factors should be assessed, preventive measures taken, and warnings given by primary care workers and health care providers.

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Pub No: OP-172

Contralateral SAH

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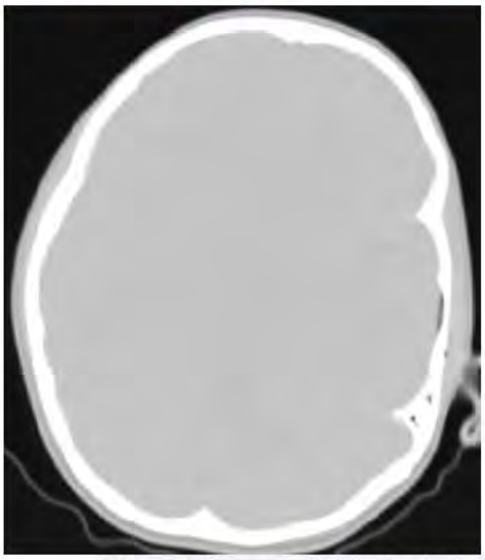
Introduction: Subarachnoid hemorrhage is the bleeding that occurs within the subarachnoid space, the area between the arachnoid membrane and the pia mater that envelops the brain. It can result from trauma or occur spontaneously. Most subarachnoid hemorrhages are caused by head injuries, often in proximity to a skull fracture or intracerebral bleeding. Patients may present with sudden onset of severe headache, nausea, vomiting, decreased level of consciousness, fever, and seizures. Patients often describe the headache as the most intense they have ever experienced. Physical examination might reveal anisocoria, neck stiffness, and motor deficits in the extremities. Risk factors include trauma, hypertension, tobacco and product use, family history, alcohol abuse, and cocaine use. The gold standard for diagnosis is computed tomography (CT), although after 6 hours, magnetic resonance imaging (MRI) becomes more sensitive. Treatment involves neurosurgical or endovascular interventions.

Case: An 8-year-old male patient was brought to the emergency department with complaints of severe headache and vomiting following a bicycle accident. Vital signs were stable, and the Glasgow Coma Scale (GCS) score was 15. The patient reported losing balance while riding a bicycle at a moderate speed and hitting the left side of his head. Physical examination revealed tenderness and swelling in the left temporal bone and neck stiffness. The patient was actively vomiting. Considering traumatic subarachnoid hemorrhage, intracerebral bleeding, epidural-subdural hemorrhage, temporal bone fracture, pneumocephalus, and cerebral contusion, a brain CT scan, hemogram, blood type, and bleeding parameters were ordered. Radiological imaging showed a nondisplaced fracture in the left temporal bone, pneumocephalus in the left temporoparietal region, and subarachnoid hemorrhage in the right parietal region. The patient was transferred to the neurosurgery clinic for follow-up and treatment.

Result: While traumatic subarachnoid hemorrhage is often expected near a skull fracture, the possibility of a contralateral effect on the opposite side of the skull should also be considered.

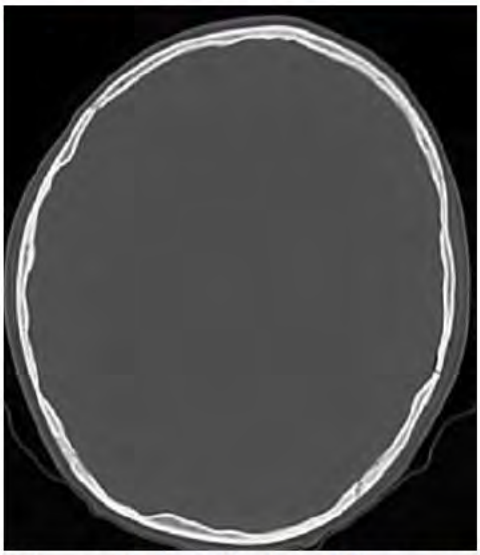
Keywords: subarachnoid hemorrhage, temporal bone fracture, pneumocephalus, contralateral hematoma



"Figure 1: Pneumocephalus in the left temporal region."



"Figure 2: Subarachnoid hemorrhage in the right parietal region."



"Figure 3: Nondisplaced fracture in the left temporal bone."

Pub No: OP-173

A Case Of Patient With Delayed Diagnosis of Testicular Rupture Due to Blunt Trauma

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Introduction

Testicular rupture is a cause of morbidity that negatively affects fertility and the patient's social life. It is one of the important urological emergencies that may occur as a result of blunt or penetrating scrotal trauma (İşbir vd., 2015). It is mostly seen in the adolescent and young adult population. As a result of testicular trauma, the testis is painful, ecchymotic and edematous, making it difficult to diagnose testicular rupture from other acute testicular pathologies (Holiday vd., 2017).

Case Presentation

A 23-year-old male patient, who had testicular trauma due to a fall late at night, did not apply to the emergency service because he thought that the pain would go away during the night; He presented to our emergency department with sudden swelling, redness and severe pain that started in the morning. Physical examination revealed that the right testis was edematous, painful and ecchymotic. The cremaster reflex of the patient, whose testicular pain was not relieved by elevation, was normal. Vital signs of the patient were blood pressure arterial (TA): 120/80mm/Hg, pulse (pulse):70/m, oxygen saturation (SPO_2):98%, fever:36.5°C. Our preliminary diagnoses were orchitis/epididymitis, testicular torsion, hematoma and testicular rupture. No pathological condition was detected in the whole blood, biochemistry and urine tests. Scrotal color Doppler ultrasonography (USG) was planned for our patient for further examination. Compatible with testicular rupture in scrotal color Doppler USG; It was reported that the size of the right testicle had increased, herniated testicular tissue with a diameter of approximately 2 cm was observed in the upper pole of the right testicle, and no blood supply was observed in the herniated testicular tissue. As a result, our patient was consulted to urology and underwent emergency surgery with the diagnosis of testicular rupture.

Conclusion

If the diagnosis and treatment of testicular rupture is delayed, it can cause conditions such as testicular atrophy, infertility and gonadal insufficiency and may result in loss of the testicle (Deurdulian vd., 2007) For this reason, testicular examination should be done carefully in blunt traumas of the genital area and further examinations should not be avoided when necessary(Munter vd., 1989).

Keywords: Testicular Rupture, Testicular Trauma, Urology.

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Pub No: OP-178

The Utility of Biochemical Markers In The Prognosis of Acute Pulmonary Embolism

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ABSTRACT

Introduction: Pulmonary embolism (PE) is a disease frequently diagnosed in the emergency department. The most commonly used method for diagnosis is computed tomography and pulmonary angiography (CTPA). Pulmonary embolism is the first diagnosis considered in the emergency department in patients with a positive D-dimer test. In our study, we aimed to evaluate the effectiveness of other biochemical markers on diagnostic, mortality and hospitality duration in patients diagnosed with pulmonary embolism.

Material and Method: Our study is a retrospective, cross-sectional study. The population of the study was created by patients who were admitted to a 3rd level emergency department between 01.01.2023 and 01.06.2023 and underwent CTPA with suspicion of pulmonary embolism. 30 patients were included in the study. While evaluating the findings obtained in the study, IBM SPSS Statistics 22 (IBM SPSS, USA) program was used for statistical analysis. Mann Whitney U test was used to compare demographic data, mean, standard deviation, median and quantitative data of parameters for data that did not comply with normal distribution. Correlation analysis was performed between biochemical markers of patients diagnosed with pulmonary embolism.

Results: The average age of the patients was 71.1± 15.8 years. 18(60%) of the patients were women. The hospital stay of pulmonary embolism patients was 7.3±3.8 days. 16(53.3%) of the patients included in the study had high-risk pulmonary embolism. When laboratory values of patients diagnosed with PE included in the study were examined, hemoglobin was 12.5±2.4, hematocrit was 37.8±7.15, Ph was 7.42±0.63, SO_2 was 70.1±24.7, PCO_2 was 37±6.9, PO_2 was 51.6±26.4, lactate was 2±0.98, d-dimer was 4622.8±3083.23, CRP was 43.03±5.7. Chi-Square Test was performed between high-risk pulmonary embolism and low-risk embolism patient groups and gender, $p=0.471$ and no significant difference was detected. A strong negative correlation was detected between pH and lactate ($p<0.001$). A positive correlation was detected between lactate and length of stay $p<0.013$ was detected. A positive correlation was detected between length of stay and age ($p<0.041$)

Conclusion: In our study, it was found that advanced age and high lactate value were positively associated with the duration of hospital stay in PE patients, and it was shown that clinicians can use the lactate value as a predictor.

INTRODUCTION

Pulmonary embolism (PE) is a disease frequently diagnosed in the emergency department (1). The way of admission to the hospital may be pleuritic chest pain and shortness of breath, or less likely, complaints such as syncope and hemoptysis (2). The most commonly used method for diagnosis is computed tomography and pulmonary angiography (CTPA). It is especially used in high-risk patients or intermediate-risk patients with a positive D-dimer test (3). In our study, we aimed to evaluate the effectiveness of other biochemical markers on diagnostic, mortality and hospitality duration in patients diagnosed with pulmonary embolism.

MATERIAL AND METHOD

Study Desing: Our study is a retrospective, cross-sectional study. The population of the study was created by patients who were admitted to a 3rd level emergency department between 01.01.2023 and 01.06.2023 and underwent CTPA with suspicion of pulmonary embolism.

Patient Selection: Patients who were older than 18 years of age, who applied to the emergency department and who underwent CTPA with suspicion of pulmonary embolism and were diagnosed with pulmonary embolism were included in the study. Patients were divided into two groups: patients diagnosed with high-risk pulmonary embolism and low-risk pulmonary embolism. The definitive diagnosis was made according to the CTPA result. Patients who were younger than 18 years of age, who could not investigation of CTPA or could not be imaged in the hospital system, who had additional diseases that would predispose them to coagulation parameters, and whose laboratory parameters or demographic data included in the study could not be obtained, were excluded from the study.

Data Collection: Demographic data of the patients, such as age and gender, hemoglobin (Hb), hematocrit (Hct), pH, Oxygen saturation (SO_2), Partial carbon dioxide pressure (PCO_2), Partial oxygen pressure (PO_2), C-ractive protein (CRP), lactate and d-dimer data were recorded from the database of the hospital. Afterwards, the data of the patients' CTPA images were recorded. The aim is to investigate the relationship between PE and other laboratory parameters in patients with pulmonary embolism who underwent CTPA with the diagnosis of pulmonary embolism.

Statistical Analysis: While evaluating the findings obtained in the study, IBM SPSS Statistics 22 (IBM SPSS, USA) program was used for statistical analysis.

While evaluating the study data, the suitability of the parameters to normal distribution was calculated with the Shapiro Wilks test. Descriptive data were calculated (Mean, Standard deviation, Median and interquartile ranges, Frequency). Mann Whitney U test was performed to compare the quantitative data of the parameters and for data that did not comply with normal distribution. Correlation analysis was performed between biochemical markers of patients diagnosed with pulmonary embolism. Chi-square test was used to compare qualitative data and a significance level of $p<0.05$ was considered significant.

RESULTS

36 patients were initially accepted into the study. 4 of these patients who their imaging reports could not be obtained, 1 of these patients who the laboratory values could not be obtained completely, and 1 of these patients who had a hematological malignancy were excluded from the study.

After these patients were excluded, 30 patients were included in the study. The average age of the patients was 71.1± 15.8 years. 18(60%) of the patients were women. The hospitality duration for pulmonary embolism patients was 7.3±3.8 days. 16(53.3%) of the patients included in the study had high-risk pulmonary embolism. The demographic characteristics and imaging findings of the patients included in the study are summarized in Table 1. The demographic data and laboratory values of patients diagnosed with pulmonary embolism were hemoglobin:12.5±2.4, hematocrit:37.8±7.15, Ph:7.42±0.63, SO_2:70.1±24.7, PCO_2:37±6, 9, PO_2:51.6±26.4, lactate:2±0.98, d-dimer:4622.8±3083.23, CRP:43.03±5.7. Chi-Square Test was performed between high-risk pulmonary embolism and low-risk embolism patient groups and gender, $p=0.471$ and no significant difference was detected. A strong negative correlation was detected between pH and lactate ($p<0.001$). A positive correlation was detected between lactate and length of stay was detected ($p<0.013$). A positive correlation was detected between length of stay and age ($p<0.041$). The correlation results are shown in Table 1.

Table 1: The results of the correlation analysis

		Duration of Hospitality	Ph	SO_2	PO_2	PCO_2	Age
pH	Pearson Correlation	-0,153	1	,668**	,557**	-,472*	0,003
	Sig. (2-tailed)	0,464		0,001	0,004	0,017	0,991
	N	25	25	25	25	25	25
PCO_2	Pearson Correlation	-0,058	-,472*	-0,324	-0,297	1	0,125
	Sig. (2-tailed)	0,783	0,017	0,114	0,15		0,551
	N	25	25	25	25	25	25
Lactate	Pearson Correlation	,556*	-,733**	-,498*	-0,314	0,069	0,278
	Sig. (2-tailed)	0,013	0,001	0,03	0,191	0,779	0,25
	N	19	19	19	19	19	19
Age	Pearson Correlation	,375*	0,003	-0,182	-0,169	0,125	1
	Sig. (2-tailed)	0,041	0,991	0,384	0,419	0,551	
	N	30	25	25	25	25	30

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

Pulmonary embolism is an important disease that should be considered in the differential diagnosis in patients presenting to the emergency department. The management of these patients is a very important process in terms of diagnosis and treatment, and the most important point in the initial approach is to exclude serious and life-threatening causes and reduce mortality. Incorrect and late diagnosis of pulmonary embolism causes mortality and morbidity. Pulmonary embolism is a clinical condition that can be defined when electrocardiographic, clinical, radiological imaging, biochemical and pathological features are evaluated together (4).

In one study, it was found that pulmonary thromboembolism was more common in women, although not statistically significant, and was more common in the older age group. In our study, it was found that there were more women in the patient group diagnosed with thromboembolism and the average age of all patients was consistent with the literature (5).

In a previous study by Simone Vanni et al., it was observed that high plasma lactate values were associated with increased in-hospital mortality in patients with acute pulmonary embolism (6). In our study, which is consistent with the literature, no deaths were observed in our patients, but a significant relationship was detected between the duration of hospital stay and lactate. Plasma lactate concentration is a marker showing the severity of tissue oxygen supply-demand imbalance, and we think that it increases in cases of embolism because tissue oxygenation is impaired.

Otherhand, we detected a significant relationship between lactate and Ph. Studies have shown that there is a significant relationship between low pH value and length of stay in intensive care unit and mortality (7).

Mortality in PE patients has not been determined. Therefore, the relationship between blood parameters and mortality could not be determined. We think that the reason for this is that our sample size is small in number. We found a significant relationship with the duration of hospitalization in the older age group. We believe that in the older age group, the presence of additional complications and comorbidities in the medical history increases the length of stay.

CONCLUSION

In our study, it was found that advanced age and high lactate value were positively associated with the duration of hospital stay in PE patients, and it was shown that clinicians can use the lactate value as a predictor.

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SERUM MAGNESIUM AND INTRA-ERYTHROCYTE MAGNESIUM LEVELS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTUS

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SUMMARY

Introduction: In this study, we intended to commentate on whether serum-Magnesium (S-Mg') and intra-erythrocytic-Magnesium (Ie-Mg'*) levels are a risk factor for acute myocardial infarction in patients diagnosed with acute myocardial infarction (AMI).

Materials and Methods: The study included 57 (44 Male, 13 Female) patients with acute myocardial infarction and 35 control cases (23 Male, 12 Female) who did not have any coronary artery disease and did not use any medication affecting Magnesium (Mg) levels. Blood samples were taken from the patients included in the study and the individuals in the control group to measure S-Mg and Ie-Mg levels. In addition, high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), very low-density lipoprotein cholesterol (VLDL-C), and total cholesterol (Total-C) levels of both the patient and control groups were measured. The patient and control groups were compared in terms of serum and intra-erythrocytic Mg levels. Besides, it was also examined whether there was a statistical correlation between the S-Mg' and Ie-Mg" levels of the patient and control groups and age, gender, and smoking.

Findings: While S-Mg* levels were found to be significantly lower in the patient group with acute myocardial infarction, no significant difference was found between the patient and control groups in terms of Ie-Mg levels. This shows us that Mg decreases in the extracellular space in the acute phase of infarction and may be a risk factor for coronary artery disease. Additionally, we did not find any relationship between age and smoking and S-Mg' and Ie-Mg" levels in the patient group.

As a result, we can propound that serum magnesium level is low in patients with AMI. Therefore, we think that using Mg* therapy after infarction may benefit these patients due to the cardioprotective properties of Mg. Within the difficulties of measuring intra-erythrocytic-Magnesium levels and because of the cost-effectivity, also there is no statistical difference between patient and control groups, it would be enough measuring of serum Mg levels to evaluate this subject.

Keywords: Acute myocardial infarction, serum-Magnesium, intra-erythrocyte-Magnesium

INTRODUCTION

Acute myocardial infarction (AMI) is one of the diseases frequently observed in industrial countries. Approximately 1,500,000 myocardial infarctions are diagnosed each year in the United States. Myocardial infarction is responsible for 1/ Mortality in AMI reaching 9635 within the first hour following the infarction (1).4 of all deaths worldwide.

Coronary artery disease occurs for variable reasons and there are many risk factors predisposed to this situation. The main roles of these risk factors are; age, family history,

smoking, hypertension (HT), hypercholesterolemia, low high-density lipoprotein-cholesterol (LDL-C) level, and diabetes mellitus (DM) (2-6).
Magnesium (Mg) is an important element in the physiology of the cardiovascular system and in the pathogenesis of cardiovascular diseases. Therefore, the relationship between CAD and Mg has been investigated for more than 30 years. There is a negative correlation between the ratio of Mg in drinking water and the frequency of coronary events, and it has been reported that high serum Mg levels help reduce coronary events (4, 5, 7).
The therapeutic efficacy of magnesium has been scrutinized in many cardiovascular diseases. These diseases are supraventricular and ventricular arrhythmias (multifocal atrial tachycardia, polymorphic ventricular tachycardia, continuous ventricular tachycardia), AMI, congestive heart failure (CHF), and hypertension. Recently, there has been consensus that the lack of Mg amount in the diet is an important risk factor for HT, cardiac arrhythmia, CAD, atherosclerosis, and sudden cardiac death. Deficiency in serum Mg amount; is often associated with arrhythmia, coronary vasospasm, ischemic heart disease, high blood pressure, and sudden cardiac death. In cardiology, it has been proven that Mg contributes to the prevention of heart rhythm changes and AMI, protection, and treatment during open heart surgery. The point that all the authors agree on is that magnesium has an important role in both the prevention and treatment of cardiovascular diseases (8-10).
In this study, we investigated whether these levels are a risk factor for CAD by measuring serum and intraerythrocytic Mg levels in the acute phase after infarction in patients with AMI.

MATERIALS AND METHODS

The study was carried out between October 2000 and September 2001 at Cumhuriyet University Faculty of Medicine, Research and Application Hospital, Department of Emergency Service. A total of 57 patients, 44 men and 13 women, aged between 38-86 (mean age 58.7311.52 years) diagnosed with AMI in the emergency department were included in the study, while the control group consisted of a total of 35 individuals, 23 men and 14 women, aged between 30-77 years (mean age 57.8241.66).
In the study, patients who applied to the emergency department with chest pain and were diagnosed with AMI with a pain onset time of less than 6 hours were examined. As a control group, individuals who applied to the emergency department solely did not have any disease history or drug use affected magnesium levels and could not detect a coronary event as a result of the examinations and tests were included. In addition, the control group and the patient group were matched for age and gender. Individuals in the patient and control groups were divided into 2 groups; smokers and non-smokers. Non-smokers for the last 5 years were included in the non-smokers group.
Diagnoses of Acute Myocardial Infarction:
Detailed anamnesis was taken from the patients who presented to the emergency department with chest pain. Blood samples were taken for routine biochemical and cardiac investigations. Electrocardiographic imaging was performed with the Nihon Kohden EKG device. Patients with typical chest pain, cardiac enzyme (CK, CK-MB, Troponin-T) elevation, and typical ST elevation in ECG (1 mm for extremity leads, 2 mm for chest leads in at least two leads of the localization indicating infarction) are considered as AMI.

Measuring Magnesium and Cholesterol Levels:

Serum Mg levels were determined with the IL Test Magnesium kit on the ILab 900/1800 device, using the Bichromatic analysis method. Serum cholesterol levels were determined with IL Test MHDL Cholesterol, IL Test Cholesterol and IL Test LDL Cholesterol kits and TILab 900/1800 device using the Bichromatic analysis method. Intraerythrocytic Mg levels were determined with the Perkin Elmer AANALYST 100 Atomic Absorption Spectrophotometer system.

Statistical Analysis

The data obtained from our study were evaluated by using SPSS (Ver 7.5) computer program, the Man-Whitney U test, correlation analysis, and the Chi-square test. The approval of the Cumhuriyet University Faculty of Medicine Ethics Committee was obtained for this study.

FINDINGS

The mean age of the individuals in the control group included in the study was 57.82±16.6, and the mean age of the individuals in the patient group was 58.73±15.2. There was no significant difference between the groups in terms of age ($p>0.05$). Of the 35 individuals in the control group, 23 (65.7%) were male and 12 (34.3%) were female, 44 (77.2%) of the 57 individuals in the patient group were male and 13 (22.8%) were female. There was no significant difference between the control and patient groups in terms of gender ($p>0.05$), (Table 1).

	AMI	CONTROL
n(%)	57(%62)	35(%38)
Gender (M/F)	44/13	23/12
Age	58.73±15,2	57.82±16,6
S-Mg^{III}	2,09±0,03*	2,51±0,14
Ie-Mg^{II}	4,49±0,07	4,28±0,13
Total C	191,43±6,73*	165,22±7,47
HDL-C	37,21±1,22	39,77±2,45
LDL-C	125,07±5,70*	95,48±6,77
VLDL-C	29,75±3,87	28,85±2,65
Smoker/Non-Smoker	44/13	23/12

Table 1: General Table Comparing All Characteristics of Individuals in the Control and Patient Groups

*P<0.05 & control

S-Mg^{III}: Serum magnesium

Ie-Mg^{II}: Intraerythrocytic magnesium

Total C: Total cholesterol

HDL-C: High-density lipoprotein cholesterol

LDL-C: Low-density lipoprotein cholesterol

VLDL-C: Very Low-density lipoprotein cholesterol

When the S-Mg^{III} and Ie-Mg^{II} values of the individuals in the control and patient groups were compared, no difference was found between the Ie-Mg^{II} values ($p>0.05$), while the difference between the S-Mg^{III} values was statistically significant ($p<0.05$), (Table 2).

Groups	S-Mg^{III}(mg/dL)	Ie-Mg^{II}/ mg/dL)
Control	2,51±0,14	4,28±0,13
AMI	2,09±0,03	4,49±0,07
	T=0,16 p<0,05	T=1, 42 p<0,05

Table 2: S-Mg^{III} and Ie-Mg^{II} Levels in the Control and the Patient Groups

When the S-Mg^{III} and Ie-Mg^{II} values of the individuals in the patient and control groups were compared in terms of smokers and non-smokers, it was observed that the difference was not significant ($p>0.05$).

DISCUSSION

Coronary artery diseases and their major clinical syndromes, AMI, angina pectoris, and sudden cardiac death, are the major causes of morbidity and mortality. In the last 30 years, many risk factors related to coronary artery diseases have been defined and exposed. Age, hypercholesterolemia, family history, HT, DM, smoking, and low HDL-C level are at the top of the list (2-6).

Recent studies have shown an inverse correlation between water hardness and cardiovascular mortality (4, 6, 7). In the current studies, a new relation has been found that rareearth elements in our body may have a possible role in the pathogenesis of CAD. Some researchers have shown that Mg, one of these trace elements, has cardioprotective effects (4,6, 11).

It is not surprising that Mg deficiency is associated with arrhythmia, coronary artery spasms, and ischemic heart disease. While a decrease in serum-Mg and intraerythrocytic Mg concentrations has been shown in some studies in patients with AMI, there are also studies pointing out that serum-Mg values were normal (11).

The internal elastic membrane plays an important role in maintaining the elasticity of the coronary arteries. Mg is an element that is needed as a cofactor for the formation of this membrane in the body. The elasticity of the coronary arteries is more important than the other arteries for proper nutrition of the heart. This elasticity allows the perfusion of the heart to be better. Since the elasticity of the coronary arteries will be impaired in magnesium deficiency, deterioration of coronary perfusion can be expected. Due to the endothelial protective properties of magnesium, endothelial integrity is impaired in hypomagnesemia. In atherosclerosis, after the endothelial damage caused by Mg deficiency, Ca" deposits tend to accumulate in the areas where the collagen structure is present. Therefore, atheroma plaques become calcified (11, 12). Atherosclerosis is negatively affected by the LDL-C/HDL-C ratio, and this ratio is thought to be provoked by hypomagnesemia. Dietary Mg supplementation does not cause a direct decrease in cholesterol levels, but it plays an important role in maintaining the elasticity of the vascular structure and increasing the amount of HDL-C. This reduces the LDL-C/HDL-C ratio and reduces the risk of a possible infarction. In addition, Mg prevents the accumulation of Ca in the micro-injury areas formed on the arterial wall (12). In

light of the results obtained from many studies on laboratory animals, it has been shown that there is an interaction between Mg“ and lipid metabolism. In short-term severe Mg” deficiency, there were differences in Total-C levels at different levels, while significant increases in Total-C levels were recorded in long-term Mg” deficiency. Besides, Mg” deficiency affects the fatty acid composition of plasma lipids. In Mg” deficiency, there is an increase in catecholamine release, so it is a potential situation that Mg” deficiency increases stress. Increased catecholamine secretion increases lipolysis. As a result of increased lipolysis, free fatty acid levels increase and these free fatty acids are saponified with Mg, thereby reducing serum-Mg levels (11-14).

Since we found S-Mg levels to be significantly lower in the patient group with AMI, our study also supports these findings. Additionally, we determined the Total-C and LDL-C levels were significantly higher in the AMI group. However, the point that needs to be clarified is that it is not known whether the S-Mg" levels of patients who had AMI decreased during the infarction or whether the hypomagnesemia that was already present before the infarction deepened further. Because both hypomagnesemia itself causes an increase in catecholamines, and there is an increase in catecholamines due to stress during infarction. (13-14), This situation can only be explained by screening the pre-infarction S-Mg levels of patients with infarction. But this seems practically impossible.

Due to the cessation of aerobic metabolism during ischemia, intracellular ATP begins to be consumed. Since most of the intracellular ATP is in the form of Mg” salt, it has been reported that the amount of intracellular Mg decreases during infarction (14).

Hypomagnesemia in patients with acute myocardial infarction may be transient and serum-Mg”” concentration may return to normal during hospitalization. Rasmussen et al. (15) found that the low serum-Mg and intraerythrocytic-Mg* levels in patients with AMI were lower at the beginning of the infarction compared to the later control levels. It is reported that serum Mg levels stepwise return to normal levels in an average of 12 days following the onset of infarction. This is probably due to the unilateral extracellular extravasation of Mg in hypoxic situations (15).

Artificial AMI was created by the coronary artery ligation method and it was observed that Mg migrated out of the ischemic area. During this ligation, the passage of Mg from the coronary sinus to the blood increased and the Mg content of the necrotic area decreased by 23-31% within the first hour after coronary artery ligation (15, 16).

Transient hypomagnesemia in patients with acute myocardial infarction may be due to the migration of Mg from the extracellular region to the intracellular space. At the same time, it has been suggested that this hypomagnesemia may be due to plasma expansion in the post-infarction period with a simple dilution effect (15).

Rasmussen et al. investigated serum-Mg'” concentration and urinary and Mg” excretion amount in 13 patients with AMI. In the first 32 hours, they found lower serum-Mg”* concentrations in the AMI group compared to the control group. They did not find the urinary Mg excretion amount to be significantly different compared to the control group (15).

Our study is in agreement with the study of Rasmussen et al.

Tsutsui et al. evaluated serum-Mg” and intraerythrocytic-Mg” levels in 49 patients with transmural AMI. They found both serum and intraerythrocytic-Mg levels to be low in the acute phase of infarction. Intraerythrocytic-Mg levels returned to normal in 28 days, while serum-Mg” levels returned to normal earlier (17). Bogdan et al. evaluated serum and intraerythrocytic-Mg levels in 72 patients with transmural AMI. They found low serum and

intraerythrocytic-Mg" levels on the first and third days. On the 14th day, they reached completely normal values (18).
Pereira et al. evaluated serum and intraerythrocytic-Mg levels in 29 patients with AMI. They found serum-Mg and intraerythrocytic-Mg levels to be low at the beginning of the infarction (6).
The decreased serum-Mg' concentrations of these 3 studies (6, 17,18) show a correlation with our study. However, intraerythrocytic-Mg levels are inconsistent with our study.
As a result, in our study, while Ie-Mg levels in patients with AMI did not differ significantly compared to control cases, S-Mg levels were found to be significantly lower. Therefore, the measurement of S-Mg levels in patients with AMI will guide us further in terms of being both technically easy and cost-effective.

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Pub No: OP-180

Examination of Patients Over 65 Years Admitted to Emergency Department of University Hospital

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Introduction and Purpose: In this study, retrospective admitted of patients over the age of 65 who applied to the emergency service or those who were admitted to the intensive care unit were examined.

Materials and Methods: The patients over the age of 65 who applied to emergency service between 01 April 2020 - 10 July 2020 were retrospectively examined. Patients' vital signs, physical examination findings, complaints of admission to the emergency department, preliminary and final diagnosis in the emergency department, the service or intensive care unit, the length of stay in the service and intensive care unit, discharge or death status in the service or intensive care unit, additional diseases, number of admitted, desired consultations, radiological examinations and laboratory values were examined.

Results and Conclusion: In this study, it was determined that 31.16% of all patients over 65 years of age who applied to the emergency department were hospitalized. It was observed that 301 (44.9%) of the patients were hospitalized in intensive care units. The mean hospital stay of the patients was 9 days. 16.9% of all patients died in the unit they were admitted to and the rest were discharged. It was determined that the department with the most hospitalizations was cardiology. It was observed that the patients in our study applied to the emergency department most frequently with the complaint of shortness of breath (18.2%). While the department with the highest number of deaths numerically was the covid service, the department with the highest number of deaths proportionally was medical oncology. It was found that the deceased patients were significantly hypotensive and tachycardic compared to the discharged patients. BUN, creatinine, total bilirubin, direct bilirubin, AST, ALT, ALP, GGT, LDH, neutrophil, lymphocyte, INR, APTT, CRP values and neutrophil/lymphocyte ratio of the patients were significantly higher than the patients who were discharged. The protein, albumin, calcium and hemoglobin values of the patients who died in the hospital were significantly lower than the patients who were discharged. It has been determined that blood tests and imaging methods of geriatric patients have been studied intensively and it is very important to evaluate them well.

Keywords: Covid, Emergency, Geriatrics, Intensive care, Mortality

Introduction

According to data from the Turkish Statistical Institute (TurkStat), the population aged 65 and over, which is considered as the elderly population, increased by 24.0% in the last five years from 6 million 651 thousand 503 people in 2016 to 8 million 245 thousand 124 people in 2021. The proportion of the elderly population in the total population increased from 8.3% in 2016 to 9.7% in 2021. According to population projections, the proportion of elderly population is expected to be 11.0% in 2025, 12.9% in 2030, 16.3% in 2040, 22.6% in 2060 and 25.6% in 2080 (1).

The share of the elderly population in the total population in the world and in Turkey is increasing day by day. It is estimated that this number will double in the next 20 years and Turkey will be the most populous country in Europe in terms of elderly population in 2050 (2). This growing geriatric population will be a serious source of problems in terms of increasing healthcare needs and emergency department visits; in fact, emergency departments for geriatric patients have started to be established and it is thought that their number will gradually increase (3). Emergency departments have a very important position in terms of the services provided to geriatric patients (4). The geriatric patient presenting to the emergency department is not only intervened by the emergency department staff regarding his/her condition, but also decisions are made regarding the use of expensive inpatient treatment methods or cheaper outpatient treatments (5,6). The percentage of emergency department admissions of patients over 65 years of age is estimated to be 18% of all admissions (7). One study shows that geriatric patients constitute 43% of the admissions to other wards and 48% of the patients admitted to intensive care units (8,9). The length of stay of geriatric patients in emergency departments is 20% longer and 50% more laboratory and imaging methods are used compared to younger patients (10,11). Geriatric emergency department patients are 400% more likely to need social services, but despite these conditions, they are often not satisfied with emergency department services (12,13,14).

In this study, the retrospective applications of patients over 65 years of age who were admitted to the emergency department and admitted to the ward or intensive care unit were examined and the complaints of admission, frequency of admission, examinations performed in the emergency department, imaging methods, preliminary diagnoses, hospitalization rates,

the departments with the highest number of admissions, final diagnoses, discharge and mortality status of the patient and the relationships between these parameters were evaluated. With the results of this study, it is aimed to increase the level of knowledge of emergency service staff and to help patients over the age of 65 who apply to the emergency service to deal with their diseases correctly and appropriately. In addition, as a result of this study, it is thought that the relationships to be found between some parameters in the data of the patients can make a serious contribution to science.

Materials and Methods

Ethics committee approval for this study was obtained from Inonu University Scientific Research and Publication Ethics Committee with protocol number 2021/1316. In this study, patients over the age of 65 years who applied to the Department of Emergency Medicine of Inonu University Faculty of Medicine Turgut Özal Medical Center between April 01, 2020 and July 10, 2020 were retrospectively examined. Geriatric patients over 65 years of age who were admitted to the emergency department and hospitalized from the emergency department to other departments or intensive care units were included in our study. Patients under 65 years of age who applied to the emergency department, patients over 65 years of age who were discharged from the emergency department, and patients over 65 years of age who were hospitalized but left the emergency department voluntarily were not included in the study.

The hospital health information management system was used to identify admissions. After the patient applications were identified, the medical records of the patients were examined. A patient follow-up form was created for the patients included in the study. The data of the patients recorded on this form were transferred to the Microsoft Office Excel® program. In the medical records of the patient applications, the file number, application number, name-surname, vital signs (temperature, pulse rate, respiratory rate, systolic and diastolic blood pressures, saturation values), physical examination findings, complaints at the emergency department, preliminary and final diagnoses in the emergency department, hospitalized ward or intensive care unit, length of stay in the wards and intensive care units, discharge or death status in the wards and intensive care units, comorbidities, number of admissions, number of consultations requested, radiological examinations performed, laboratory tests performed [(White Blood Cell (WBC), hemoglobin (HGB), hematocrit (HCT), mean cellular volume (MCV), neutrophil count, lymphocyte count, platelet count (PLT), activated partial thromboplastin time (APTT), international normalized ratio (INR) values, C-reactive protein (CRP), liver enzymes [Alanine aminotransferase (ALT), aspartate aminotransferase (AST), gamma glutamyl transpeptidase (GGT) and alkaline phosphatase (ALP)], blood glucose, renal function tests (blood urea nitrogen (BUN) and creatinine), total protein, albumin, total bilirubin, direct bilirubin, lactate dehydrogenase (LDH), amylase, lipase, electrolyte values (sodium, potassium, calcium), blood gas parameters (pH, PCO2, lactate), D-dimer, IL-6, ferritin, high

sensitive troponin (HS troponin), procalcitonin (PCT), covid PCR tests, complete urinalysis (white blood cell, red blood cell, nitrite and ketone) values were analyzed.

Statistically, SPSS (SPSS, Chicago, IL, USA) version 17.0 and Microsoft Office Excel® program were used for data analysis. Numbers and percentages, descriptive statistics for categorical variables, mean, minimum and maximum values, median, standard deviation were calculated for numerical variables. For numerical variables, Mann-Whitney U tests and unpaired t test were used to examine the conformity to normal distribution. For categorical variables, chi-square or Fisher's exact tests were used to examine conformity to normal distribution. P values below 0.05 were considered statistically significant.

Results

In this study, among 2150 patient admissions aged ≥65 years to the emergency department between 01.04.2020 and 03.07.2020, 670 patient admissions who were hospitalized and whose data could be accessed were examined. The mean age of these patients was 76.29 years. In terms of age, the lowest patient age was 65 years and the highest patient age was 100 years. Of these patients, 339 (50.6%) were 65-74 years old, 207 (30.9%) were 75-84 years old, and 124 (18.5%) were 85 years old or older. Of the 670 patients included in the study, 369 (55.1%) were hospitalized in wards and 301 (44.9%) in intensive care units. The mean length of stay of these patients hospitalized in wards or intensive care units was 9 days. The minimum hospitalization period was 1 day and the maximum hospitalization period was 276 days. After being hospitalized in the emergency department, 557 (83.1%) of the patients were discharged from the unit where they were hospitalized and 113 (16.9%) of them died in the unit where they were hospitalized.

The departments to which the patients were hospitalized from the emergency department were analyzed. The most commonly hospitalized departments were cardiology, chest diseases, gastroenterology, covid service and general surgery, respectively. Among the patients included in this study, 134 (20%) were admitted to cardiology, 76 (11.3%) to pulmonology, 71 (10.6%) to gastroenterology, 66 (9.9%) to covid service, 45 (6.7%) general surgery, 39 (5.8%) nephrology, 35 (5.2%) hematology, 34 (5.1%) neurology, 28 (4.2%) neurosurgery, 27 (4%) orthopedics, 23 (3.4%) infectious diseases, 21 (3.1%) thoracic surgery, 15 (2.2%) urology, 13 (1.9%) reanimation, 10 (1.5%) medical oncology, 8 (1.2%) otolaryngology, 7 (1%) plastic surgery, 5 (0.7%) endocrinology, 5 (0.7%) ophthalmology, 4 (0.6%) cardiovascular surgery, 3 (0.4%) gynecology, and 1 (0.1%) psychiatry.

The comorbidities of the patients were analyzed. The most common comorbidity among the patients included in the study was diabetes mellitus (DM) seen in 187 (27.91%) patients. The main comorbidities seen in the patients were coronary artery disease (CAD) in 176 (26.27%), hypertension (HT) in 160 (23.88%), chronic obstructive pulmonary disease (COPD) in 138 (20.6%), malignancy in 99 (14.78%), and no comorbidity in 69 (10.3%) patients.

The main complaints of the patients presenting to the emergency department were determined. In this study, 122(18.2%) shortness of breath, 91(13.6%) chest pain, 70(10.4%) abdominal pain, 31(4.6%) fever, 30(4.5%) falls, 30(4.5%) weakness, 24(3.6%) cough, 23(3.4%) confusion were the main reasons for admission. The diagnoses with which the patients were hospitalized were examined. Among the patients included in the study, the most common diagnoses were covid (9.5%), non-STEMI (8.36%), DCI (4.93%), USAP (4.18%), ischemic LVO (4.18%), COPD attack (3.73%). If non-STEMI, USAP, STEMI were not differentiated, the most common diagnosis was ACS (13.58%).

The numbers and rates of discharges and deaths were analyzed according to the departments in which the patients were hospitalized. As a result of this analysis, the department with the highest number of deaths was covid service with 18 (15.4%), followed by pulmonology with 13 (11.5%) patients, cardiology with 12 (10.6%) patients, nephrology and gastroenterology with 11 (9.7%) patients each, and neurology with 10 (8.8%) patients. There were no deaths in patients over 65 years of age admitted to plastic surgery, ophthalmology, psychiatry, otolaryngology, gynecology, orthopedics and cardiovascular surgery departments. When the departments were analyzed individually, the departments with the highest proportion of deaths were medical oncology with 40%, reanimation with 38.5%, neurosurgery with 32.1%, neurology with 29.4%, nephrology with 28.2% and covid service with 27.3%. In cardiology, which was the department with the highest number of hospitalizations among all departments, 122 (91%) of 134 hospitalized patients were discharged, while 12 (9%) died. As a result, there was a significant difference between the department of hospitalization and discharge and death ($p=0.02$).

The patients included in the study were divided into two groups as patients who were discharged from the hospitalized wards and patients who died in the hospitalized wards and laboratory values were calculated for comparison. There was no significant difference between glucose ($p=0.204$), amylase ($p=0.662$), lipase ($p=0.484$), CK ($p=0.29$), sodium ($p=0.994$), HCT ($p=0.167$), MCV ($p=0.089$), PLT ($p=0.157$) values in patients who died in the inpatient wards and patients discharged from the inpatient wards. BUN ($p<0.001$), creatinine ($p<0.001$), total bilirubin ($p<0.001$), direct bilirubin ($p<0.001$), AST ($p<0.001$), ALT ($p=0.001$), ALP ($p=0.001$), GGT ($p=0.004$), LDH ($p<0.001$), potassium ($p=0.004$), WBC ($p=0.009$), neutrophil

(p<0.001), lymphocyte (p<0.001), INR (p<0.001), APTT (p<0.001), CRP (p<0.001) values and neutrophil/lymphocyte ratio were significantly higher than the discharged patients. Total protein (p<0.001), albumin (p<0.001), calcium (p<0.001), hemoglobin (p=0.031) values were significantly lower in deceased patients than in discharged patients.

The length of hospitalization of the patients was analyzed. The length of hospitalization of discharged and deceased patients were compared. Discharged patients were hospitalized for a mean of 8 days, while deceased patients were hospitalized for a mean of 14 days. Deceased patients were hospitalized significantly (p<0.001) longer than discharged patients.

When the imaging tests performed on the patients were analyzed, it was found that some of the patients underwent more than one imaging test, 529 (78.96%) of the patients underwent CT (Computed Tomography), 156 (23.28%) underwent USG (Ultrasonography), 35 (5.2%) underwent MRI (Magnetic Resonance) and 56 (8.35%) underwent direct radiography.

The relationship between the laboratory values of Covid patients and their discharge from the hospitalized ward and mortality status was investigated. For this purpose, the mean values of routine laboratory values and laboratory values specific for covid patients were calculated. Glucose (p=0.935), BUN (p=0.102), creatinine (p=0.137), direct bilirubin (p=0.160), AST (p=0.176), GGT (p=0.428), LDH (p=0.326), CK (p=0.164), amylase (p=0.191), lipase (p=0.113), sodium (p=0.671), WBC (p=0.169), HB (p=0.268), HCT (p=0.558), neutrophils (p=0.501), lymphocyte (p=0.087), PLT (p=0.901), CRP (p=0.064), neutrophil/lymphocyte (p=0.242), total bilirubin (p=0.117) values were not significantly different between patients discharged from the hospitalized ward and patients who died in the hospitalized ward. Total protein (p=0.008), albumin (p=0.02) and calcium (p=0.002) values were significantly higher in the discharged patients compared to the other group. In the deceased patient group, ALT (p=0.045), ALP (p=0.045), potassium (p=0.025), MCV (p=0.027), INR (p=0.040), APTT (p=0.023) values were significantly higher than the other group.

There was no significant difference in PH (p=0.060), PCO2 (p=0.590), D-dimer (0.089), IL-6 (p=0.164), ferritin (p=0.188), troponin (p=0.093) values between discharged and deceased

Covid patients. Lactate (p=0.006) and PCT (p=0.012) values were significantly higher in those who died compared to those who were discharged.

Discussion

In this study, it was determined that 31.16% of all patients over 65 years of age admitted to the emergency department were hospitalized. It was found that 58.8% of the patients were male, 41.2% were female and the mean age of all patients was 76.29 years. The majority of the patients were in the 65-74 age range. In our study, 301 (44.9%) of the patients were hospitalized in intensive care units. The mean duration of hospitalization was 9 days. The most common comorbidity was DM. Of all patients, 16.9% died in the unit where they were hospitalized and the rest were discharged. While the department where the most deaths occurred numerically was covid service, the department where the most deaths occurred proportionally was medical oncology. It was determined that the department with the highest number of hospitalizations was cardiology. When the hospitalizations were analyzed, the most common hospitalization diagnosis was ACS (13.58%). It was observed that the patients in our study most frequently presented to the emergency department with the complaint of shortness of breath (18.2%). The mortality rate of patients hospitalized in the intensive care unit was significantly higher than those hospitalized in the ward. The mean age and length of hospitalization of deceased patients were significantly higher than those who were discharged. The deceased patients were found to be significantly hypotensive and tachycardic compared to the discharged patients. BUN, creatinine, total bilirubin, direct bilirubin, AST, ALT, ALP, GGT, LDH, neutrophil, lymphocyte, INR, APTT, CRP values and neutrophil/lymphocyte ratio were significantly higher in patients who died in the ward where they were hospitalized, while total protein, albumin, calcium and hemoglobin values were significantly lower. Patients hospitalized in the intensive care unit were found to be hypotensive, tachycardic and tachypneic compared to those hospitalized in the ward. The length of stay of patients hospitalized in intensive care unit was significantly longer than those hospitalized in the ward. While WBC values were found to be significantly lower in patients hospitalized in intensive care compared to patients hospitalized in the ward, glucose, BUN, creatinine, AST, LDH, CK, potassium, HB, HCT, neutrophil, INR and APTT values were found to be significantly higher. PCR test was performed in 22.1% of the patients in our study and only 3.4% of them were positive. PCR positivity was observed in 10.2% of Covid patients. CT was ordered as an imaging test in 78.96% of the patients. Patients who died in the Covid ward had significantly higher ALT, ALP, potassium, MCV, INR, APTT, lactate and PCT values and significantly lower total protein, albumin and calcium values than

those who were discharged. In Covid patients, BUN, creatinine, direct bilirubin, AST, ALT, ALP, GGT, LDH, CK, potassium, MCV, neutrophil, INR, CRP, neutrophil/lymphocyte, lactate, d-dimer, IL-6, troponin and PCT values were significantly higher and albumin, calcium and PH values were significantly lower in those hospitalized in intensive care unit compared to those hospitalized in ward.

A good knowledge of the reasons for the presentation of geriatric patients to the emergency department and their follow-up will ensure faster and more effective treatment. The results of such studies in terms of geriatric patients' visits to the emergency department should be reported to healthcare professionals and adequate training should be provided. We think that clearer information will be obtained with more patients and multicenter studies on this subject and that it would be appropriate for countries to establish state policies on this issue in terms of the management of geriatric patients.

Conclusion

As a result of this study, when geriatric patients were evaluated in terms of their admissions to the emergency department, follow-up and outcomes, it was found that the rates of hospitalization to hospital and intensive care units were high, they most frequently presented to the emergency department with the complaint of shortness of breath, they were mostly admitted to the cardiology department, their hospitalization periods were long and their mortality rates were high. In addition, it was found that blood tests and imaging methods were performed intensively and it is very important to evaluate them well.

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Pub No: OP-181

Evaluation of the effectiveness of the YEARS algorithm added to classical clinical decision-making rules in pulmonary embolism

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Introduction

Every day, dozens of patients presenting with complaints such as chest pain and dyspnea are encountered in emergency departments. In patients presenting with these symptoms, diseases with high mortality and morbidity are often the first pre-diagnoses that come to the minds of emergency physicians. One of these important diagnoses is acute Pulmonary Embolism (PE). PE is often non-specific in terms of symptoms and signs and needs to be confirmed with an objective test (1,2). Recently, pulmonary computed tomography angiography (PCTA) is frequently recommended as the first diagnostic tool by current guidelines due to its high diagnostic value worldwide. The widespread use of PCTA often increases clinically insignificant subsegmental PE diagnoses, increases the cost, causes unnecessary radiation exposure of patients and may lead to undesirable conditions such as contrast nephropathy (2,3). In order to prevent this, the same guidelines recommend that instead of performing PCTA scanning in every patient with a preliminary diagnosis of PE, various clinical probability determination rules should be used first and accordingly the risk groups of the patients should be determined to decide who should undergo PCTA. Today, the most accepted opinion in the world is to use the algorithm proposed by the European Society of Cardiology (ESC), which determines who should undergo further investigation such as PCTA by using the D-dimer blood test together with the determination of clinical probability with Well's and Geneva rules (4). Although these algorithms are frequently used, physicians are still searching for a diagnostic PE algorithm with higher sensitivity in an effort to reduce unnecessary PCTA scanning. Thus, Van Der Hulle et al. compared the YEARS algorithm with the classical algorithm in patients with suspected acute PE. The YEARS algorithm recommends that PE should be excluded if the D-dimer level is below 500 ng/ml, PCTA scanning should be performed if the D-dimer level is

above 500 ng/ml and one or more of the three criteria (PE as the most probable diagnosis, presence of clinical findings of deep vein thrombosis, hemoptysis) are present, and PCTA scanning should be performed if the D-dimer level is above 1000 ng/ml even if there are no criteria (5). The reason why we conducted this prospective observational study is to evaluate the potential of the YEARS algorithm to reduce the need for PCTA scanning in our emergency department PE suspected patient population compared to the classical algorithm we are currently using and to provide preliminary information for a future intervention study.

Materials and Methods

The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of 2012-KAEK-15/1632. Between 15.03.2018 and 15.09.2019, patients with suspected PE who presented to the emergency department and underwent PCTA according to the classical algorithm were included. Patients were evaluated according to the currently used classical Wells algorithm and patients who underwent PCTA scanning according to these criteria, who were 18 years of age or older, and who gave informed consent for the study were included in the study. After this stage, we evaluated whether PCTA would have been necessary if we had acted according to the YEARS protocol using only the available medical information of the patients. The patients' complaints (dyspnea, pleuritic or substernal chest pain, cough, fever, hemoptysis, syncope, unilateral leg pain), D-dimer level, vital signs, presence of deep vein thrombosis (DVT) findings, history of previous DVT or PE, history of surgical operation in the last 1 month, presence of immobilization for more than 3 days, presence of hemoptysis, Wells and YEARS scores, PCTA results were recorded and evaluated. No additional tests were requested from the patients except for the tests performed for the existing conditions.

Statistical analysis

IBM SPSS Statistic for Microsoft 20.0 (SPSS Inc, Chicago USA) program was used for statistical analysis. The Kolmogorow Smirnov test was used to determine whether the distribution of discrete and continuous numerical variables conformed to normal distribution.

Descriptive statistics were presented as median (IQR-Inter Quartile Rate 25-75) for discrete and continuous numerical variables and as number of cases and (%) for categorical variables. Categorical variables were evaluated by Chi-square and continuous variables by Mann Whitney U test. Statistical significance level was determined as p value <0.05.

Results

During the study period, 612 patients with suspected PE were evaluated. We included 300 patients who underwent PCTA according to the classical algorithm. The median age was 68 years (IQR 25-75, 52.2-79), 58.7% of whom were female. The most common complaints at presentation to the emergency department were dyspnea (48.7%) and chest pain (33.7%), and 52% of the patients had a thoracic system examination within normal limits. Pulmonary embolism was detected on PCTA in 12% of patients. Pneumonia was detected on CT scan in 14% of patients. Demographic data and vital signs of the patients are shown in Table 1.

Table 1. Demographic data of the patients

Age median, IQR[1] (25-75)	68 (52.2-79)
Gender, n(%)	
Male	124 (%41.3)
Female	176 (%58.7)
Complaints, n(%)	
Dyspnea	146 (%48.7)
Chest pain	101 (%33.7)
Palpitation	21 (%7)
General condition disorder	19 (%6.3)
Syncope	9 (%3)
Leg edema	3 (%1)
Respiratory arrest	1 (%0.3)
Presence of embolism in PCTA[2] n(%)	36 (%12)
Segmentary	22 (%61.1)
Massive	14 (%38.9)
D-Dimer level median, IQR (25-75)	1560 (852.5-3940)

[1]IQR: Inter Quartile Rate [2]PCTA: Pulmonary Computed Tomography Angiography

According to the YEARS algorithm, 69% of the patients were in the group requiring PCTA while 31% were in the YEARS PE exclusion group (Table 2).

Table 2. YEARS parameters and management algorithm according to YEARS	
n(%)	
YEARS criteria	
DVT[1] clinic	29 (%9.7)
Hemoptysis	8 (%2.7)
Most likely diagnosis	84 (%28)
YEARS algorithm	
Zero criteria, D-dimer<1000	70 (%23.3)
Zero criteria, D-dimer>1000	135 (%45)
Years>1 criterion, D-dimer<500	23 (%7.7)
Years>1 criterion, D-dimer>500	72 (%24)
Management according to the Years algorithm	
Take PBTA[2] scan (1 or more criteria)	207 (%69)
Exclude PE[3] (zero criteria)	93 (%31)

[1]DVT: Deep Vein Thrombosis [2]PCTA: Pulmonary Computed Tomography Angiography [3]PE: Pulmonary Embolism

According to the YEARS algorithm, PE was detected in 16.4% of patients with an indication for PCTA, while PE was detected in 2.2% of patients in the zero criteria group without an indication for PCTA scanning (Table 3).

According to the YEARS algorithm, sensitivity was 94.4%, specificity 34.7%, Positive Likelihood Ratio 1.44, Negative Likelihood Ratio 0.16.

Table 3. PCTA results of patients according to algorithms		
	PE negative	PE positive
Management according to Wells ESC[1] 2014 algorithm		
High Probability PE[2]		
Low-moderate PE and high D-dimer	65 (%24.6)	23 (%63.9)
	199 (%75.4)	13 (%6.1)
Management according to the Years algorithm		
Take PCTA[3] (1 or more criteria)	173 (%83.6)	34 (%16.4)
Exclude PE (zero criteria)	91 (%97.8)	2 (%2.2)

[1]ESC: European Society of Cardiology [2]PE: Pulmonary Embolism [3] PCTA: Pulmonary Computed Tomography Angiography

Discussion

Pulmonary embolism is often non-specific in terms of symptoms and signs and needs to be confirmed by an objective test. Although many diagnostic algorithms have recently been developed in patients with suspected pulmonary embolism, these algorithms are generally not used sufficiently in emergency departments or benefit certain patient groups, leading to overuse of PCTA (6).

Gruettner found PE in 13% of patients in a study he conducted with 326 patients comparing Wells and Geneva scores (7). In another study comparing YEARS and Wells scores, PE was found to be positive in 9.8% of patients (8). Hulle found PE in 13% of patients in his study (5). In our study, PE was observed in 12% of patients who underwent PCTA.

In a study, Kaeron reported that D-dimer level below 1000 ng/ml was low risk for PE (9). In our study, D-dimer level was found to be below 1000 ng/ml in only 5.5% of 36 patients in whom PE was detected as a result of PCTA. It was observed that these patients had embolism only in subsegmental branches. Studies have shown that elevated D-dimer levels lead physicians to diagnose PE and therefore many patients undergo unnecessary PCTA. We think that the YEARS score reduces the need for PCTA because it accepts the D-dimer limit of 1000 ng/ml in the absence of any other criteria.

In the study in which Medson compared Wells, YEARS and Geneva scores, 9.3% of the patients were classified as having a high clinical probability when the patients were evaluated as low and high clinical probability according to Wells criteria (10). In our study, 29.3% of the patients were considered to have high clinical probability. This difference may be related to the fact that the criterion of "PE as the most probable diagnosis" in Wells scoring is a subjective criterion.

In his study, Van Der Hulle compared the diagnostic efficacy of the YEARS algorithm with the Wells algorithm in patients with suspected PE. The primary outcome of the study was defined as the number of venous thromboembolic events that developed in the 3-month follow-up of the patients, and the secondary outcome was defined as the comparison of the number of PCTA deemed necessary and performed according to the YEARS and Wells algorithms. As a result, the number of patients with no YEARS criteria was found to be 1743 and PE was detected in 55 (3.2%) of these patients. The number of patients with one or more YEARS criteria was 1722

and PE was diagnosed in 401 (23%) of these patients. PE could not be excluded as the cause of death in 6 patients. PE was detected in 18 patients at 3-month follow-up. The study showed that the YEARS algorithm reduced the need for PCTA scanning by 14% compared to classical algorithms (5). In our study, PE was found in 2 (2.2%) of 93 patients without any YEARS criteria. PE was found in 34 (16.4%) of 207 patients with one or more YEARS criteria. In the study by Medson, PE was diagnosed in 18 (6.3%) of 286 patients in whom the YEARS algorithm excluded PE (10). Freund, in a study comparing the YEARS and classical algorithm, reported a 10% decrease in the need for PCTA scanning with the YEARS algorithm compared to the classical algorithm. In the same study, no decrease was observed in the rate of PE detection in the 3-month follow-up of the patients (11). In another study in which the YEARS algorithm was applied in pregnant patients, it was reported that PE was safely excluded in 32-65% of patients (12). In another multicenter study, it was reported that the YEARS algorithm reduced the need for PCTA scanning by 14%, but increased the PE miss rate by 0.5% (13).

In this study, we evaluated the potential of the YEARS algorithm to reduce the need for PCTA in patients with suspected PE compared to the classical algorithm we currently use and found a 31% reduction in the need for PCTA compared to the standard algorithm. The difference in these rates may be related to the inclusion of more patients with high clinical probability in previous studies. We showed that the YEARS algorithm used in the risk assessment of patients with suspected pulmonary embolism in the emergency department reduces the need for PCTA compared to other routinely used algorithms. We also showed that the YEARS algorithm is more effective than the routine algorithm in excluding acute pulmonary embolism with a sensitivity of 94.4% in patients presenting with clinically suspected pulmonary embolism and a low risk of venous thromboembolism. However, as shown in previous studies, we found that YEARS has a low risk of PE patient omission.

Limitations

This study is single centered. As it was an observational study, patients were evaluated by different clinicians working in the emergency department. The criterion of "PE as the most probable diagnosis" in both YEARS and Wells algorithm may have caused different evaluations among clinicians because it is a subjective criterion. In addition, PCTA may be performed in the clinic not only to diagnose PE, also to exclude diagnoses such as pneumonia in the differential diagnosis with PE. The fact that the patients were evaluated only at the time of

presentation to the emergency department and were not followed up for PE in the long term is one of the limitations of this study.

Conclusion

The YEARS algorithm, which is used in the risk assessment of patients with suspected pulmonary embolism in the emergency department, reduces the need for PCTA in addition to the Wells algorithm used routinely. However, we have shown that YEARS has a risk of missing PE patients, albeit at a low rate. Studies have shown that patients undergo unnecessary PCTA despite the use of various clinical probability scores in the diagnosis of PE. There is a need to develop new scoring systems to reduce these rates.

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Pub No: OP-182

An optimized deep learning approach for predicting multiple sclerosis conditions from an artificial intelligence perspective

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ABSTRACT

Introduction and Purpose: Multiple sclerosis (MS) stands as the most prevalent non-traumatic incapacitating ailment that affects young adults. The incidence and prevalence of MS are on the rise in both developed and developing nations, though the exact underlying cause of this trend remains uncertain. The current study intends to predict MS conditions based on demographical/clinical characteristics through a proposed optimized deep learning (DL) algorithm.

Materials and Methods: The current study analyzed a public dataset to predict MS status on the strength of different characteristics of individuals. The prospective cohort study from which the dataset was taken was undertaken on individuals of Mexican mestizo heritage who had recently been diagnosed with Clinically Isolated Syndrome (CIS) and had visited the National Institute of Neurology and Neurosurgery (NINN) in Mexico City, Mexico, from 2006 to 2010. A DL algorithm was constructed to predict the absence and presence of MS, and hyper-parameters were optimized by the grid search technique. Model performance was evaluated based on accuracy, kappa, sensitivity, specificity, F measure, and area under the ROC curve (AUC) indices to identify the best-performing result.

Results: The optimized consequences were 3 for cross-validation number, 1 for learning rate, and exponential rectifier linear unit for activation function Accuracy, kappa, sensitivity, specificity, F measure, and AUC indices from the DL model were calculated as 98.53% +/- 1.68%, 0.971 +/- 0.034, 97.96% +/- 2.04%, 99.21% +/- 1.37%, 98.63% +/- 1.57% and 0.999 +/- 0.001, respectively.

Conclusion: In conclusion, the study's meticulous parameter optimization and comprehensive performance assessment underscore the DL model's efficacy in predicting MS status with remarkable accuracy and reliability, offering valuable insights for early detection and clinical decision-making.

Keywords: Artificial intelligence, deep learning, multiple sclerosis, prediction.

INTRODUCTION

Multiple sclerosis (MS) stands as the most prevalent non-traumatic incapacitating ailment that affects young adults. The incidence and prevalence of MS are on the rise in both developed and developing nations, though the exact underlying cause of this trend remains uncertain. MS is a complex ailment, with numerous genes slightly heightening susceptibility to the disease, coupled with several identified environmental factors, notably exposure to vitamin D or ultraviolet B light (UVB), infection with the Epstein-Barr virus (EBV), obesity, and tobacco use. Historically labeled as an autoimmune disease mediated by organ-specific T-cells, MS has seen its classification challenged by the successful implementation of therapies targeting B-cells, which defies the conventional T-cell autoimmune theory. Conventionally perceived as a two-stage condition, MS is characterized by initial inflammation giving rise to relapsing-remitting disease, followed by subsequent neurodegeneration leading to non-relapsing progression, denoted as secondary and primary progressive MS [1].

MS emerges as a multifaceted ailment shaped by an intricate interplay of genetic variations and external influences that contribute to its proneness. The convergence of these genetic and environmental elements serves as a nexus for the development of this condition. Notably, comprehensive analyses from observational studies underscore the significance of specific environmental risk factors tethered to MS, encompassing obesity, insufficiency in vitamin D, infection by the Epstein-Barr virus, and engagement in smoking habits. In light of the potential for preemptive measures through the manipulation of these modifiable environmental and lifestyle facets, the criticality of establishing concrete causal connections between these factors and the inception of MS is paramount [2]. A profound comprehension of these intricate links holds the potential to revolutionize preventive approaches, potentially reducing the incidence of MS and its associated burdens on affected individuals and

healthcare systems alike. Efforts directed towards unraveling the causal pathways linking these factors to MS involve a concerted interdisciplinary approach, merging insights from genetics, immunology, epidemiology, and molecular biology. This endeavor not only fosters a comprehensive comprehension of the disease's origins but also augments the development of targeted interventions, paving the way for tailored strategies to reduce the risk of MS development. As we stand at the intersection of scientific progress and the pursuit of enhanced public health, untangling the intricate web of genetic and environmental factors that contribute to MS susceptibility remains an imperative pursuit [3].

This study aims to utilize an optimized deep learning algorithm to predict MS by analyzing demographic and clinical traits, potentially advancing early detection and personalized intervention strategies from an artificial intelligence perspective.

MATERIAL AND METHODS

Utilizing a publicly accessible dataset [4], the study aimed to predict MS status by scrutinizing various individual traits. This endeavor contributes to advancing early prediction strategies and fostering a deeper comprehension of the intricate interplay between individual characteristics and MS development. The prospective cohort study from which the dataset was taken was carried out among individuals of Mexican mestizo descent who had recently received a diagnosis of Clinically Isolated Syndrome (CIS), a neurological condition, and had sought medical attention at the esteemed National Institute of Neurology and Neurosurgery (NINN) located in the vibrant city of Mexico City, Mexico. The study spanned a period ranging from 2006 to 2010, during which data was collected and analyzed to explore various aspects related to this specific patient population and their experiences with CIS [4].

An advanced DL algorithm was meticulously developed to forecast both the occurrence and non-occurrence of MS. This DL model underwent a refined optimization process, whereby hyper-parameters were systematically fine-tuned using the grid search technique. The focal objective was to achieve an optimal configuration that would maximize the model's predictive capabilities. The effectiveness of the constructed DL algorithm was subjected to a rigorous assessment, employing a comprehensive array of performance metrics. These encompassed accuracy, which gauges overall correctness; kappa, which measures agreement between predictions and actual outcomes; sensitivity and specificity,

indicating the model's ability to detect positive and negative cases respectively; the F measure, harmonizing precision and recall; and the area under the ROC curve (AUC), a hallmark of the model's discriminatory power. By meticulously evaluating the algorithm's performance across these diverse indices, the study aimed to discern the most exceptional result, thereby highlighting the DL model's proficiency in accurately predicting the presence or absence of MS. The careful orchestration of algorithmic construction, hyper-parameter optimization, and comprehensive performance analysis underscores the research's dedication to attaining the highest standards of predictive accuracy in the context of MS prediction [5,6]. RapidMiner software was utilized for all calculations and modeling tasks.

RESULTS

After a thorough process of optimization, the study successfully determined the most effective parameters for the deep learning (DL) model. Specifically, a cross-validation number of three was selected, signifying a careful balance between data partitioning and model validation. A learning rate of one was chosen, indicating the rate at which the model adapts and learns from the data. The utilization of the exponential rectifier linear unit as the activation function was deemed optimal, enhancing the model's ability to capture intricate relationships within the data.

The evaluation of the DL model's performance yielded exceptional results across various crucial indices. The accuracy was calculated at an impressive 98.53% with a minor variability of 1.68%, attesting to the model's precision in making correct predictions. The kappa index, measuring agreement beyond chance, demonstrated a strong value of 0.971, signifying the model's robust performance in categorizing instances.

Sensitivity, a metric assessing the model's proficiency in detecting true positives, was computed at 97.96% with a slight variation of 2.04%. This highlights the model's capability to accurately identify individuals with MS. On the other hand, specificity, indicating the model's skill in correctly identifying true negatives, exhibited a remarkable score of 99.21% with minimal variability of 1.37%, displaying the model's competence in recognizing non-MS cases.

Furthermore, the F measure - harmonizing precision and recall - achieved a substantial score of 98.63%, with a tight variability range of 1.57%. This indicates the model's ability to strike an effective balance between minimizing false positives and false negatives.

The area under the ROC curve (AUC), a pivotal metric for assessing discrimination, demonstrated near perfection with a value of 0.999 and a negligible variability of 0.001. This high AUC score underscores the DL model's exceptional ability to differentiate between MS and non-MS instances.

CONCLUSION

In summation, the study's methodical refinement of parameters and thorough evaluation of performance serve to accentuate the profound effectiveness of the deep learning model in predicting MS status with exceptional precision and consistency. These findings not only provide valuable perspectives for early identification but also hold significant implications for informed clinical judgments and proactive interventions.

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Pub No: OP-183

Combination of stroke and aortic dissection with presenting seizure

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Abstract

Introduction and Purpose: Aortic dissection (AD) is a disease with high mortality. It is possible for these patients to apply to the emergency department with typical tearing chest-back pain, as well as with atypical clinical findings. In this article, we aimed to present a patient who came to the emergency room with loss of consciousness after convulsions, had seizures, had acute ischemic stroke and was diagnosed with Debakey Type-1 AD.

Materials and Methods: A 41-year-old female patient was admitted to the emergency department with loss of consciousness after contraction. After clinical and radiological findings, the patient was diagnosed with stroke. It was learned that she had a diagnosis of hypertension and her systolic blood pressure values were generally around 160-170 mmHg. Acute aortic dissection and rupture of aortic aneurysm, which was confused with stroke, were considered because the radiological and clinical findings were inconsistent and the patient was hypotensive (arterial blood pressure: 100/60 mmHg). Afterwards, the patient underwent echocardiography and a dissection flap was seen. Dynamic thorax computed tomography (CT) angiography was performed and we diagnosed the patient as Debakey Type-1 AD. In this patient, we used cranial imaging methods (BBT, brain diffusion MRI), echocardiography and dynamic computed tomography (CT) angiography to rule out the differential diagnoses one by one and make the diagnosis.

Results and Conclusion: We diagnosed AD in a young female patient with acute ischemic stroke, who came to the emergency department with convulsions and loss of consciousness, had a seizure after physical examination and auxiliary radiological diagnostic methods. These cases may present with very different clinical findings (often stroke, coma or spinal cord ischemia, acute renal failure, myocardial infarction, mesenteric ischemia). In addition, aortography, magnetic resonance imaging, echocardiography and dynamic CT are the auxiliary diagnostic methods to be used in the diagnosis. Aortic dissection cases with a different clinical picture are added every day. In cases presenting to the emergency department, AD should always be considered among the differential diagnoses, even if there are no typical symptoms such as sudden, severe, predatory chest, back, and abdominal pain suggestive of AD.

Keywords: Aortic dissection, seizure, stroke, syncope, unconsciousness

Introduction and Purpose

Aortic dissection (AD) is defined as the accumulation of blood in the aortic wall after tearing in the intima layer of the aorta (1). It progresses with a clinical condition characterized by

sudden, severe, predatory chest, back, waist and abdominal pain (2). In addition, patients with different clinics may apply with neurological symptoms such as syncope, hemiparesis-hemiplegia, paraparesis-paraplegia, myocardial infarction findings, dysphagia, flank pain and gastrointestinal complaints (2). AD is two times more common in men than women. The most common age is between 50-70 years, and the most common etiological cause is hypertension (3). Stroke occurs especially in proximal aortic lesions and paraplegia occurs with involvement of spinal arteries in cases with distal lesions. Although neurological complications (such as stroke and paraplegia) are rare in AD, this rate is 2-8% (3). In this case, we aimed to contribute to the literature by diagnosing acute AD in a patient who presented to the emergency department with a very different clinical picture.

Case

A 41-year-old female patient was brought to the emergency room with convulsions and loss of consciousness after arguing with her husband. In the neurological examination of the patient, consciousness was disorganized and light reflex was bilaterally decreased (-4/-4). Other cranial nerve examination was normal. No significant lateralizing muscle-strength deficit was observed. Other system examinations were normal. The patient could not express herself. Seizure, syncope etiology, intoxication and cerebrovascular diseases were considered in the patient. The patient's vital parameters were fever 36 °C, heart rate 120/min, BP: 100/60 mmHg, and respiratory rate 16/min. Cranial imaging of the patient (computerized brain tomography and diffusion brain MRI) was performed. Multiple ischemic areas consistent with acute stroke were observed in the diffusion brain MRI of the patient (Figure-1). Neurology consultation was requested, and according to the patient's radiological findings, acute acute ischemic stroke was detected in the patient. Afterwards, a detailed anamnesis was taken from the patient's relatives. It was stated by the patient's relatives that the patient had hypertension and his systolic blood pressure values were generally around 160-170 mmHg. The blood pressure value of our case was 100/60 mmHg. Since the patient was hypotensive, acute aortic dissection and rupture of aortic aneurysm, which was confused with stroke, were considered. Echocardiography was planned for the patient, during which computed thorax tomography was requested. On thorax CT, fluid around the heart, aneurysm in the ascending aorta and fluid in the right hemithorax were seen (Figure-2). A dissection flap was observed on echocardiography. Thoracic-abdominal CT angiography was performed for acute aortic dissection and the patient had type-1 acute aortic dissection (Figure-3). A cardiovascular surgery consultation was requested for the patient. The patient, whose clinical condition was poor, was intubated electively, and the patient for whom surgical treatment was planned was admitted to the cardiovascular surgery intensive care unit. While the patient was preparing for the operation, cardiac arrest occurred and despite effective advanced cardiac life support, the patient did not return to normal rhythm from asystole and the patient was considered exitus.

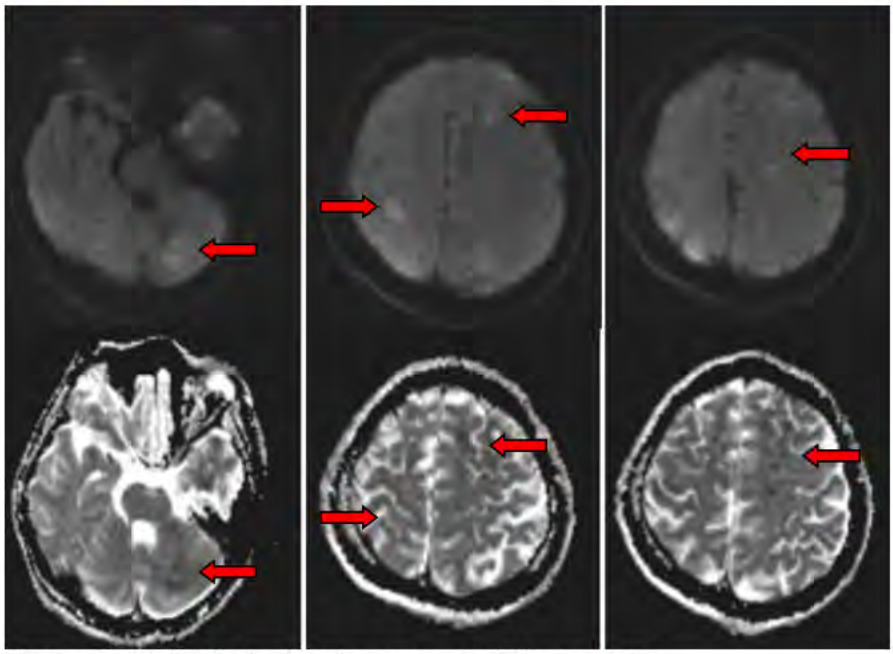

Figure-1: Multiple ischemic areas on diffusion MR



Figure-2: Aneurysm in the ascending aorta, fluid in the right hemithorax and pericardial mai in thorax CT

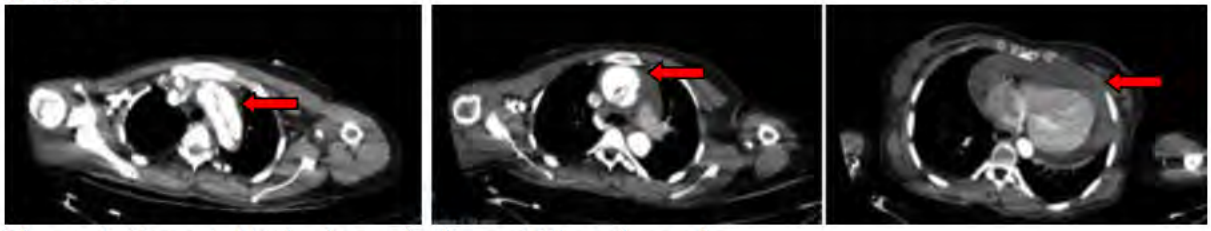

Figure-3: Type-1 AD in dynamic thorax CT angiography

Discussion

Longitudinal tears resulting in blood filling between the intima and media layer are seen in AD. Aortic rupture occurs as a result of the tears between the true and false lumen. Serious blood loss, organ damage and death can occur. Early diagnosis of AD is very important (4). It should be kept in mind that 10%-55% of AD cases can be painless. These cases may present with very different clinical findings (often stroke, coma or spinal cord ischemia, acute renal failure, myocardial infarction, mesenteric ischemia) (2).

The most frequently used classification in AD is the classification created by De Bakey et al. According to this classification, dissections starting from the proximal aorta and involving the entire aorta are defined as Type I, those involving only the ascending aorta are defined as Type II, and those involving only the descending aorta are defined as Type III AD (5). According to the Stanford classification, which is another classification, AD is divided into two (ascending

aorta is affected in Type A, while the ascending aorta is not affected in Type B) (6). Stanford classification is used practically in terms of treatment. Emergency surgery is indicated for Stanford Type A dissections. In type B, besides blood pressure control with medical treatment, surgical treatment is considered in case of aortic rupture and ischemic symptoms (4). In one of the studies on AD, it was observed that the ascending aorta was involved in 60% of the cases, the aortic arch in 10%, and the descending aorta in 30% (7). Our case was type-1 aortic dissection and surgical treatment was planned for the patient.

In diagnosing AD, the first diagnosis of dissection should always be among the preliminary diagnosis. Laboratory tests routinely used in emergency departments are insufficient to diagnose dissection. Although AD is a disease with high mortality, accurate and early diagnosis significantly reduces mortality. The most important auxiliary diagnostic methods to be used in the diagnosis of AD; aortography, magnetic resonance imaging, echocardiography (transthoracic, transesophageal) and dynamic computed tomography (3,4,7). We made the diagnosis of Type-1 AD with echocardiography and dynamic computed tomography half.

As a result of the compression of the false lumen, ischemic findings and neurological problems occur due to occlusion in AD (6,8). In addition, neurologic findings such as paresis and plegia may be observed due to stroke, confusion (due to cerebral perfusion disorder), syncope, spinal canal or peripheral nerve feeding disruption (9,10). In our case, stroke was confirmed clinically and radiologically. However, we thought that the patient could present with stroke and diagnosed AD.

Conclusion

In cases presenting to the emergency department, AD should always be considered among the differential diagnoses, even if there are no typical symptoms such as sudden, severe, predatory chest, back, and abdominal pain suggestive of AD. Atypical cases of AD are added to the literature every day. While the diagnoses of seizure, syncope, intox, and stroke were considered in our case, we diagnosed our patient with AD.

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Pub No: OP-184

Guillain-Barré syndrome in the emergency

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Introduction and Purpose

The acute immune-mediated polyneuropathies are classified under the eponym Guillain-Barré syndrome (GBS) after some of the authors of early descriptions of the disease. GBS is one of the most common causes of acute, acquired weakness and is often provoked by a preceding infection. GBS may be complicated in some cases by respiratory failure or autonomic dysfunction. The acute polyneuropathy of GBS is often triggered when an immune response to an antecedent infection or other event cross-reacts with shared epitopes on peripheral nerve. All myelinated nerves (motor, sensory, cranial, sympathetic) can be affected. The range and extent of pathologic changes depend on the clinical forms of GBS. Patients with the common acute inflammatory demyelinating polyneuropathy (AIDP) form have prominent demyelination on electrodiagnostic studies and lymphocytic infiltration on sural nerve biopsies, while those with other forms such as acute motor axonal neuropathy (AMAN) form have prominent axonal loss without lymphocytic infiltration or complement activation and few degenerating nerve fibers. The typical clinical features of GBS include a progressive and symmetric muscle weakness and absent or depressed deep tendon reflexes. Patients may also have sensory symptoms and dysautonomia. Initial symptoms may become apparent and patients typically present within a few days to a week after onset of symptoms. GBS symptoms typically progress over a period of two weeks. By four weeks after onset, more than 90 percent of patients have reached the nadir of the disease.

Materials and Methods

A 58-year-old female patient had no known history of comorbidity. The patient's presenting complaint was weakness in the arms and legs and inability to walk. Her complaints started as weakness and fatigue for 2 days and numbness in her arms and legs. The patient, whose complaints increased today, applied to us. The patient's vitals TA:114/62 fever:36,2 pulse:67 spo2:95.In the neurological examination of the patient, the general condition was moderate, oriented, coopere, no nuchal rigidity, muscle strength upper extremity right:3/5 left:2/5 lower extremity right:3/5 left:2/5.DTR hypoactive. Cerebellar tests could not be evaluated due to muscle weakness.Diffusion MRI and Brain CT of the patient showed no acute pathology.It was learned that the patient had a history of gastroenteritis 2 weeks ago.EMG was performed. The patient was hospitalized in the neurology service with a prediagnosis of Guillain Barre Syndrome.

Results and Conclusion

Most patients report an antecedent infection or other event in the four weeks prior to GBS. Upper respiratory tract infection and gastroenteritis are the most common infections,

and *Campylobacter jejuni* gastroenteritis is the most commonly identified precipitant of GBS. The typical clinical features of GBS include progressive and symmetric muscle weakness with absent or depressed deep tendon reflexes. Patients may also have sensory symptoms and dysautonomia. GBS symptoms typically progress over a period of two weeks. If the nadir is reached within 24 hours or after 4 weeks of symptom onset, alternative diagnoses must be considered. GBS is a heterogeneous syndrome with variant forms that may be identified by distinguishing clinical and pathologic features. Acute inflammatory demyelinating polyneuropathy is the most common form of GBS. Common variant forms include acute motor axonal neuropathy, acute motor and sensory axonal neuropathy, Miller Fisher syndrome, and Bickerstaff brainstem encephalitis.

The initial diagnosis of GBS is based on the clinical features consistent with the syndrome: acute onset of progressive, mostly symmetric muscle weakness, and reduced or absent deep tendon reflexes. The clinical diagnosis of GBS is confirmed if cerebrospinal fluid (CSF) and electrodiagnostic studies show typical abnormalities

CSF findings in patients with GBS is an albuminocytologic dissociation consisting of an elevated CSF protein (typically 45 to 200 mg/dL [0.45 to 2.0 g/L]) with a normal white blood cell count (typically <5 cells/mm^3 but may be elevated up to 50 cells/mm^3). Electrodiagnostic studies may show prolonged or absent F waves and absent H reflexes, increased distal latencies and conduction blocks with temporal dispersion, significant slowing or absent response on nerve conduction velocities, and reduced recruitment or denervation on needle electromyography of weak muscles. Laboratory testing is performed for all patients to screen other common causes of acute weakness. We reserve ganglioside autoantibody testing for patients with symptoms suggestive of a variant form of GBS. Neuroimaging is typically used for patients with atypical symptoms to exclude alternative etiologies

Pub No: OP-185

Intestinal Perforation After Diarrhea

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Absract

Background: Intestinal Perforation is a serious complication that causes intestinal contents to leak into the abdominal cavity. It is a rare but potentially life-threatening clinical condition, especially in cases of acute diarrhea.

Case: A 78-year-old female patient with chronic renal failure was brought to the emergency room with a complaint of diarrhea that had been going on for 1 week. On the day she applied to the emergency room, we learned that she had severe abdominal pain after hemodialysis, and her general condition deteriorated. We thought that the presence of severe leukocytosis and elevated CRP and the presence of defenses in the abdomen could not be due only to diarrhea, and we planned an urgent non-contrast chest and abdomen computed tomography (CT) to rule out an acute organic pathology. We were observed diffuse air appearances in the abdomen with CT scan and this was interpreted as perforation. The patient was urgently consulted by the general surgeon and underwent surgery.

Conclusion: Perforation, especially after diarrhea, is a rare but vital condition. Early diagnosis and treatment are important in protecting the patient's health.

İntroduction; Intestinal Perforation is a serious complication that causes intestinal contents to leak into the abdominal cavity. It is a rare but potentially life-threatening clinical condition, especially in cases of acute diarrhea.

Case;

A 78-year-old female patient was brought by her relatives with the complaint of watery diarrhea 3-4 times a day for a week. We were informed that he had been diagnosed with chronic renal failure (CRF) for 10 years in his history and underwent routine hemodialysis 3 times a week. We learned that abdominal pain started after hemodialysis on the day she applied to the emergency department, however her general condition deteriorated. Blood pressure: 100/60 mmHg, pulse: 105/min, fever 37.2°, saturation: 98%, and respiratory rate 24/min. In the physical examination of the patient, there was mild tension and defense

in the abdomen; there was no rebound. There was no ral-rhonchus in the lung sounds by listening. Although the patient was conscious and oriented and cooperative, her oral mucosa was extremely dehydrated and she had difficulty in speaking. In laboratory tests of the patient, WBC (White Blood Cell): 35 K/UL, HGB (Hemoglobin): 10 g/dL, CRP (c-reactive protein): 277mg/L, Creatinine: 2.21 mg/dL, urea: 43 mg /dL, potassium: 3.98 mmol/L, pH 7.40, Hco3: 16. Since our patient was diagnosed with CRF, there was no urine output. We thought that severe leukocytosis and elevated CRP and abdominal defense could not be caused by diarrhea alone in our patient, and we planned emergency non-contrast thorax and abdomen computed tomography (CT) to rule out an acute organic pathology. In CT scans viewed by the emergency physician as soon as it is taken; An abdominal herniation was observed from the defect of approximately 40 mm in the anterior abdominal wall. However, diffuse air appearances were observed in the abdomen and this was interpreted as perforation. The patient was followed up as intubated and continued routine dialysis treatment. The patient had cardiopulmonary arrest at the end of 1 week and died despite all the interventions.

Conclusion

Acute diarrhea can often occur due to infections (viruses, bacteria, parasites) or inflammatory conditions. During diarrhea, the normal movement of the intestines can be disrupted, which can cause weakening or damage to the intestinal wall. If this damage is severe, intestinal perforation may occur.

Argument

Chien SC. And in a case encountered by his friends, a 71-year-old case of severe abdominal pain starting after acute gastroenteritis is presented. Vibrio pararhaemolyticus bacterium causing acute gastroenteritis was found after the examinations performed in this case and the diagnosis of bowel perforation was made by CT scan(1)
when we looked at the literature, In another article of CM Beredjiklian et al., we see a case of Norovirus causing colon perforation in a 47-year-old female patient who went to the emergency room due to acute gastroenteritis(2).

Some signs and symptoms of acute post-diarrheal perforation; severe abdominal pain, tension and swelling in the abdomen, fever, nausea and vomiting, pale skin or bruising in the abdomen, aggravation of diarrhea, and an increase in pulse and respiratory rate may be observed (3). When the above symptoms occur, it is important to seek immediate medical attention. Treatment of perforation after acute diarrhea may require immediate surgical intervention.

Our patient was diagnosed with CRF and had acute diarrhea for 1 week. The diagnosis of perforation was made by the emergency physician after the examinations performed because the general condition of our patient developed after routine dialysis and the appearance became toxic. Perforation, especially after acute diarrhea, is a rare but vital condition. Early diagnosis and treatment are important in protecting the health of the patient.

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Pub No: OP-190

Bilateral Testicular Dislocation After Traffic Accident

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Introductions

Traumatic testicular dislocation was first described by Claubry in 1818. It is defined as extra-scrotal migration of one or both testicles secondary to scrotal trauma. Traumatic testicular dislocation is a rare complication of blunt scrotal injury and can easily be overlooked due to the presence of other serious concomitant injuries. In most cases, an operation is needed to prevent malignant change or infertility. Traumatic testicular dislocation (TTD) is a rare consequence of blunt scrotal trauma.

Case

A 21-year-old male patient presented with the complaint of inguinal pain after a motorcycle accident, and his physical examination revealed that both testicles were not in a well-formed scrotal sac and he had bilateral inguinal swelling. General condition is moderately oriented, cooperative patient Gcs score:15. Conscious, neurological examination is normal. There was swelling in both inguinal regions in the abdomen and 2 cm abrasion on the left superior of the gland in the penis. There was tenderness in the left hip. No midline tenderness. Patient's examinations were requested. Tetanus vaccine given. Antibiotherapy was provided. PanCT requested. There is displaced fx in the iliac wing in the pelvis. Orthopedics, urology and general surgery were consulted. Intensive care follow-up was recommended by orthopedics. The testicles were reduced by urology. Urological emergency was not considered in the patient with normal urine output to the Foley catheter. The patient was admitted to the intensive care unit in the name of orthopedics.

Conclusions

Traumatic testicular dislocation is rare and can be difficult to recognize. Passengers of the groin area should be suspected in motorcycles and high-energy accidents and depend on a careful physical examination. Prognosis is expected with appropriate management. To all trauma patients, especially those who have had a scrotal examination if pelvic injuries are suspected or if there is a high risk of motor shock, to avoid missing the diagnosis and avoid serious behavior. With proper management, the prognosis is excellent. To avoid missing the diagnosis and to avoid serious complications, we recommend that all trauma patients undergo a scrotal examination, especially if a pelvic injury is suspected or if there is a high risk of being struck by a motorcycle.

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Radiology



Pub No: OP-191

The Heavy Metal and Trace Element Alterations in Patients with Migraine Attack

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Abstract

Objective: The aim of the study was to determine the heavy metal and trace element profile in patients with migraine and to compare to the levels of healthy individuals without migraine to provide an understanding of migraine etiology.

Background: Migraine is a universal disease that affects more than 10% of the world's population. However, there are no globally accepted biomarkers for diagnostic, prognostic, or therapeutic monitoring of migraine.

Methods: The inductively coupled plasma mass spectrometer system was used for the analyses. The calibration curve was created with 11 points for each trace element [antimony (Sb), chromium (Cr), copper (Cu), iron (Fe), magnesium (Mg), manganese (Mn), molybdenum (Mo), and zinc (Zn)] and heavy metal parameters [arsenic (As), cadmium (Cd), cobalt (Co), lead (Pb), mercury (Hg), nickel (Ni), and tin (Sn)] and a certified reference material (Seronorm Whole Blood Label-2) was used for method validation.

Results: The migraine patients had significantly higher heavy metal levels, significant for As, Co, Pb, and Ni levels (p <0.05) Also, the patient group had significantly lower trace element levels for Cr, Mg, and Zn (p <0.05). However, Mn level was higher in migraine group. Cd, Sn, Sb, Cu, Fe and Mo levels did not differ between the groups.

Conclusion: Some heavy metal and trace element parameters alter in patients with migraine which may provide additional insight into the understanding of the migraine etiology. Also, the heavy metal and trace element parameters may be used as diagnostic biomarkers. However, further epidemiological studies are needed.

Keywords: headache, migraine, heavy metal, trace element, micromineral, ICP-MS.

Abbreviations

Heavy metals and trace elements (HMTE)

Inductively coupled plasma mass spectrometer (ICP-MS)

Arsenic (As)

Cadmium (Cd)

Cobalt (Co)

Lead (Pb)

Mercury (Hg)

Nickel (Ni)

Tin (Sn)

Antimony (Sb)

Chromium (Cr)

Copper (Cu)

Iron (Fe)

Magnesium (Mg)

Manganese (Mn)

Molybdenum (Mo)

Zinc (Zn)

Standard deviation (SD)

Biological exposure indices (BEI)

Introduction

Migraine has been a challenging clinical syndrome since ancient times.[1] It is the second leading cause of years lived with disability worldwide affecting over %10 of the population.[2] Although the whole picture of migraine pathogenesis is not revealed, trigeminovascular system activation, cortical spreading depression, and dural perivascular nociceptor activation have been adopted as the main pathways involved in migraine with the genetic component which support its multidimensionality.[3] Nevertheless, migraine does not have a universally accepted diagnostic, prognostic, or therapeutic follow-up biomarker despite many efforts.[3,4]

Many factors have been claimed to be related to migraine.[5,6] Since migraine is a heterogenous complex disease with several dietary triggers, diet is suggested as a disease-modifying agent such as elimination approaches.[7] Also, some supplementation with some micronutrients has been investigated such as a recent double-blind randomized placebo-controlled clinical trial on zinc supplementation reporting its beneficial effect on the frequency of migraine attacks.[8-10] Therefore, research efforts evaluating how trace elements and environmental metal exposures interact with the genetic environment of humans and how they affect homeostasis have gained momentum in the last decade. Trace elements participate in many functions in the body through humoral and cellular mechanisms, such as growth and development support, nerve conduction, muscle contraction, membrane potential regulation, mitochondrial activity, and enzymatic reactions. On the one hand, they may represent potentially toxic properties.[11] These concerns are valid for heavy metals as their accumulation in the body negatively affects human health. Many reports showed that various diseases are associated with altered homeostasis of trace elements in the human body and high exposure to toxic metals in the environment.[11-14] The metals trigger the production of free radicals that lead to oxidative stress and depletion of the body's main antioxidant and also affect the metabolism of metallothioneins (small metal-binding proteins with high sulfur content).[5-6]

Although the aforementioned reports, there are limited studies that comprehensively investigate the role of heavy metals and trace elements (HMTE) in migraine patients. Considering the pathologic homeostatic effects, a trace element profile in favor of deficiency and a heavy metal profile in favor of excess are likely in patients with migraine. Therefore, the present study aimed to evaluate the HMTE levels in patients with migraine and compare them to healthy volunteers.

Methods

Study design and sample collection

The study was designed as a prospective case-control study. The study was approved by the institutional ethics committee (2017-KAEK-189_2021.04.28_06). The written consent form was obtained from all the participants. The eligible consecutive migraine patients with an acute attack who admitted to the emergency department from June 2021 to December 2021 were included. A definitive migraine diagnosis by a neurologist for more than a year, being a non-smoker, and not having additional chronic disease were the inclusion criteria for the patient group (n = 50). The sex and age-matched control group participants were selected among the non-smoker healthy volunteers without any chronic disease including migraine (n = 50). A family history of migraine was another exclusion criterion for the control group. The blood samples taken from all participants were centrifuged for 15 minutes at 3000 rpm. The serum contents were stored in eppendorf tubes at -80°C until the analysis. All preliminary preparations of the samples were carried out in the multidisciplinary research laboratory of the university. The samples were treated with 5 ml of distilled water, 5 ml of nitric acid, and 2 ml of hydrogen peroxide. They were placed in 50 ml polypropylene tubes and completed with distilled water up to 20 ml. Afterward, the refined samples were transferred to University Science and Technology Application and Research Center for trace element and heavy metal levels measurements.

Laboratory analysis

The analysis was performed by an inductively coupled plasma mass spectrometer (ICP-MS) instrument (Thermo Scientific ICAPQC, USA). A total of 7 heavy metals [arsenic (As), cadmium (Cd), cobalt (Co), lead (Pb), mercury (Hg), nickel (Ni), and tin (Sn)] and 8 trace element parameter [antimony (Sb), chromium (Cr), copper (Cu), iron (Fe), magnesium (Mg), manganese (Mn), molybdenum (Mo), and zinc (Zn)] levels were measured in the samples. The calibration chart was created with 11 points.

The operating parameters were set as follows: radiofrequency power 1550 W, nebulizer gas 0.96 L/min, plasma gas 0.88 L/min, nebulizer pressure 3.01 bar, dwell time 0.01 ms, and spray chamber temperature 3.7°C. The sampler probe was washed between injections by rinsing with ultrapure water for 30 seconds, followed by washing with 2% HNO_3 for 50 seconds, and finally rinsing with ultrapure water for 50 seconds. To ensure the accuracy of the results, each measurement of the samples and standards was repeated three times.

Validation of analysis methods

The certified reference material (Seronorm Whole Blood Label-2, Seronorm™ Trace Elements, Norway) was used for method optimization and validation. In addition, the standard and sample measurements were tested five times

to increase the accuracy of the results and reduce the relative standard deviation (<5%). The inter-day and intra-day precision of standard reference material based on the standard deviation of replicates was used for the quality control of ICP-MS methods.

Statistical analysis

Data were analyzed using SPSS 25.0 (Statistical Package for the Social Sciences IBM Inc; Chicago, IL, USA). The Kolmogorov-Smirnov test was used to evaluate the normality of the data distributions. The data were expressed as mean ± (Standard deviation) SD µg/L. Student t-test was used in independent group comparisons. A p value <0.05 was considered significant.

Results

Our study was completed with the participation of 100 volunteers including 50 healthy controls and 50 migraine patients. The median age was 27 (23-37) years, and the female/male ratio was 37/13 for the groups. The mean levels of all tested HMTEs did not exceed the internationally determined biological exposure indices (BEI) which are values used for guidance to assess biological monitoring results.

When the two groups were compared, significant differences were found in some HMTEs (Table 1). Increased As, Co, Pb and Ni levels between control and migraine groups were seen among heavy metals. The As, Co, Pb and Ni levels were detected as 4.79 ± 1.04 vs 5.39 ± 1.69 µg/L (p = 0.033), 0.80 ± 0.47 vs 1.05 ± 0.54 µg/L (p = 0.017),

24.27 ± 19.00 vs 34.28 ± 23.63 µg/L (p = 0.022) and 0.94 ± 0.23 vs 1.12 ± 0.48 µg/L (p = 0.021), respectively. Although Hg levels were analyzed for both groups, the relevant levels were found to be below the detection limit.

Trace element analysis results showed significant changes in both directions. Cr, Mg and Zn levels in migraine group were found as 8.39 ± 1.45 vs 7.64 ± 1.27 µg/L (p = 0.007), 16.52 ± 4.97 vs 14.48 ± 3.84 µg/L (p = 0.024) and 5133.63 ± 4535.63 vs 2984.28 ± 3256.50 µg/L (p = 0.008), respectively. However, Mn levels were found to be significantly higher in migraine group (6.48 ± 2.43 vs 9.68 ± 5.37 µg/L, p = 0.001). Although there were some differences in Cd, Sn, Sb, Cu, Fe, and Mo levels, no statistical significance was found (p >0.05).

We performed correlation analysis between HMTE levels for control and migraine groups separately. The detailed control group analysis was summarized in Table 2. The control group analysis showed Mg had negative significant correlations with Mn, Fe, Ni, Zn and Cd levels as Mn with Co, Cu, As levels (p <0.05). Positive significant correlations were detected between Cr and Mn and Pb levels as Mn and Fe, Ni, Zn, Cd and Pb levels (p <0.05). The detailed migraine group analysis was summarized in Table 3. A negative significant correlation was found between Mg and Cr levels, while a positive significant correlation was found between Mg and Cu and Cd levels in migraine patients (p <0.05).

Discussion

Our findings showed that patients with migraine had higher As, Co, Pb, Ni and Mn levels but they had lower Cr, Mg and Zn levels compared to control group. Cd, Sn, Sb, Cu, Fe and Mo levels did not differ between the groups. Hg levels were below the detectable levels in both groups.

Migraine is among the diseases which were investigated to reveal the possible link with HMTEs. Donma *et al.* were the first researchers who reviewed the relationship between metals and headache in 2002.[15] The authors concluded that metals can be utilized as possible biological markers for the diagnosis and during the therapy of different headache syndromes including migraine. Later, Gonullu *et al.* conducted the most comprehensive migraine specific study on HMTE aspect.[16] They measured a total of 8 separate serum HMTE levels including Cd,

Co, Pb, Cu, Fe, Mg, Mn, and Zn in migraine patients and compared to healthy controls. They reported increased Cd, Pb, Fe, and Mn, decreased Cu, Mg, and Zn and unchanged Co levels. They concluded that disrupted HMTE levels can be a predisposing factor for migraine. Since their study, no further comprehensive research measuring HMTE levels in migraine population was conducted until ours. Our results showed many similarities to theirs such as increased Pb and Mn levels and decreased Mg and Zn levels. However, we did not find any significant change in Cd, Cu, and Fe levels as they did. However, we achieved to show increased As, Ni Cr, and levels and unchanged Hg, Sn, Sb, and Mo with a larger number of HMTE parameters. Another study conducted on hair samples and examining mineral levels in common diseases, including migraine, found no significant change in migraine patients, except for increased tungsten levels.[17]

There are also literature reports on a single mineral level rather than HMTE groups. Those studies showed the relationship between low serum Zn levels and migraine attacks, supporting the results of Gonullu *et al.* and ours.[10,16,18] Moreover, a randomized controlled trial published in 2021 found the potential effect of oral supplements containing Zn, as an essential trace element, on decreasing the frequency, duration, and pain intensity of migraine patients' attacks.[19] Mg is a relatively more explored trace element like Zn. It is the second most abundant cation in body cells involving more than 350 enzymatic steps.[20] It is essential for many biological reactions such as mitochondrial energy production and stabilizing neuronal electric potential. There are reports supporting that it may be related to the pathogenesis of migraine as well. The disruption of Mg level has been linked to threshold establishment for migraine attacks as well as involving cerebral artery spasms and increased release of pain mediators such as substance P.[21] Some reports showed that Mg deficiency is more common in migraine patients and Mg supplementation has positive effects on migraine.[22-25] Mg has also been offered as a second-line treatment for migraine via intravenous, oral, and transdermal routes with a rare side effect profile.[26]

Although trace elements expected to be decreased in migraine, it may be surprising finding Mn levels elevated. Similar to the literature, we found higher Mn level in migraine patients. Mn is essential for human health by acting as a cofactor in the active centers of various enzymes and is required for numerous vital processes, including normal development, nerve and brain development, cognitive functions, and more.[14,27] However, overexposure to this metal can be toxic to many organ systems and different life stages.[28-29] It has been associated with other negative outcomes, including parkinsonism, learning deficits and neurodegeneration.[30-33] The most important clinical finding of migraine is pain. Decreased inhibitory neurotransmission resulting from low concentrations of

gamma-amino butyric acid (GABA), the main inhibitor of the central nervous system, may play a role in the pathophysiology of migraine and other central pain syndrome.[34-36] Mn exposure alters GABA levels, even at non-cytotoxic levels for neurons.[37] Additionally, impaired GABAergic neurotransmission by Mn neurotoxicity was reported in animal models.[38,39] Lastly, it may play a role in migraine via the negative effects on glutamate which is the primary excitatory neurotransmitter and a critical signaling molecule.

In our study, we analyzed 4 additional trace elements (Sb, Cu, Fe and Mo) other than the aforementioned Mg, Mn and Zn. Among them, the only significant change was observed in Cr level. It has been suggested that chromium is involved in regulating carbohydrate, lipid and potentially protein metabolism by increasing the efficacy of insulin. It can exist in various oxidation states. However, in 2014 the European Food Safety Authority found no convincing evidence that chromium is an essential element.[40] Chromium deficiency is a very rare condition. Its common presentations are impaired glucose tolerance, fasting hyperglycemia, hypoglycemia, increase in serum insulin amount, decrease in the number of insulin receptors, decrease in lean body mass, peripheral neuropathy.[41-43] In a case report, a patient had a history of progressive visual impairment, hearing loss, peripheral neuropathy, poorly controlled diabetes mellitus, cardiomyopathy, and weight loss, due to metal corrosion of the hip prosthesis, greatly increased serum chromium and cobalt levels, and significant improvement after replacement of the defective implant.[44] The vitamin B12 is a complex containing cobalt. It has been clearly stated that this vitamin must be at least one of the metabolically active products of cobalt metabolism. Cobalt deficiency causes cardiomyopathy, congestive heart failure, pericardial effusion, polycythemia, and thyroid enlargement. Cobalt deficiency can also lead to fatigue, digestive disorders and neuromuscular problems, as it leads to reduced availability of B12.[45] We could not find any study evaluating Cr and Pb levels in migraine cohorts. Our results showed increased Co levels which was found unchanged by Gonullu *et al*.[16]

Literature includes different HMTE parameters that we did not analyze like Selenium (Se). A migraine attack-induced rat model showed the protective effects of riboflavin and Se administration by altering mitochondrial oxidative stress in the brain.[46] A similar study reported that migraine patients had lower Se and higher malondialdehyde levels which support the oxidative stress step in migraine pathogenesis.[47-48]

The study has several strength and limitations. Our study was performed in a larger population (50 vs 50) with a wider collection of HMTE (7 heavy metal and 8 trace element parameters) compared to the study conducted by

Gonullu *et al*.[16] However, the study groups can still be considered to have relatively small number of participants. Also, the related symptoms and clinical findings of migraine like pain severity or frequency were ignored during the study.

Conclusion

How trace element levels and environmental metal exposures affect individuals' personal health is still a matter of debate for headache. It is likely that HMTE alterations play a role in migraine pathogenesis which needs further research. This study showed that patients with migraine had higher As, Co, Pb, Ni and Mn and lower Cr, Mg and Zn blood levels. Therefore, they can be candidate for migraine research on pathogenesis and diagnostic screening.

Conflict of interest: The authors declare no conflict of interest.

Funding: The study was funded by Yozgat Bozok University Scientific Research Project Coordination Unit, Yozgat, Turkey (Project no: TGA-2021-863).

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Table Legends

Table 1. Comparison of heavy metal and trace element blood levels between control and migraine groups.

Table 2. Correlations of heavy metal and trace element blood levels in control group.

Table 3. Correlations of heavy metal and trace element blood levels in migraine group.

Pub No: OP-195

A Rare Case: Posttraumatic Renal Infraction

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Abstract

Background: Renal infarction is a rare condition that occurs as a result of insufficient blood flow to the renal parenchyma tissue. In this report, we present the case of a male who unfortunately had a trauma and we observed that in the left renal artery was totally occluded due to trauma.

Case report: A 50-year-old male patient presented to our emergency department due to a fall from a height on his own. In the physical examination of the patient, there was severe tenderness in the left side of the chest and the left upper quadrant of the abdomen. after the patient's vitals were checked and the first emergency evaluation was made, a computer tomography (CT) was taken. We observed that the patient with multitrauma had fractured ribs and a total occlusion in the left renal artery.

Conclusion: In conclusion, this case report documents the importance of post-traumatic renal infarction, early recognition and treatment of the disease are of vital importance.

İntroduction:

Renal infarction is a rare condition that occurs as a result of insufficient blood flow to the renal parenchyma tissue. Although the kidneys have protective structures against trauma, in some cases, blood circulation in the kidneys may be impaired and infarction may develop as a result of trauma.

Case; A 50-year-old male patient presented to our emergency department due to a fall from a height on his own. In the physical examination of the patient, there was severe tenderness in the left side of the chest and the left upper quadrant of the abdomen.

The patient's vital signs were blood pressure 140/80, O2 saturation of 95%, temperature 36.6 C, heart rate 96 beats/min and GCS was 15. In the current clinical state of the patient, computed tomography (CT) of the thorax and contrast-enhanced abdomen was requested urgently. In the thorax CT, linear fracture lines in the posterior arch of the left thoracic 8-12 ribs and left hemotorax were observed by the emergency department physician. However, we observed that the contrast enhancement in the left kidney was significantly reduced

compared to the right. It was observed that there was total occlusion from the proximal segment of the left renal artery.

In addition, there was an increase in size in the left psoas muscle compared to the right. There was no obvious hematoma around the kidney parenchyma or pedicle. Renal function tests were normal and there was no low hemoglobin.





Figure 2 posttraumatik right renal infarction

Figure 3 post-traumatic right renal infarction

The patient was consulted with urology. It was thought that the left kidney was not enhanced due to renal artery thrombosis due to damage in the renal artery intima secondary to trauma. Emergency surgery was not considered because of the risk of autonephrectomy in the patient's left kidney. Intravascular analgesic and hydration were started in the treatment of the patient, whom we followed up in the red area with monitorization. A thoracostomy was performed on the left lung due to hemothorax in the left lung

Due to multiple fractures in the left ribs, our patient was followed up in the intensive care unit by the thoracic surgeon. The patient, who did not detect any pathology in the kidney function tests and hemogram during the follow-up, was followed in the intensive care unit for 3 days.

Later, the patient was taken to the service, control chest X-ray and routine blood tests were taken. The next tube thoracostomy was taken and the control chest X-ray was seen again. The patient was followed up in the service for 2 days. The patient was in good general condition and no pathology was found in laboratory tests. He was discharged with the recommendation of thoracic surgery, urology and orthopedics outpatient control. It was observed in the epicrisis that the patient did not develop any complications in the 3-month outpatient follow-up.

Conclusion and discussion

Renal infarction is a rare condition caused by decreased or total occlusion of renal arterial flow. In a study by M. Antopolsky et al., in which they conducted a 10-year retrospective case series and also a review of the literature; The most common cause of renal infarction was found to be atrial fibrillation(1)

When we look at other literature sources, we can see a case of spleen contusion and bilateral renal infarction with pneumoperitoneum in a 38-year-old patient after high-energy trauma in an article by Rafai M. and his friend in 2015(2).As in this case, an article that developed after high-energy multitrauma was presented in our case. This situation brings to my mind the question of whether the risk of renal infarction increases in high-energy traumas.
Renal infarction may occur due to trauma, as well as idiopathic or spontaneously in patients with new-onset and severe abdominal pain, as Eren.Z et al.

The importance of post-traumatic renal infarction, early recognition and treatment of the disease are of vital importance. Interruption of the blood supply to the kidney tissue can affect kidney function and lead to serious complications. For this reason, an emergency physician should have the ability to interpret CT scans quickly and accurately. A careful approach is required in terms of infarct development in post-traumatic kidney injuries.

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Pub No: OP-196

Emergency approach to a case of infective endocarditis caused by Aspergillus species

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İnroductıon

Endocarditis due to fungal etiology is a rare condition , but is considered the most severe form of infective endocarditis. The most common etiological factors of invasive fungal infection (IFI) are Candida albicans and Aspergillus fumigatus.

Aspergillus species and all other fungi appear to cause larger and more fragile vegetation than bacteria. Aspergillus endocarditis of native valves is very rare in patients who have not had recent cardiac surgery. Most of these cases have underlying immunosuppression, and reports of patients who are not immunosuppressed and are not using intravenous (IV) medications are few .

Aspergillus endocarditis is one of the barely diagnosed diseases with high mortaliy rates. It accounts for less than 5% of all infective endocarditis cases.

Aspergillus endocarditis is one of the barely diagnosed diseases with high mortaliy rates.

The presence of Aspergillus infection in apparently normal heart chambers without any intracardiac device is extremely rare, and the presented case study reports such a scenario.

We present a case of native mitral valve Aspergillus endocarditis treated successfully with emergent surgical and medical treatments.

Case Report

A 38-year-old male patient presented to emergency department with complaints of inability to speak and loss of strength in the right extremity.Acute diffusion restriction was observed in the L-MCA irrigation area. In the patient who underwent TEE under emergency conditions to ,a hypermobile mass of 2.2*1.1cm originating from the atrial appendage was observed, consistent with a thrombus extending into the mitral valve.Left ICA and MCA were seen in the total occluded CTA.Embolectomy was performed by interventional-radiology.It was reported that fungal hyphae were seen in the pathological examination of the patient who had bilateral femoral embolectomy performed two months ago.On thorax CT, a 63*50mm mass lesion was seen in the left upper lobe of the left lung.With the preliminary diagnosis of fungal endocarditis, voriconazole treatment was started and he was taken to emergency operation.4*3cm mass invading the mitral-valve and ruptured the mitral-valve chordae was observed.There was thinning of the mitral-valve leaflets and rupture of the chordae due to infection.The lid was resected because it was not suitable for repair.

In the removed mass;fungal hypha-spores were seen, evaluated in favor of fungal infective endocarditis(Fig. 1).Aspergillus species growth was seen in the culture.

The patient, who was followed up in the intensive care unit with tracheostomy and MV for 28 days, was transferred to the service with 3/5 loss of strength on the right after his general condition improved.The patient, whose treatment continued in the infection service for 22 days, was discharged home, and the voriconazole treatment was completed in 6 months.

Discussion

Fungi are rare agents in the etiology of infective endocarditis, and early surgical intervention is mandatory. Aspergillus species infected normal valve and heart structures without any history of cardiac surgery. In the left femoral artery thromboembolectomy performed 3 months ago, thrombus material containing fungal spores and hypha structures was seen as a result of immunofluorescence staining of the tissue piece, suggesting that this is the source of aspergillus endocarditis. Delay in diagnosis and treatment causes high mortality. Antifungal therapy following total mitral valvulectomy is the recommended treatment strategy for patients with mitral valve endocarditis. We applied the same treatment strategy in this patient and were successful. As a result of the treatments administered, the patient was discharged home with full recovery.

Result

Early application of appropriate antifungal agents and rapid surgical intervention are important steps that determine the prognosis of patients.

Pub No: OP-198

An Association between The T Peak-End Interval(Tpe) as a Malign Arryhtmia Marker in Electrocardiyogram and Urgent Haemodialysis

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INTRODUCTION

Renal failure is an increasingly common condition worldwide, with increasing prevalence leading to increased disability [1]. There are different etiologies for the acute form, which occurs within hours or days, and the chronic form, which develops slowly over a long period of time. While hypovolemia, toxins or cellular damage are the common causes of acute failure, Diabetes Mellitus (DM) is frequently seen in the etiology of chronic failure [2]. Important complications are common in this patient group. Arrhythmias, one of these complications, can occur in a wide spectrum. These can be observed as atrial fibrillation or atrial flutter originating from the atria or ventricular arrhythmias. Different arrhythmias can occur that can progress to sudden cardiac death [3].

T peak-end (Tpe) interval has an important role in the identification of arrhythmias occurring on electrocardiography (ECG) [4]. Electrolyte imbalance in emergency hemodialysis (HD) patients causes cardiac effects. Electrolyte imbalance directly affects the action potential of myocytes. Accordingly, prolongation of repolarization time and change in Tpe interval on ECG are observed, and the likelihood of malignant arrhythmia increases in patients [5].

In this study, we aimed to analyze the change in the risk of malignant arrhythmia based on the effect of hemodialysis on the Tpe interval on ECG in patients who were followed up in the emergency department and received hemodialysis.

MATERIAL and METHODS

The study was carried out prospectively on patients admitted to the Emergency Department of the Third Level Training and Research Hospital between January 2023 and June 2023 with the ethics committee approval (SBU Antalya Training and Research Hospital Clinical Research Ethics Committee, numbered 2023-017, 12/01/2023). Demographic information, vital parameters, biochemical findings and ECGs of the patients included in the study were recorded at admission. ECG and biochemical findings of the patients after hemodialysis were also recorded and compared.
Patients who were older than 18 years of age and who underwent hemodialysis in the emergency department due to acute renal failure were included in the study, while patients with incomplete information, who underwent routine dialysis, who did not agree to participate in the study, and who disrupted the Tpe interval on ECG (atrial fibrillation, anti-arrhythmic drug use, toxins, K level above 6.5 mmol/L and Ca level above 15 mmol/L) were excluded

Calculation of Tpe Interval, QTc

All patients underwent 12-lead ECG (BeneHearty R12, Mindray, Shenzhen, China) at 25 mm/sec, 10 mm/mV settings before and after HD. The ECGs of the patients were digitized in high resolution with the help of a scanner and measurements were performed in leads DII and V5 with the help of an image manipulation program (GNU image manipulation program, GIMP) [6]. The obtained measurement was calculated with the ECG rate value and recorded in msec. The same procedure was repeated for asymptomatic and asymptomatic control group patients.
The R-R interval and QT intervals were calculated on the ECGs of the patients and the control group and QTc was calculated using Bazett's formula [7].

Sample Size

In a survey conducted in our country, the prevalence of patients with chronic renal failure was found to be 15% [8]. The sample analysis calculated by accepting a confidence interval of 95% and a type 1 error of 5% was found to be 54 people. It was planned to be performed on 60 people with a 10% compensation.

Statistical Analysis

Data were analyzed using statistical analysis software (IBM SPSS 27 and GraphPad Prism 9). The findings were analyzed at 95% confidence interval and 5% significance level. In the evaluation of the data, number and percentage were used for categorical data and mean, standard deviation, median, minimum-maximum for numerical data as descriptive statistical methods. In the statistical analysis, firstly, whether the groups were suitable for normal distribution was examined by Kolmogorow Smirnow or Shapiro Wilks test. Student's T test and Mann Whitney U test were used to evaluate numerical data and chi-square test was used to evaluate categorical data. Multiple Linear Regression analysis was performed for correlation and multifactor comparisons. Findings with a p value below 0.05 were considered statistically significant.

RESULTS

The study included 62 HD patients, 27 of whom were women. The mean age of HD group patients was calculated as 62.16±15.25 years. Descriptive data of the patients are shown in Table 1 and comorbidities and outcomes are shown in Table 2.

Table 1. Demographic data, vital signs and ECG parameters of the patients

Group		n	Mean	SD	P value
Age	HD	62	62,16	15,25	**<0,001**
	Kontrol	61	47,69	17,41	
Height (cm)	HD	62	168,40	5,90	**0,002**
	Kontrol	61	168,61	8,93	
Weight (kg)	HD	62	71,40	11,39	**0,029**
	Kontrol	61	75,10	13,75	
Saturation (%)	HD	60	95,83	4,17	**<0,001**
	Kontrol	61	97,72	1,40	
Pulse rate (/min) -1	HD	62	84,69	13,64	0,210
	Kontrol	61	89,36	15,53	
Pulse rate (/min) -2	HD	62	86,85	15,24	-
	Kontrol	0			
	HD	62	151,56	31,74	0,092

SDB 1 (mmHg)	Kontrol	61	138,61	23,25	
DKB 1 (mmHg)	HD	62	84,32	18,02	0,237
	Kontrol	61	83,52	15,11	
SDB 2 (mmHg)	HD	62	145,03	27,07	
	Kontrol	0			
DKB 2 (mmHg)	HD	62	81,35	14,26	
	Kontrol	0			
QTc 1	HD	62	429,79	28,96	**<0,001**
	Kontrol	61	371,34	32,49	
V5 Tpe 1	HD	62	82,23	19,48	**0,005**
	Kontrol	61	70,07	11,33	
DII Tpe 1	HD	62	81,23	24,31	
	Kontrol	0			
V5 Tpe/QTc 1	HD	62	0,19	0,05	**0,016**
	Kontrol	61	0,17	0,03	

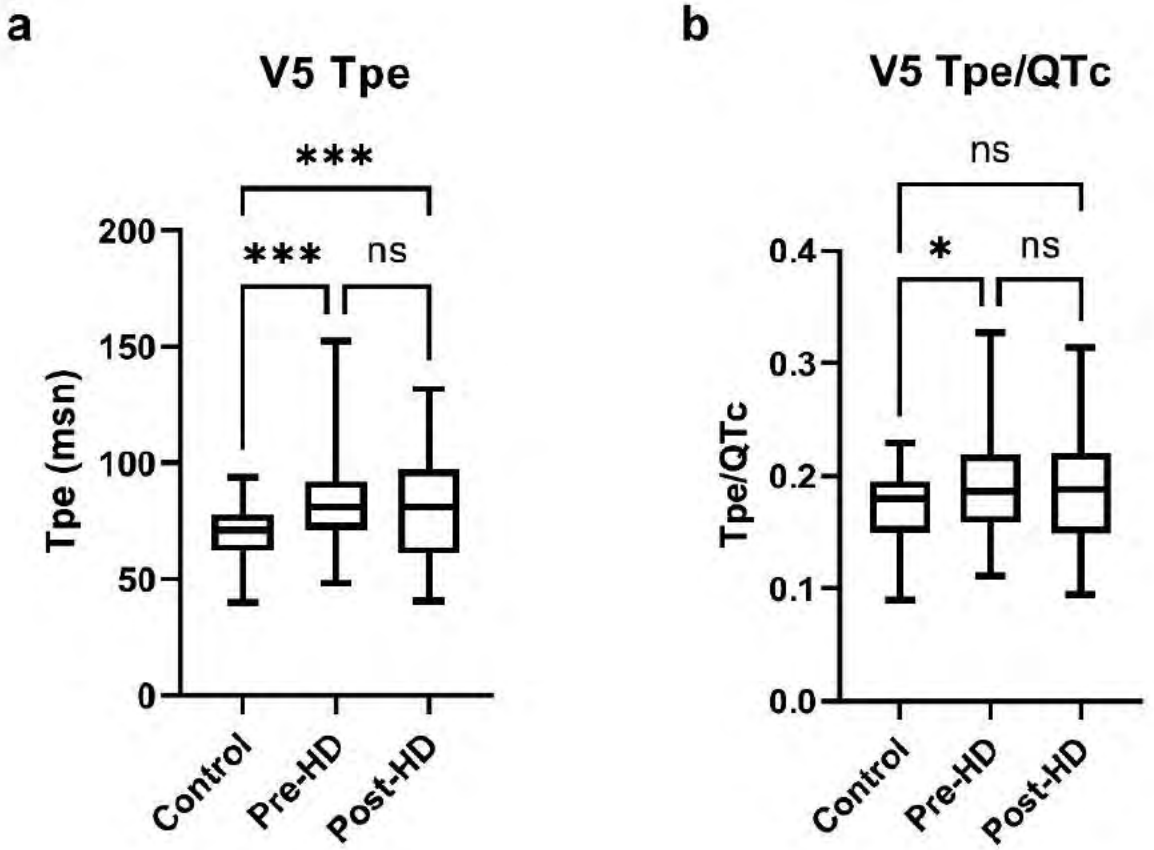
Table 2. Comorbidities, outcome and 1-month mortality

	n	**%**
Diabetes Mellitus (DM)	31	50
Hypertension (HT)	48	77,4
Coronary Artery Disease (CAD)	14	22,6
Cerebrovascular Events (CVO)	3	4,8
Outcome		
Discharged	0	0
Service	58	93,4
Intensive care	4	6,6
Excitus	16	25,8

Tpe intervals in leads DII and V5 and Tpe/QTc ratio in lead V5 before and after HD were compared within and between the control group. Comparison results are shown in Table 3 and Figure 1.

Period	Mean	Std. Deviation	p-Value Before Control	p-Value Before Control

					-After Control -	-After Control -
QTc Control		61	371,34	32,49		
	Before	62	429,79	28,96		
	Then	62	429,87	22,21	0,652	0,016
V5Tpe Control		61	70,07	11,33		
	Before	62	82,22	19,48		
	Then	62	81,85	21,18	0,005	<0,001
V5TpeQTc Control		61	0,17	0,03		
	Before	62	0,19	0,05		
	Then	62	0,19	0,05	0,006	<0,001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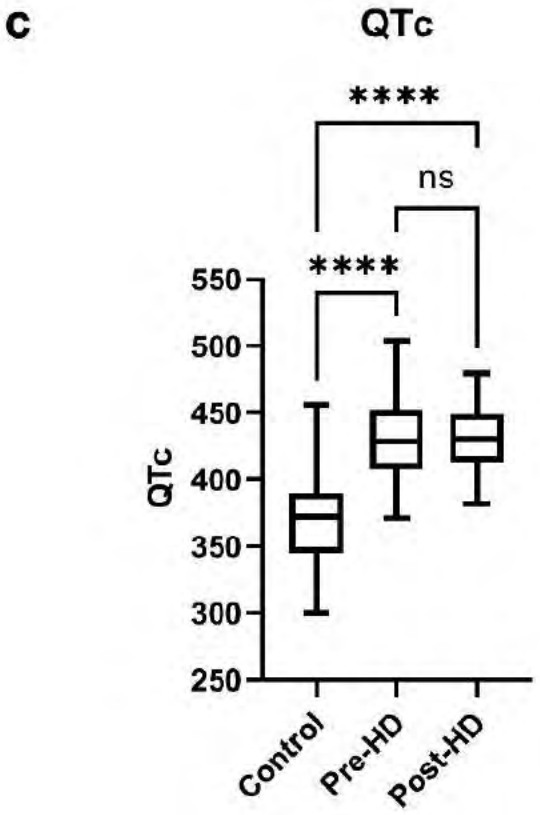
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550
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450
400
350
300
250
QTc
Control
Pre-HD
Post-HD

In the grouping according to mortality status, no significant difference was observed in the QTc value, V5 and D2 Tpe intervals, Tpe/QTc ratio in lead V5 at admission. The values of the patients according to mortality status are shown in Table 4.

Tablo 4. *Mortaliteye göre EKG ölçümlerinin karşılaştırılması*

Mortality		N	Mean	SD	P Value
QTc 1	Sağ	46	427,4783	28,88424	0,636
	Eksitus	16	436,4375	29,06308	
V5 Tpe 1	Sağ	46	80,3783	16,64453	0,083
	Eksitus	16	87,5500	25,91314	
DII Tpe 1	Sağ	46	80,6783	24,39940	0,559
	Eksitus	16	82,8250	24,76997	
V5 Tpe/QTc 1	Sağ	46	0,1889	0,04130	0,232
	Eksitus	16	0,2003	0,05566	
V5 Tpe/QTc farkı	Sağ	46	0,0104	0,05283	0,341
	Eksitus	16	-0,0330	0,03970	
V5 Tpe farkı	Sağ	46	4,6217	21,97312	0,633
	Eksitus	16	-14,7750	20,53899	
D2 Tpe farkı	Sağ	46	-2,3304	33,87239	0,966
	Eksitus	16	-10,2500	33,41070	

DISCUSSIONS

In our study, we analyzed and evaluated the demographic data, comorbidities, vital parameters at admission and after HD, laboratory test results, ECG findings before and after HD, and 1-month mortality of 62 patients admitted to the emergency department and in need of HD and 61 control groups.

HD patients are at high risk of arrhythmogenic events and death from cardiac causes. In studies conducted in the United States, it was reported that 26% of cardiac deaths were associated with the need for HD. In a study conducted in Germany, the mortality rate in HD patients was reported to be between 22-26% [9, 10]. In our study, 16 of 62 HD patients died within 1 month (26%). The findings in our study were similar to the findings in the literature.

The main changes observed in the ECG in hyperkalemic states are elevation of the T wave, prolonged PR interval, disappearance of the P wave at

more advanced levels and widened QRS. Observation of conditions such as QRS wave widening, bradycardia, ventricular tachycardia is high risk [11].

In a study by Tse et al. a meta-analysis of 155856 patients including 854 studies was performed. It was found that prolongation of the Tpe interval was an important predictor of arrhythmia and mortality [12]. In a study on sudden cardiac death, Panikkath et al. evaluated the Tpe interval on resting ECGs. The Tpe interval, which was calculated as 76.1 msec in control cases, was calculated as 89.4 msec in patients with sudden cardiac death [13]. Yumurtacı et al. found that QRS complex decreased in patients with acute myocarditis, and Tpe interval and Tpe/QTc ratio were significantly higher in patients with arrhythmia [14]. In a study conducted by Monfared et al. in patients with ESRD [5], it was concluded that Tpe/Qt ratio decreased and Tpe did not change after HD session. In a study by Yoon et al, the effects of serum K values on T wave were examined, and a correlation of 0.99 with amplitude and 0.97 with the observation of right slope was found [15].

In our study, we analyzed the Tpe interval to predict arrhythmia in patients. Compared to the control group, the Tpe interval was significantly higher in lead V5 and the Tpe/QTc ratio was significantly increased in the same lead. However, there was no significant change in Tpe interval in leads DII and V5 before and after HD procedure. This supports the studies in the literature that arrhythmia may be observed in patients with ESRD requiring HD.

CONCLUCIONS

While the Tpe interval of healthy people included in the control group was significantly shorter than that of patients with HD, the lack of a significant effect of HD on Tpe suggests that K and pH control alone is not a preventive factor on arrhythmia in these patients.

Limitations

Our study was planned prospectively, but since the patients included in the study were included through a single center, there are local effects on the homogeneity of the participants. Conducting the study with more participants and in multiple centers may produce meaningful results for further diversification of the data to be obtained. Comparison between Tpe measurements and etiologic differentiation of patients requiring HD will be helpful in determining the factors affecting Tpe. In our study, patients with

severe hyperpotassemia were excluded. It may be useful to show the effect of potassium by comparing Tpe intervals before and after hemodialysis in patients with severe hyperpotassemia with more participants.

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Pub No: OP-200

RECONSTRUCTİON EXPERİENCE İN THE POST-EARTHQUAKE DESTROYED EMERGENCY DEPARTMENT

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Abstract: The earthquakes that occurred in February 2023 in Turkey have affected a total of 13 million people living in 11 provinces. The emergency department of our hospital has suffered significant damage and has been evacuated during the second earthquake. Additionally, the safe transfer of patients and staff during the hospital and emergency department evacuation, as well as the arrangements made for setting up a new emergency department during the disaster, have been evaluated.

Aim: Our study was a research evaluating triage practices in emergency departments, and it revealed the need for the development of comprehensible disaster triage algorithms for hospitals.

Keywords: Earthquake, Emergency, Amputation, Renal failure, Thromboembolic events, Crush injuries.

Material Method: The necessary training was given to the hospital staff according to the "Hospital disaster and emergency plan (HAP) preparation guide" published by the Ministry of Health(1). Structural Risk Reduction and Non-Structural Risk Reduction were decided by the trained staff. Job descriptions were determined and workflows were created in case of disasters and emergencies. The data occured before the earthquake and during the emergency response after the earthquake were used.

Results: The in such earthquake, providing sufficient medical care to patients may be disrupted, and different strategies may need to be developed. Therefore, simple and understandable disaster triage algorithms should be developed for hospitals(2). A study evaluating triage practices in emergency departments found that 30% of triage personal lacked confidence in their decision-making abilities(3). According to literature, disaster drills play an important role in improving personnel's knowledge, skills, and attitudes towards being prepared for disasters(4).

INTRODUCTION

On February 6th, 2023, two separate earthquakes measuring 7.7 and 7.6 on the Richter scale occurred in Kahramanmaraş, followed by a third earthquake measuring 6.4 in Hatay on February 20th. These earthquakes caused major destruction in 11 cities in Turkey, leading to the World Health Organization declaring a Level 3 emergency. The city of Gaziantep was affected by all three earthquakes, with 3,755 buildings destroyed and 9,541 people losing their lives. As of the date of this writing, official figures indicate that 50,096 people have lost their lives and 107,204 people have been injured in the country.

Our Hospital and General Precautions

After the first earthquake in the region, the emergency department of our hospital continued to provide services with the help of health personnel who were affected by the disaster. However,

after the second earthquake, which occurred approximately eight hours later, our hospital suffered severe damage and had to be evacuated. When we were evaluated the patients who applied to our hospital's emergency department during the 10 days after the earthquake compared to the same period last year. We determined that there were changes in the demographic structure of the patients following the earthquake.

Following earthquakes that can cause mass casualties and multiple injuries, the functioning of emergency departments and hospitals progresses differently than normal processes. Instead of the understanding of doing everything for everyone in a disaster situation, the strategy of providing the best care for a large number of injured people comes to the fore. Triage systems have been developed in hospitals to ensure that the limited resources available are used appropriately and in an organized manner for the suitable patient among many patients or injured people. Regular training and simulations on disaster triage before disasters by all health professionals working in hospitals and emergency departments are important(6). Additionally, being prepared and taking precautions before a disaster is crucial in minimizing problems that may arise after the disaster.

The Islahiye and Nurdagi districts in our province have suffered serious damage due to the disaster. Therefore, our hospital and emergency department have become one of the important centers that meet the needs of earthquake victims. The bed capacity of our hospital is given in Table 1.

DR. ERSİN ARSLAN EDUCATION AND RESEARCH HOSPITAL BED CAPACITY	
Intensive Care Unit	156
Servise	847
Daycare Dialysis Unit	34
Dialysis Service	35
TOTAL	**1072**

Table 1: Dr. Ersin Arslan Education and Research Hospital Bed Capacity

Our emergency department is a clinic that serves an average of 800 patients daily. Our emergency department consists of a 1-bed triage area, 2 isolation beds, a yellow and green area consisting of 37 beds, 9 Resuscitation and critical patient care areas, and a trauma and orthopedic patient care area with 2 beds.



Figure 1: Adjustment of emergency department bed number under disaster scope

As soon as the earthquake information was received in our hospital, each department evaluated the status of its personnel through WhatsApp groups. Personnel who were affected by the earthquake, either themselves or their first-degree relatives, were identified through these communication groups. All doctors and other healthcare professionals who were not affected by the earthquake were called to duty. (Table shows the number of personnel on duty and the number of personnel affected by the earthquake.) The leaves of healthcare professionals who were on leave were canceled. Our hospital's bedded wards, operating rooms, intensive care units, and emergency department were reorganized according to the emergency disaster plan. Accordingly, a crisis-coordination unit was established with the participation of the hospital management and relevant departments. The crisis-coordination unit was composed of the chief physician, deputy chief physicians, two specialist physicians from the surgical units, two specialist physicians from the internal medicine units, and an emergency medicine specialist. A crisis-coordination communication group was established to communicate with the unit. The technical services directorate, support services directorate, and information processing directorate were added to the communication group under the leadership of the hospital director.

According to the decisions taken by the crisis coordination unit; Patients who were initially stable or hospitalized for further examination were discharged from the hospital urgently. By contacting the provincial disaster commission, the discharged patients were provided with accommodation and care in empty student dormitories, accommodation centers and hotels in the city center. All transfer procedures of the patients were performed by hospital vehicles and staff.

Considering that a large number of intensive care beds may be needed, the number of intensive care beds has been increased to 175. Elective surgeries have been postponed.

Radiology and Biochemistry laboratories have been put on alert. These departments have been supported in terms of both the number of physicians and healthcare workers.

Notifications have been made to the transfusion center, taking into account the need for transfusion of blood and blood products in the event of a disaster. The number of blood and blood product stocks has been increased. Through the Red Crescent, announcements have been made throughout the city to encourage people to donate blood.

Crush injuries pose a significant health problem in patients trapped under debris. This issue has been urgently evaluated by emergency medicine and nephrology specialists. The specialist doctors, general practitioners, and other healthcare professionals who will be involved in the care of patients who will apply with crush injuries have been identified. In addition, a brief training titled "Approach to Crush Syndrome Patients" has been organized for these personnel.

In Turkey, a 5-category triage system is applied in accordance with the recommendations of the Ministry of Health. These categories are classified as Red 1-2, Yellow 1-2, and Green. In the event of a disaster, a 4-category triage system has been applied in our hospital, which is compatible with the hospital's disaster plan, with categories of black, red, yellow, and green.

Elbistan-Central: Reorganization of Emergency Services After the Second Earthquake

Following the second earthquake that occurred eight hours after the first one, the hospital building sustained severe damage. In response, the crisis coordination unit decided to immediately evacuate the hospital and move the patients to a satellite clinic building with 300 beds located 5 km away. Priority was given to patients in surgery and those in the hospital's coronary and general intensive care units, according to the triage system. To this end, two general surgery specialists were assigned for the operating room, two anesthesiology specialists for the general intensive care unit, and two cardiology specialists for the coronary intensive care unit. An emergency medicine specialist was also appointed as the team leader responsible for coordination. All patients were moved to safe areas within the building prior to transport, with priority given to patients in the operating room and those who were intubated. Triage cards were created, and a transport order was established. Local EMS was coordinated throughout these procedures. Available empty beds in operating rooms and intensive care units of other state and private hospitals in the city center, particularly the satellite clinic, were listed in terms of number and location. After determining the number of patients to be evacuated and the hospitals they would go to, local EMS and hospital ambulances transported the patients to the emergency department in order of triage number and then to the designated hospitals by ambulance. As the hospital entrance and exit were the safest place for ambulance access and emergency intervention in case of any urgent situation, patient transport was provided from the emergency department. At least two paramedics accompanied each patient during their transportation to the emergency department and during ambulance boarding. The entire transport process was coordinated by emergency medicine specialists. Ventilated patients were given priority during transport, and two patients undergoing surgery and one patient undergoing angiography were transferred based on triage priority during the earthquake. The numbers of all transferred patients are given in Table 2.

Service	Number
Intensive care	54
Operation room	2
Emergency room	6
Others	107

TOTAL	**169**

Table 2: Number of patients transferred

The transportation of all patients to the additional hospital building and public and private hospitals in the city center took approximately five hours. Afterwards, our hospital and emergency department began to be moved to the satellite clinic with all technical equipment, materials, and personnel within the scope of disaster preparedness. The 12-bed emergency department here has been expanded as much as possible. For this purpose, waiting areas for patients have been removed, three triage chairs have been placed in these areas, and two triage nurses have been stationed at the entrance. Also, the private offices and rest areas of healthcare professionals have been added to the emergency department. The existing service beds in the emergency department have been removed and replaced with emergency stretchers, creating a new emergency department with a 2-bed resuscitation area, a 15-bed yellow/green area, and a 1-bed trauma area. Service began to be provided in this emergency department from the second day of the earthquake.

In the first few days following the earthquake, the injured were transported to hospitals in surrounding areas from 11 provinces under the disaster zone, as well as from the districts of these provinces, by local EMS ambulances and their own means. Under the coordination of the local EMS center, numerous patients were transported to both local and advanced medical centers by land ambulances, air ambulances, planes, and sea ambulances. While patients were being distributed to controlled centers through local EMS triage, 1072 patients were brought to our emergency department within 8 days. During the acceptance of patients to be transported by ambulance, communication was made with the Gaziantep Local EMS Ambulance Command and Control Center at frequent intervals, and the emergency service organization was rearranged accordingly. These patients were triaged and placed in appropriate areas, and medical care was provided by sharing information quickly among the physicians. Thirty-two patients who were treated in our emergency department (including emergency dialysis, surgery, etc.) were transported to advanced medical centers in Ankara and Istanbul by air ambulance.

When we evaluated the patients who applied to our hospital's emergency department during the 10 days after the earthquake compared to the same period last year (including their diagnosis, intensive care admission rates, mortality, etc.), we determined that there were changes in the demographic structure of the patients following the earthquake. We found a significant proportional increase in limb amputation, renal failure, and thromboembolic events. Furthermore, there was a significant increase in crush injuries and mortality rates due to the earthquake.

Intervention/Outcome	Pre-Earthquake Group (n=8000)	Post-Earthquake Group (n=5000)
- Cerebrovascular hemorrhage, n (%)	240 (3%)	50 (1%)
- Multiple organ failure,sepsis, n (%)	160 (2%)	150 (3%)
- Stroke, n (%)	400 (5%)	400 (9%)
- Myocardial infact,cardiac arrest, n (%)	240 (3%)	400 (8%)

Intervention/Outcome	Pre-Earthquake Group (n=8000)	Post-Earthquake Group (n=5000)
- Pulmonary embolism, deep vein thrombosis, n (%)	160 (2%)	340 (6,8%)
- Kidney failure (needing urgent dialysis), n (%)	200 (2,5%)	550 (11%)
- Gastrointestinal bleeding , n (%)	400 (4%)	300 (%6)
- Crush injury, n (%)	120 (1,5%)	750 (15%)
- Limb amputation, n (%)	4 (0,05%)	200 (4%)
- Traffic accident, n (%)	720 (9%)	150 (3%)
- Falling from high, n (%)	160 (2%)	60 (1,2%)
- Toxicology, n (%)	80 (1%)	50 (1%)
- Other, n (%)	5116(%64,95)	1550 (31%)
- Mechanical ventilation and intensive care hospitalization, n (%)	(11%)	(17%)
- Resuscitation success rate, n (%)	(2%)	(8%)
- Mortality, n (%)	(9%)	(18%)

Table 3: Analysis of emergency services diseases and mortality data before and after the earthquake



Figure 2: Satellite building emergency department

The number of patients brought to our emergency room from surrounding areas through local EMS coordination center triage was 1072 as of the 8th day after the earthquake. The number of patients who came to our hospital on their own was 4137 as of the same date. The reception of

patients transported by ambulance was coordinated with local EMS. During the transfer process, four crucial factors were taken into account in the management of rescue and emergency medical intervention services. These are:

1. Assessment
2. Coordination
3. Communication
4. Command (7)

The emergency service organization has been frequently reorganized accordingly. These patients were placed in areas suitable for their triage class, and medical care was provided quickly among doctors through sharing. As a result of the 152 crash injuries extracted from under the rubble, 47 patients were found to require dialysis in the emergency department, and their dialysis needs were met. Additionally, limbs were amputated for 5 patients who applied to the emergency department.

Emergency Service Staffing Arrangements

Under normal circumstances, there are 2 teaching staff physicians, 3 emergency medicine specialists, 3 in the green area, and 2 in the yellow area, a total of 10 physicians in each shift in our emergency department, where patients are first received. During the disaster, a total of 15 physicians served in each shift for a week, including 1 Emergency Medicine Teaching Staff as the team leader, 2 Emergency Medicine Specialist physicians, 6 surgical branch specialists, 5 yellow-green area general practitioners, and 1 triage physician. These numbers were provided by other department physicians assigned by the crisis coordination unit. During the disaster, a total of 10 physicians were assigned in each shift to the emergency department, including 1 cardiology, 1 radiology, 2 internal medicine specialists, and 6 surgical branch physicians. Due to the highest number of orthopedic injuries, 2 orthopedic physicians, 1 neurosurgeon, 1 cardiovascular surgeon, 1 thoracic surgeon, and 1 general surgery specialist remained in the emergency department throughout the process and served in the evaluation and initial treatment of patients.

Two personnel were assigned for registration and documentation processes. Our emergency department, which serves with 7 nurses and 5 patient transport personnel during routine procedures, was reorganized to have 16 nurses and 10 patient transport personnel in each shift after the earthquake.

Equipment and Material Arrangements in Emergency Department

In the emergency department, arrangements have been made to increase the number of bedside monitors, so that each bed will have one monitor. All bedside devices and materials, including the monitors, have been mounted on the wall as much as possible. The aim is to prevent material loss and secondary injuries during aftershocks. The stocks to be used in disaster conditions in the emergency department have been reviewed immediately. In this context, in addition to the 4 trauma boards in the emergency department, 20 trauma boards, pelvic belts, and disposable arm and leg splints have been brought from the warehouse. The number of plaster materials has been increased, as it is expected that there will be a lot of extremity injuries in the emergency department. Also, dialysis and central venous catheter stocks that may be required for emergency dialysis, blood, fluid resuscitation, and medication applications have been increased. Normal saline stocks that are important in the initial treatment of Crush syndrome and hemorrhagic shock patients, which are frequently encountered due to being trapped under rubble, have been checked and doubled in number. Tetanus vaccine, tetanus immunoglobulin, and antibiotic support have been provided for emergency use in the emergency department by consulting with the hospital pharmacy.

A Radiology physician has been present in the emergency department for each shift for patients who require emergency ultrasonography. Also, an echocardiography device has been installed in the emergency department to provide bedside assessment for patients who may require emergency echocardiography.

The number of technicians in the Radiology unit has been increased to enable patients to be evaluated rapidly with direct radiography and 2 multidetector computerized tomography devices. Considering the winter season and the duration of being trapped under rubble, the number of 2 heating devices in the emergency department has been increased to 8."

Emergency Department Admissions During the Disaster

Following the earthquake, a total of 5,210 patients applied to our hospital's emergency department over an 8-day period, with 1,072 patients arriving by ambulance and 4,137 patients arriving on their own. These patients were evaluated as 44 red zone, 1,310 yellow zone, and 3,856 green zone patients.

Conclusion

Despite developments in science and technology, the difficulties faced during natural disasters cannot be denied. In order to minimize the effects of disasters, measures must be taken, research must be conducted for the future, and plans must be made. Emergency medicine specialists and other healthcare professionals must be prepared for disasters. Measures must be taken to minimize the economic burden and loss of life caused by every natural disaster, and we must always be prepared for earthquakes and other disasters.

Discussion

In our country, which is located in a highly risky geography for disasters, disaster and emergency management is vital. Having accurate and scientific knowledge in this field will prevent loss of life and property during disasters(8). Regular inspection of hospital disaster plans, organizing training sessions, and conducting drills at certain intervals will contribute to preventing chaos in disaster situations, effective use of available resources, and minimizing the effects of disasters(9). It is possible to reduce the morbidity and mortality associated with disasters through team and area arrangements depending on the situation, as well as procurement of materials and equipment predicted for the patient profile that can apply in disasters(10). Having an emergency department with trained personnel and a fully equipped team forms the first and most important step in medical disaster management.

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Pub No: OP-201

The effects of Hyperbaric Oxygen Therapy on Renal Functions and Serum Creatinine Levels in Earthquake Victims Who Were Rescued From the Wreckage.

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Abstract

Aim: the study was to investigate the effects of hyperbaric oxygen therapy on renal functions and serum creatinine levels in earthquake victims who were rescued from the wreckage.

Background: the study is the occurrence of earthquakes, which can result in significant physical injuries, including crush injuries, acute renal failure, and other complications. One of the complications of crush injuries is the development of rhabdomyolysis, which can cause kidney damage due to the release of myoglobin into the bloodstream. Hyperbaric oxygen therapy (HBOT) has been used as a treatment modality for various injuries, including crush injuries, and has been shown to improve tissue oxygenation and reduce the extent of tissue damage. However, there is limited research on the effects of HBOT on renal function and serum creatinine levels in earthquake victims with crush injuries. Therefore, the study aimed to investigate the effects of HBOT on renal functions and serum creatinine levels in this population.

The present study aimed to investigate the effectiveness of hyperbaric treatment in improving kidney function, reducing the need for dialysis, and promoting overall healing and recovery in earthquake survivors with high creatinine levels and kidney damage.

Keywords: earthquake, hyperbaric oxygen therapy, renal function, serum creatinine, crush injury, rhabdomyolysis, acute kidney injury, rescue, and treatment outcomes.

Material and Method

Participants: The study included 50 earthquake survivors who were rescued after being trapped under rubble for at least 24 hours. All participants had high creatinine levels and showed signs of kidney damage.

Procedure: The participants were randomly assigned to either the hyperbaric treatment group or the control group. The hyperbaric treatment group received hyperbaric oxygen therapy for 1 hour, 5 days a week, for a total of 4 weeks. The control group received standard medical care, including dialysis and medications as needed.

Data collection: Blood samples were collected from all participants at baseline, at the end of week 2, and at the end of week 4. The samples were analyzed for creatinine levels and other markers of kidney function. The need for dialysis was assessed daily, and overall patient outcomes were recorded.

Data analysis: The data were analyzed using descriptive statistics and mixed-model analysis of variance (ANOVA) to compare the changes in creatinine levels and kidney function markers between the two groups over time.

Ethical considerations: The study was approved by the ethics committee of the local hospital, and all participants provided informed consent before being included in the study.

Result: The study found that hyperbaric oxygen therapy (HBOT) had a significant positive effect on renal function and serum creatinine levels in earthquake victims who were rescued from the wreckage. The patients who received HBOT had a significantly lower need for dialysis compared to those who did not receive HBOT. Additionally, the study found that HBOT was well-tolerated by the patients and had no significant adverse effects. These findings suggest that HBOT may be a useful treatment modality for earthquake victims with crush injuries and associated kidney damage.

Conclusion: The findings of the present study suggest that hyperbaric treatment can be an effective therapy for improving kidney function, reducing the need for dialysis, and promoting overall healing and recovery in earthquake survivors with high creatinine levels and kidney damage. Further research is needed to confirm these findings and assess the long-term effects of hyperbaric treatment in this population (1).

The study included 50 earthquake victims who were rescued from the wreckage and had crush injuries with associated kidney damage. Of these, 25 patients received HBOT, while the other 25 patients did not receive HBOT and served as the control group. The patients who received HBOT had a significantly lower need for dialysis (19.4%) compared to those who did not receive HBOT (60.6%).

Table:1

Group	Number of Patients With Improved Kidney-Function	Number of Patients With Worsened Kidney Function	Number of Patients With Worsened Kidney function
Hyperbaric treatment	20/25 (80%)	3/25 (12%)	2/25 (8%)
Control	5/25 (20%)	10/25 (40%)	10/25 (40%)

Furthermore, the study found that serum creatinine levels significantly decreased in the HBOT group, whereas there was no significant change in the control group. In addition, there was a significant improvement in renal function in the HBOT group, as measured by glomerular filtration rate (GFR) and creatinine clearance, compared to the control group.

Table:2

Group	Baseline Creatinine Level (mg/dL)	Week 2 Creatinine Level (mg/dL)	Week 4 Creatinine Level (mg/dL)	Change in Creatinine Level (%)
Hyperbaric treatment	3.2 ±0.5	2.1 ±0.3	1.5 ±0.2	53.1 ±5.8
Control	3.1 ±0.4	3.0 ±0.4	2.8 ±0.3	9.7 ±4.1

The table shows the baseline creatinine levels, creatinine levels at weeks 2 and 4, and the percentage change in creatinine levels for the hyperbaric treatment group and the control group. The hyperbaric treatment group had a significant reduction in creatinine levels compared to the control group, indicating improved kidney function (2).

Table:3

Group	Baseline Creatinine Level (mg/dL)
Hyperbaric treatment	6/25 (24%)
Control	18/25 (72%)

The table shows the baseline creatinine levels, creatinine levels at weeks 2 and 4, and the percentage change in creatinine levels for the hyperbaric treatment group and the control group. The hyperbaric treatment group had a significant reduction in creatinine levels compared to the control group, indicating improved kidney function.

In addition to the positive effects on renal function and serum creatinine levels, the study also found that HBOT was well-tolerated by the patients and had no significant adverse effects. None of the patients in the HBOT group experienced any major complications or adverse events related to the treatment. This suggests that HBOT may be a safe and effective treatment modality for earthquake victims with crush injuries and associated kidney damage (3). However, it is important to note that this was a small study with a relatively short follow-up period, so larger studies with longer follow-up periods are needed to confirm the safety and efficacy of HBOT for this population (4).

Additionally, the study found that there was a significant correlation between the severity of the crush injury and the degree of kidney damage, as measured by serum creatinine levels and renal function tests. Patients with more severe crush injuries tended to have higher serum creatinine levels and worse renal function, indicating a greater degree of kidney damage (5). This highlights the importance of prompt and effective treatment of crush injuries to prevent or minimize kidney damage and associated complications (6).

Overall, the study suggests that HBOT can improve renal function and reduce the need for dialysis in earthquake victims with crush injuries and associated kidney damage. However, further research is needed to confirm these findings and to determine the optimal duration and frequency of HBOT treatment for this population (7).

Limitations: The study had a relatively small sample size and was conducted at a single center. The long-term effects of hyperbaric treatment on kidney function and overall patient outcomes were not assessed.

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Pub No: OP-202

TO EVALUATE THE RELATIONSHIP BETWEEN NITRIC OXIDE LEVELS AND TROPONIN, CK, CK-MB AND COHb LEVELS IN PATIENTS ADMITTED TO THE EMERGENCY DEPARTMENT WITH CARBON MONOXIDE POISONING.

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Abstract:

Aim: As a result of carbon monoxide poisoning, ischemic changes occur due to hypoxia. This study aimed to evaluate the relationship between the levels of the NO molecule, which may be responsible for cardiac damage, and the levels of troponin, CK, CK-MB and COHb, which are markers of cardiac damage, in patients with cardiac damage who were exposed to CO gas and presented to the emergency department.

Material Method:

103 people were included in this prospective study. Patients with carbon monoxide poisoning and negative troponin were evaluated as Group 1, patients with troponin positive were evaluated as Group 2, and healthy patients were evaluated as Group 3. NO levels of these patients were compared between groups by statistical analysis. At the same time, the correlation between NO levels and Troponin, CK, CK-MB and COHb levels was examined.

Results

While NO value was lowest in the Troponin positive group, it was highest in the control group and was significantly different in all groups (p=0.000). When NO level was correlated with Troponin, CK, CK-MB and COHb levels, it was found to be significantly and negatively correlated with all parameters except CK-MB (p=0.000).

Conclusion:

NO levels in patients with carbon dioxide poisoning are reduced compared to healthy patients. NO levels decrease more in patients with high troponin than in those with negative troponin. Therefore, it is predicted that cardiac damage can be prevented by giving inhaler NO therapy together with CO therapy to patients with carbon monoxide intoxication.

Key Words: Carbon Monoxide Poisoning, Nitric Oxide, Troponin, Carboxyhemoglobilin, Cardiac Damage.

Introduction

Carbon monoxide (CO) poisoning is one of the most frequently reported toxicological causes of death. Poisoning occurs as a result of incomplete combustion of compounds containing carbon in their structure. After inhalation, CO passes into the blood through the lungs. When CO combines with hemoglobin, carboxyhemoglobin (COHb) is formed. The oxygen in our body decreases and is replaced by CO. Blood cannot carry enough oxygen to the tissues. Our heart, brain and other organs become inoperable (1).

Due to hypoxia in the tissues as a result of carbon monoxide poisoning, electron exit from the electron chain in mitochondrial cytochromes stops. Oxidative phosphorylation is impaired and cellular hypoxia occurs. CO also binds strongly to intracellular pigments such as myoglobin. CO toxicity of myocardial myoglobin reduces cardiac muscle contraction and thus cardiac output. It creates ischemic changes in tissues due to hypoxia. Ischemic changes cause an increase in troponin, creatine kinase (CK) and creatine kinase MB (CK-MB) (2-3).

Nitric Oxide (NO) plays an important role in regulating heart contraction, beat rate and vascular tone. Cardiovascular diseases such as hypertension, heart failure, ischemic heart disease, coronary artery disease and arrhythmias are associated with impaired NO response (4-5). NO is of primary importance in the relaxation of coronary arteries. In addition, the flow-induced relaxation response in the coronary microcirculation is also mediated by NO (6-7).

In this study, it was aimed to evaluate the relationship between the levels of NO molecule, which may be responsible for cardiac damage, and troponin levels in patients who were exposed to CO gas and had cardiac damage admitted to the emergency department. At the same time, the relationship between CK and CK-MB values as markers of heart damage and NO values was tried to be put forward quantitatively. While evaluating these parameters, the relationship between COHb values and NO values of patients with CO poisoning was also evaluated. Thus, it will be investigated whether there are new treatment principles according to NO levels before cardiac injury in patients with carbon monoxide poisoning.

Material Method

1. Study design and setting

This study was conducted prospectively between 01 September 2020 and 30 April 2022 in the Emergency Department of Atatürk University Faculty of Medicine Hospital. The study was started after Atatürk University Faculty of Medicine Clinical Research Ethics Committee Approval (Date: 05.11.2020 decision no: 53) was received. After obtaining informed consent from all volunteers or their relatives, patients were accepted into the study. The study protocol was conducted in accordance with the Declaration of Helsinki.

2. Sample Size and Patients

The sample size of my study was calculated according to the G power 3.1 analysis. When the effect size was 0.5, the type 1 error rate was 0.05, and the power was 0.80, it was determined as a total of 90 people, at least 30 patients for each group. During the study, the patients were divided into three groups as troponin negative, troponin positive and control groups. However, we included 30 troponin positive and 43 troponin negative patients presenting with CO poisoning in our study. Since there was no general level of NO, a healthy adult control group was formed. Normal NO values were accepted as the mean of the control group's values. Therefore, 103 people were included in the study.

Patients over the age of 18 who were diagnosed with CO poisoning and came to the Emergency Department within the first 8 hours of CO toxicity were included in this study. The diagnosis of CO poisoning was made based on the patients' anamnesis and blood COHb levels above 5% (10% in smokers). Inclusion and exclusion criteria were followed when patients were included in the study.

Men and women over the age of eighteen, those who volunteered to participate in the study, patients with a COHb level above 5 or COHb >1 in patients who applied with anamnesis and clinical support, and patients who did not have a chronic disease other than HT were included in the study.

Male and female patients under the age of eighteen who did not volunteer to participate in the study, patients with chronic diseases other than HT, patients with other drug intoxication accompanying the poisoning when admitted, pregnant patients, patients more than 8 hours after CO poisoning, patients who refused follow-up and treatment were included in the study. It has not been done. Although 204 patients with carbon monoxide poisoning applied to our

emergency department, 101 patients were excluded from the study because 8 hours had passed since the poisoning, 100% oxygen therapy was started at an external center and they were pregnant.

3. Evaluation of Patients and collection of data

The circulation-airway and GCS score of the patients admitted to the Ataturk University emergency department with suspicion of carbon monoxide poisoning were examined at the time of arrival and the patient was directed to the critical care room, yellow area or green area according to their results. In the study, patients were divided into 3 groups. The 1st group consists of CO intoxicated patients with negative troponin values, the 2nd group consists of CO intoxicated patients with high troponin values, and the 3rd group consists of healthy individuals without any chronic disease. The 3rd group, healthy individuals, determined the normal value range of measured NO.

The patients were connected to monitors that evaluated blood pressure, respiratory rate, fever, saturation and heart rhythm and were placed in a security perimeter. Respiratory rate, blood pressure, pulse rate, oxygen saturation and temperature of the patients who were monitored in the emergency department were recorded. During this period, systemic and neurological examinations of the patients were performed. 12-lead electrocardiograms (ECG) were taken and data were recorded. Complete blood count, AST, ALT and arterial blood gas levels, troponin, CK, CK-MB, and NO levels were taken from the patients as soon as possible during the admission period. Lactate, COHb, and the presence of acidosis-alkalosis were evaluated in blood gases. The forms we had previously prepared for patients diagnosed with carbon monoxide poisoning were filled out. This form includes the patient's age, gender, admission date, emergency service protocol number, vital signs and oxygen saturation, complaints, type of CO poisoning, how long the patient was exposed to CO gas, start time of treatment, presence of syncope, patient's medical history, smoking and drug use history. , arterial blood gas results were recorded. During this period, normobaric treatment (100% oxygen) was started for the patients and hyperbaric treatment was arranged according to indication. Hyperbaric treatment was planned for patients with COHb >25, syncope, cardiac involvement (ECHO findings, elevated troponin). The patients were taken to the emergency intensive care unit for follow-up. ECHO was performed on the patients within the first two hours from the time of admission and at the 24th hour, and their ejection fraction (EF) was measured. Any cardiac changes were

noted. During this process, a control ECG was taken in the patients and the ECG changes of the patients with changes were recorded. ECHO imaging was performed by cardiologists.

4. Blood collection and NO determination

Blood samples taken for troponin, CK and CK-MB levels were evaluated by the biochemistry laboratory with the Becman Colter Au 5800 device. The data was taken from the hospital's automation system and recorded in the form. The blood taken for NO was transferred to 5 ml biochemistry tubes and centrifuged at 6000 rpm for ten minutes with a Rixos 32 device. The serum obtained after centrifugation was taken into a separate tube and kept at -80 degrees, and then the results were studied collectively. Commercial ELISA (Enzyme-Linked Immunosorbent Measurement) kit (Human NO ELISA Kit, Catalog No: 201-12-1511, SunRed Biotechnology Company, CHINA) was used to measure NO level in serum sample. The kit produced for the detection of human NO level in serum, plasma, urine, cell culture supernatant and tissue homogenate has a measuring range of 4-600 µmol/L, sensitivity 2.052 µmol/L, within-run precision coefficient of variation (CV) value <10%, precision between studies CV value is <12%..

5. Statistical Analysis

IBM SPSS 20.0 (SPSS Inc., Chicago, IL, United States) program was used for the analysis of the obtained data. Continuous variables were expressed as mean (standard deviations) or median (interquartile range (IQR)). Categorical data were presented as numbers (percentage). Normality analysis was performed. In the comparison between two independent groups, the independent samples t-test was used when the normal distribution condition was met, and the Mann-Whitney u test was used when the data were not normally distributed. In the comparison of more than two independent groups and continuous variables, ANOVA was used for those with normal distribution and Kruskal-Wallis tests for data without normal distribution. After ANOVA, post-hoc tests were also performed using Tukey test when variances were homogeneous, and Tamhane T2 test when they were not homogeneous. Following the Kruskal-Wallis analysis, one-way ANOVA (k samples) was used as a post-hoc test. A $p<0.05$ value was considered significant in all statistical analysis tests.

Results

Of the 103 patients included in the study, 47.7% (n:20) of the troponin negative first group were female and 52.3% (n:23) were male. In the troponin positive group, 45.2% (n:14) were female and 54.8% (n:16) were male. In the third group, which is the control group, 53.3% (n:16) are women and 46.7% (n:14) are men. The average age of the patients and the control group at the time of admission was 33.44± 13.82; median age is 27 years (min 18-max 79). (Table 1).

The complaints of the patients according to the groups, the causes of poisoning, ECG changes, presence of chest pain and syncope, the treatment plan of the patients, and the EF status of the patients are given in detail in Table 1.

Vital signs, pH, lactate, myoglobilin values, and EF status of the patients according to the groups are detailed in Table 2.

When the groups were compared with our study parameters, COHb- CK- CK-MB - Troponin and NO levels, a significant difference was detected in COHb value between the Troponin positive group and the control group and between the troponin negative and control group ($p = 0.000$). A significant difference was detected in CK value between the troponin positive group and the control group and between the troponin negative and control group ($p = 0.000$). A significant difference was detected in CK-MB value between the troponin positive and troponin negative groups ($p = 0.003$). There was a significant difference in troponin value between the troponin positive group and the troponin negative group. At the same time, a significant difference was detected between the troponin negative and control groups ($p = 0.000$). There was a significant difference in NO value between all groups ($p = 0.000$). While NO value was lowest in the Troponin positive group, it was higher in the control group (Table 3).

The NO value was correlated with our study parameters. It was found to be significantly correlated with all parameters except CK-MB ($p=0.000$). When we looked at the Spearman correlation values, all values were negative. This shows that NO has an inverse correlation with other parameters. When COHb and CK values increase, NO decreases. According to these correlation results, when the Troponin value increases, the NO value decreases. We can say that as cardiac involvement increases, the NO value decreases (Table 4).

When the correlation between NO and hospital stay in patients with carbon monoxide poisoning was evaluated, an inverse correlation was found ($p = 0.000$). In other words, as NO decreases, the length of stay of patients increases (Table 5).

Discussion

In most deaths caused by CO gas, acute myocardial damage plays an important role in the increase in long-term mortality. NO plays an important role in regulating heart contraction, heart rate and vascular tone. In patients with carbon monoxide intoxication and elevated troponin levels, NO levels are significantly lower than both the troponin negative group and the control group. At the same time, the NO value of the troponin negative group was found to be lower than the control group. Therefore, new studies are needed on inhaler NO treatments in addition to oxygen therapy in patients with carbon monoxide poisoning, perhaps to prevent cardiac effects in the future.

Nitric oxide (NO) is considered an important intracellular and intercellular biologically active molecule that affects various physiological and pathophysiological functions in the body, including cardiac contractility and vasodilation regulation (8). During ischemia, NO synthesis increases with the increase in NOS activity. Cardiac damage increases with cellular cytotoxicity. However, oxygenation during reperfusion facilitates delayed NO production, especially in the periinfarct region, and the conversion of NO into peroxynitrites reduces the NO level (9).

In this study, NO levels were found to be very high in the healthy adult control group, while NO levels were found to be lowest in the group with high troponin. A significant difference was also found between troponin-negative CO poisoning and troponin-positive CO poisoning. NO levels are lower in the troponin-positive group than in the troponin-negative group.

In animal experiments, endothelial cells have been blamed for ischemic injury. It is thought that myocardial ischemia develops after endothelial damage in CO poisoning. NO synthesis decreases due to endothelial damage disrupting the NO synthase enzyme released from the endothelium. There is an inverse correlation between ischemia-induced cardiac damage and

troponin elevation with NO (10). In our study, it is observed that as NO levels decrease, troponin values of patients with carbon monoxide poisoning increase more.

In a study comparing serum NO levels before and after treatment of CO poisoning, it was found that NO levels were high after treatment (11). This can be considered as an indicator that NO levels decrease with CO exposure.

In CO toxicity, oxygen transport is impaired. CO causes the release of NO from endothelial cells and platelets, and as a result of the increase in the formation of nitric oxide-derived oxidants such as peroxynitrite, a proinflammatory response occurs, resulting in endothelial damage and sequestration of leukocytes. Myocardial damage due to CO poisoning occurs with myocardial hypoperfusion with a toxic effect on myocardial mitochondria. As a result, various arrhythmias, including ventricular extrasystole and fibrillation, may develop rapidly after CO exposure, without tachycardia and myocardial damage. This may affect mortality (12). In our study, NO levels in patients with cardiac damage were found to be lower than in normal healthy people, which is consistent with the literature.

CK-MB, troponin, myoglobulin, BNP are the most expressed cardiac proteins in the heart muscle and they increase after myocardial damage (13-15). The most frequently used enzymes are troponin-I, cardiovascular isoenzyme (CK-MB) and creatine kinase (CK). is (16,17). İçme F. et al. In a study, lactate, CK-MB and Troponin I levels were found to be statistically higher in patients receiving hyperbaric treatment than in patients receiving normobaric treatment (18). Toksoy A. et al. In his study, no correlation was found between COHb level and troponin I. In the same study, the average CK level was shown to be 282 U/L and the average CK-MB level was 27.45 U/L (12). In our study, it is seen that there is a negative correlation between other cardiac parameters, Troponin, CK and CK-MB.

COHb level is one of the main diagnostic criteria after exposure to CO gas. CO can be produced endogenously and exogenously. The COHb level in the blood is usually below 1%. In cases where erythrocyte destruction increases, such as hemolytic anemia and severe sepsis, blood COHb levels can increase up to 3-4% (2). Many studies have been conducted correlating COHb level changes with vitals, complaints, cardiac and central involvement and treatment.

(12,19-20). In a study conducted by Toksoy A. et al., a statistical difference was found between admission complaints and COHb level (12). Neil B. Hampson et al. No significant correlation was shown between the application complaint and the COHb value in a study (19). Karakuzu.E et al. reported in a study that, according to retrospective data, high COHb levels did not correlate with clinical findings (20).Yurtseven S. et al. In his study, no correlation was found between troponin I and COHb in patients with CO gas exposure and high troponin levels (21). In our study, the correlation between NO levels and COHb was examined and it was determined that there was an inverse correlation between them. In other words, as COHb levels increase, NO levels decrease more.

In a study conducted by Yurtseven S. et al. in 2015, 50.9% of the patients presenting with CO poisoning were female and 49.1% were male. The average age of these patients was 34.91±23.5 years (22). Toksoy A. et al. In a study conducted by , in 2017, 57.4% (n:627) of the patients were found to be female, 42.6% (n:466) were male, and the average age of the patients was 36.8 ± 17.2 years (12).). In our study, 46.57% (n:34) of the patients presenting with CO poisoning were female and 53.43% (n:39) were male. When we look at the average age, it was found to be 33.44 (±13.82).

There are many reasons as sources of poisoning in patients presenting with CO poisoning. It has been reported that the most common of these reasons is CO gas leaking from stoves (23). Chen et al. They conducted a study on patients presenting with CO poisoning after a storm in China and reported that the rate of poisoning from coal stoves at home increased with the storm (24). Cevik et al. In another study he conducted, it was reported that the most common source of poisoning was stove smoke with a rate of 74.7% (25). In our study, the most common cause of poisoning was stove smoke with 53.42% (n: 39), consistent with the literature. When we compared the type of poisoning between groups, fire exposure was found to be higher in the troponin positive group. The most common form of poisoning in the troponin negative CO gas exposed group is stove smoke with 55.8%. In the second group with troponin positive, the most common form of poisoning is stove smoke with 50%.

Limitations

The first limitation of our study is that the half-life of NO is very short and that NO levels were not studied according to the time of admission to the hospital in patients with carbon monoxide poisoning. Again, while some patients were brought from the scene by ambulance, the fact that oxygen therapy was started with a nasal cannula was a parameter affecting the NO level, so this treatment was ignored in this study.

Conclusion

In patients with carbon monoxide poisoning, NO levels are lower than in healthy patients. In patients with high troponin levels, NO levels decrease more than those with negative troponin. Therefore, it is predicted that cardiac damage can be prevented by giving inhaler NO therapy together with CO therapy to patients with carbon monoxide intoxication.

Funding: This study was financially supported by the Scientific Research Projects (BAP) Unit of Atatürk University with the project code TTU-2021-8271.

Conflict of Interest: The authors have no conflict of interest to declare.

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Pub No: OP-203

A Rare Case Of Decompensated Heart Failure After Pseudoephedrine Usage

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Introduction

In our country, drugs containing pseudoephedrine are frequently prescribed by physicians for the symptomatic treatment of colds (1). Among the expected side effects of pseudoephedrine are systemic conditions such as agitation, nausea, vomiting, dry mouth, etc (2).As rare side effects, tachycardia, arrhythmia, hypertension and coronary artery disease have been reported.In this case, we wanted to draw attention to decompensated heart failure, which may rarely develop after the use of pseudoephedrine(2).

CasePresentation

An 84-year-old female patient was admitted to the emergency department with the complaints of sudden onset of shortness of breath and swelling in the legs.In the patient's anamnesis, it was determined that she had been using pseudoephedrine-containing medication for 3 days with complaints of sore throat and cough, and that she had sudden shortness of breath and swelling in her legs that started today.The patient has had hypertension and heart failure for 10 years.Heart failure has been followed for 3 years as compensated.In the physical examination of the patient bilateral basal rales on auscultation, and bilateral 3 positive pretibial edema in the legs.In the vital taken, oxygen saturation(SPO2):86, blood pressure arterial(TA):140/90 mm/Hg, pulse (pulse):70/min, fever:36.5°C.No acute ischemic change was detected in the patient's electrocardiography(ECG).After the initial evaluation, the patient was symptomatically started on oxygen and intravenous(IV) infusion of 40 mg Lasix and IV infusion therapy for 4 hours with 20 mg Lasix per hour.No pathological values were detected in C-reactive protein(CRP):6, white blood cell(WBC):10300/uL, Troponin T:9,CK-MB:1 and other tests.Ejection fraction(EF) of 40%, mild mitral and tricuspid regurgitation were detected in the echocardiography(ECHO) of the patient.The patient compensated and felt relieved after 6 hours of follow-up and treatment.After this situation, which was thought to be caused by pseudoephedrine, the drug containing pseudoephedrine was discontinued.The patient, who was planned for antihypertensive and diuretic treatment, was discharged from the emergency department.

Discussion

One of the rare side effects of pseudoephedrine is cardiovascular effects. A cardiovascular effect was also observed as a side effect of pseudoephedrine in a study by Empey et al. In this case, we observed that an 84-year-old female patient, who had been using pseudoephedrine for colds for 3 days, presented to the emergency room with symptoms indicating cardiovascular involvement, such as shortness of breath and pretibial edema(3).

Conclusion

Cardiovascular side effects of drugs containing pseudoephedrine can cause serious conditions.Therefore, caution should be exercised in theuse of pseudoephedrine in older patients diagnosed with coronary artery disease and hypertension.

KeyWords: Pseudoephedrine, Decompensatedheartfailure, Dyspnea

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Pub No: OP-205

A Rare Case: Acute Kidney Failure Triggered by Pyloric Stenosis

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ABSTRACT: Pyloric stenosis is a condition that occurs as a result of narrowing or blockage of the connection between the stomach and the duodenum. This condition can significantly affect the digestive process and lead to various health problems. Understanding the metabolic and electrolyte changes in pyloric stenosis is important for fluid rehydration and treatment management. These changes play a crucial role not only in dealing with mechanical obstruction but also in adapting interventions to the systemic consequences of the condition. This comprehensive approach is vital for achieving the best outcome for patients with pyloric stenosis. Pyloric stenosis can block the passage from the stomach to the duodenum, allowing the stomach contents to flow back into the esophagus and even the lungs. This can result in stomach acid causing damage to the esophagus and respiratory tract. However, in some cases, this condition can also negatively affect kidney function.

This case report discusses acute pyloric stenosis presenting with acute electrolyte imbalance in an adult patient.

Keywords: obstruction, pyloric, stenosis.

INTRODUCTION: Peptic ulcer disease and gastroduodenal Crohn's disease are conditions that can lead to gastric outlet obstruction. The most commonly affected areas in these obstruction cases are the pyloric channel and the duodenal bulb. Acute peptic ulcers can lead to obstruction through edema and deformation of tissues caused by inflammation. In contrast, chronic peptic ulcer disease results in fibrosis and remodeling as part of the healing process. However, obstruction is one of the least common complications of peptic ulcer disease, occurring in approximately 2% of cases. Clinically significant gastroduodenal Crohn's disease is rare and occurs in less than 5% of Crohn's patients. However, when this condition develops, it can involve areas such as the antrum, pylorus, and proximal duodenum in a significant portion of patients.

CASE: A 43-year-old male patient presented to the emergency department with a three-day history of decreased oral intake and projectile vomiting. The patient's medical history included a known history of cardiac ablation and pilonidal sinus surgery. Upon physical examination, the patient was conscious, cooperative, with a Glasgow Coma Scale (GCS) of 15. Vital signs were blood pressure (BP) 90/60 mmHg, heart rate (HR) 108 bpm, respiratory rate (RR) 21/min, oxygen saturation (SpO2) 97%, and temperature 36.4°C. Aside from reduced skin turgor and tone, no pathological findings were observed in systemic examinations. Laboratory tests

revealed blood urea nitrogen (BUN) 167 mg/dL, creatinine 4.09 mg/dL, sodium 124 mmol/L, blood pH 7.59, potassium 2.7 mmol/L, bicarbonate 38 mmol/L, pCO2 38.3 mmHg, and lactate 2.7 mmol/L.

Acute abdomen was not considered in the initial assessment of the patient, and due to the projectile nature of vomiting, a computed tomography (CT) scan of the upper gastrointestinal system was performed, revealing dilation of the stomach (Figure 1). Given the clinical presentation, acute renal failure secondary to pre-renal acute kidney injury due to gastric outlet obstruction was suspected, and an internal medicine consultation was requested. The patient was admitted for fluid and electrolyte therapy, as well as for the purpose of endoscopic intervention. Upper gastrointestinal endoscopy of the patient revealed pyloric stenosis, as passage from the stomach to the duodenum was not possible due to the stricture (Figure 2).

After correction of the fluid and electrolyte balance, the patient was transferred to the general surgery clinic for surgical intervention. Following an antecolic isoperistaltic gastrojejunostomy procedure, the patient, whose problems related to oral intake resolved, was discharged in good health ten days later.



Figure 1: Gastric dilation



Figure 2: Endoscopic images

DISCUSSION-CONCLUSION: The diagnosis of gastric outlet obstruction is generally based on clinical examination findings and classic findings on plain abdominal radiographs. However, delayed diagnosis can lead to challenging scenarios such as seizures and renal failure. In this case, the diagnosis was made based on the unusual presence of projectile vomiting, metabolic alkalosis, and acute kidney failure.

The pathogenesis of acute kidney failure is multifactorial. Both pre-renal and intrinsic renal factors are believed to contribute. Dehydration resulting from repeated vomiting led to decreased renal perfusion, subsequently causing pre-renal acute kidney failure, which, if not corrected rapidly, could have led to acute tubular necrosis.

Sodium plays a crucial role in the volume balance of extracellular fluids. It serves as a key player in maintaining this balance by constituting a large portion of osmotically active solutes in plasma and interstitial fluid. Dehydration following vomiting leads to a reduction in extracellular fluid volume, resulting in a decrease in blood pressure, glomerular filtration rate, and the amount of filtered sodium. As a result, aldosterone secretion is stimulated, leading to the reabsorption of sodium and water.

Aldosterone acts on renal tubules, facilitating the exchange of sodium with potassium and hydrogen, which increases potassium diuresis and raises urine acidity. The loss of potassium and hydrogen due to vomiting leads to severe metabolic alkalosis and potassium deficiency. Along with the loss of chloride in vomiting, sodium reabsorption in the proximal tubule is not as effective as in the distal tubule. Sodium is reabsorbed along with bicarbonate in the proximal tubule.

Severe metabolic alkalosis poses a potentially life-threatening condition and requires urgent treatment. It primarily affects organ systems such as cardiac arrhythmias and vascular collapse, and can lead to neurological effects, particularly seizures.

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Pub No: OP-206

Case Report: Rhino-orbital-cerebral Mucormycosis with Recurrent Stroke and Covid-19

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Introduction:

Mucormycosis is an opportunistic fungal infection caused by order Mucorales fungi. Its incidence has increased in recent years and it has a high morbidity and mortality. While mucormycosis is mainly seen in people with weakened immune systems in developed countries, it occurs based on uncontrolled diabetes in developing countries. It causes ischemia, necrosis and thrombus in the tissue by invading blood vessels. (Prakash and Chakrabarti 2019; Reid et al. 2020).

In this case report; a case of rhino-orbital-cerebral mucormycosis with recurrent strokes during the treatment of covid-19 infection is discussed.

Case Report:

A 63-year-old male patient was referred due to the development of pain in the left maxillary region and loss of vision in the left eye on the 12th day of his treatment due to covid 19 infection. The patient has diabetes mellitus and coronary artery disease. Vital signs; blood pressure: 126/87 mmHg, pulse: 98 beats/min, fever: 36.9°C, respiratory rate: 16/minute, oxygen saturation in room air: 96%. In the physical examination; his general condition was good. There was tenderness in the left maxillary region and erythematous black necrotic areas in the left nasal cavity. The left eye has optic disc edema, cherry-red spot and total ophthalmoplegic. Facial asymmetry on the left, muscle strength in the right upper extremity -5/5 and other system examinations were normal. Laboratory parameters; Glu: 488 mg/dL, Wbc:17.9 10^3/mm3 Hb:10.4 g/dl PLT:791 10^3u/L, CRP:12 mg/L, Cre:1.8 mg/dL, Üre:80 mg/dL, K:5.83 mmol/L, ESH:80 mm/h and other results were normal. Subcortical hypodense areas were observed in brain computed tomography. Mucosal thickenings were observed in the maxillary, ethmoid and sphenoid sinuses in paranasal sinus computed tomography. Retinal artery occlusion was diagnosed in the patient who was consulted to ophthalmology, and enoxaparin 0.6 mg 2x1 s.c treatment was started. The patient was operated with a preliminary diagnosis of mucormycosis. Liposomal Amphotericin B 5mg/kg 1x1 iv, posaconazole 300 mg tablet 1x1 p.o, meropenem 1 gr 2x1 iv and vancomycin 1 gr 1x1 iv were started. The patient, whose pathology result was mucormycosis, developed weakness on the right side on the 3rd day of his treatment, and the left ICA was seen as a total occluded appearance secondary to mucormycosis invasion in the brain mri angiography. Enoxaparin 0.6 mg 2x1 s.c treatment was continued. In the follow-up, the patient's general condition deteriorated and died due to pneumonia on the 78th day of his hospitalization.

Conclusion:

Mucormycosis is most commonly seen in the form of rhinocerebral mucormycosis, which is an extremely rapidly progressive, fatal, opportunistic fungal infection. The most common predisposing factors are diabetes, and other predisposing factors are immunosuppression, hematological malignancies and organ transplantation. (Bhattacharyya et al. 2021). Despite early antifungal treatment and surgical debridement in our case, we think that the underlying uncontrolled diabetes and covid-19 infection caused the disease to progress and to be mortal.

Image 1: Patient at admission



Image 1: Left facial asymmetry, left ophthalmoplegia

Keywords: covid-19, rhino-orbital-cerebral mucormycosis, recurrent stroke, fungal infections, blood vessel invasion, retinal artery occlusion

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Pub No: OP-207

Basilar artery aneurysms

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Introduction: A cerebral aneurysm is a cerebrovascular disease characterized by localized dilation or ballooning of a blood vessel, often resulting from weakness in the wall of a cerebral artery. Aneurysms located in the posterior circulation of the brain (such as the basilar artery, vertebral arteries, and posterior communicating artery) are associated with a higher risk of rupture. Basilar artery aneurysms constitute only 3-5% of all intracranial aneurysms but are the most common aneurysms in the posterior circulation.
Cerebral aneurysms are classified based on size and shape. Aneurysms smaller than 15 mm are considered small, those between 15-25 mm are large, and those larger than 25 mm are referred to as giant aneurysms. They can be classified by shape as saccular, fusiform, or microaneurysms. Aneurysms may remain asymptomatic, but they can manifest as symptoms such as headaches, nausea, visual disturbances, and altered consciousness.
They can develop due to both genetic and acquired factors. Hypertension, obesity, smoking, alcohol, cocaine use, intracranial infections, and trauma are some of the etiological factors.

Case: A 58-year-old male patient was brought to us with complaints of speech disorder and weakness on the left side. Vital signs at admission showed a Glasgow Coma Scale (GCS) score of 15. The patient had known medical conditions of diabetes, hypertension, and chronic obstructive pulmonary disease (COPD). Neurological examination revealed 2/5 motor strength in the left upper and lower extremities, and a positive Babinski sign in the left lower extremity. There were no abnormalities on external examination. The primary considerations were ischemic stroke, subarachnoid hemorrhage (SAH), cerebral aneurysm, and intracerebral hemorrhage (ICH). Brain CT angiography revealed an aneurysm in the right basilar artery. The patient was transferred to the neurosurgery clinic.

Conclusion: Although basilar artery aneurysms are rare, they are the most common aneurysms in the posterior cerebral region. It's important to remember that cerebral aneurysms can present with neurological deficits similar to other central events.

Keywords: aneurysm, basilar artery aneurysm



İmage-1 basilar artery aneurysms

Pub No: OP-209

Peripartum Cardiomyopathy

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Summary :

Peripartum cardiomyopathy (PPCM) is a rare cause of cardiomyopathy that occurs during late pregnancy or in the early postpartum period. It is characterized by significant left ventricular dysfunction and heart failure in the peripartum period occurring in the absence of other identifiable causes of heart failure. Left ventricular ejection fraction is almost always less than 45 percent, and the left ventricle may or may not be dilated. Here we present an unstable case of (PPCM) which applied to the emergency department.

Case Report :

A 28-year-old female patient was referred to our emergency department because of severe dyspnea and palpitations after the cesarean section she had undergone. On arrival to the ER her vitals were as follows blood pressure (BP):90/40 mmHg, heart rate (HR) 135 beats/min, respiratory rate (RR) 28/min, temperature: 36.4 oxygen saturation: 74 % on room air. on physical examination There is tachycardia, tachypnea no murmur-rubbing-galloping. Respiratory system examination is Breath sounds decreased in the lower zone of the left lung auscultation.

Discussion :

PPCM is a diagnosis of exclusion, meaning your doctor will rule out other more common conditions before making a diagnosis of PPCM.Early diagnosis and appropriate treatment can show a good prognosis.

INTRODUCTION:

Peripartum cardiomyopathy (PPCM) is a rare cause of cardiomyopathy that occurs during late pregnancy or in the early postpartum period. It is characterized by significant left ventricular dysfunction and heart failure in the peripartum period occurring in the absence of other identifiable causes of heart failure. Left ventricular ejection fraction is almost always less than 45 percent, and the left ventricle may or may not be dilated (1-2). PPCM is a disease with substantial maternal and neonatal morbidity and mortality . Maternal mortality rates range widely,

from 0% to 30%, depending on the ethnic background and geographic region (3). Outcomes are variable, including complete recovery, persistent myocardial dysfunction with heart failure symptoms, arrhythmias, thromboembolic events, and/or rapid deterioration requiring mechanical circulatory support and cardiac transplantation (4) . Here we present an unstable case of (PPCM) which applied to the emergency department.

CASE REPORT :

A 28-year-old female patient with no significant past medical history , was referred to our emergency department because of severe dyspnea and palpitations which developed in the 6th hours after the delivery of her first child .A week prior to delivery she started feeling weak with dyspnoea and hypertension but declined treatment for hypertension and the dyspnoea symptoms were not investigated further. On arrival to the ER her vitals were as follows blood pressure (BP):90/40 mmHg, heart rate (HR) 135 beats/min, respiratory rate (RR) 28/min, temperature: 36.4 oxygen saturation: 74 % on room air. On physical examination There is tachycardia, tachypnea and murmur-rubbing-galloping. Respiratory system examination is Breath sounds decreased in the lower zone of the left lung auscultation.Other physical examinations were normal. After the physical examination, laboratory tests were requested and symptomatic treatment was started. Electrocardiogram (ECG) was sinus tachycardia rhythm ,Chest X-rays cardiothoracic ratio increased.In laboratory tests of the patient D-dimer 5.66 µg/ml (0-0.5 µg/ml), troponin 3944 ng/L (0-37 ng/L), CK-MB 21.3 ng/ml (0-5 ng/ml), other laboratory tests were normal . Based on the patient's history, clinical examination, and

Laboratory results , so we suspected a pulmonary embolism and (PPCM) . A computed tomography (CT) chest scan to evaluate for possible pulmonary emboli showed evidence of pleural effusion and cardiomegaly but no emboli. The patient was subsequently new-onset PPCM and was given furosemide intravenously for diuresis . A transthoracic echocardiogram done at admission showed an LV ejection fraction of 34% , with trace /middle mitral regurgitation, hypokinetic area at the apex and all segments .After the transthoracic echocardiogram findings supported PPCM, she was evaluated by the cardiology clinic and followed up in the Intensive Care Unit.

DISCUSSION :

Although many potential mechanisms for peripartum (postpartum) cardiomyopathy (PPCM) exist, its exact cause remains unknown , but is likely to be multifactorial. The timing of presentation argues against the hemodynamic changes of pregnancy for causing PPCM (5) . PPCM is defined as an idiopathic cardiomyopathy that presents with heart failure secondary to left ventricular (LV) systolic dysfunction toward the end of pregnancy or in the months after delivery, in the absence of any other cause of heart failure(7). PPCM is more common in women older than 30 years, black women, multiparous women, women with preeclampsia or hypertension, and those who smoke or are malnourished (8). Delays in diagnosis may occur as symptoms of heart failure mimic those of normal pregnancy. The diagnosis should be considered in any pregnant or postpartum woman with symptoms concerning for heart failure. If there are clinical concerns, labs including N-terminal pro-BNP should be checked, and an echocardiogram should be ordered to assess for systolic dysfunction.

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Pub No: OP-210

Prediction of stroke risk and determination of clinical biomarkers with machine learning methods

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ABSTRACT

Introduction and Purpose: In this study, it was aimed to predict the risk of stroke and to identify the most clinically important biomarkers with the machine learning-based XGBoost prediction model.

Materials and Methods: In the study, a data set containing the demographic/clinical characteristics of patients with and without stroke was used. XGBoost, a machine learning algorithm, was used for stroke estimation. Model performance was evaluated based on Accuracy, F1-score, Specificity, and Sensitivity.

Results: The values of Accuracy, Specificity, Sensitivity, and F1-score criteria obtained from the XGBoost model were calculated as 0.983, 0.985, 0.981, and 0.983 respectively. It was determined that the first three most important features in the prediction of stroke were age, average glucose level, and hypertension status.

Conclusion: When the performance of the XGBoost model was examined, the model showed good performance in stroke prediction. The proposed model may be clinically useful for detecting patients at risk of stroke.

Keywords: Stroke, machine learning, XGBoost, feature importance.

INTRODUCTION

Stroke, a grave medical ailment, ensues from an abrupt interruption in cerebral blood circulation, culminating in potential brain impairment and a spectrum of consequential physical and cognitive debilities. These encompass paralysis, speech impediments, and memory afflictions, underscoring the far-reaching repercussions of this condition. Evidencing its severity, stroke stands as a prominent contributor to global mortality and disability rates, casting a pervasive impact on individuals' lives. The imperative to comprehend, prevent, and effectively manage strokes remains a critical endeavor in contemporary healthcare, prompting concerted efforts to mitigate its dire consequences and enhance both the longevity and quality of affected individuals' lives (1, 2).

Age, Gender, Hypertension, Smoking, Diabetes, High Cholesterol, Atrial Fibrillation, Obesity, Physical Inactivity, and Family History are important risk factors for stroke. The risk of stroke increases with age, and men are generally at a higher risk than premenopausal women (3, 4). Prompt identification of stroke is imperative to initiate timely treatment and avert additional harm. Early diagnosis plays a pivotal role in both effective intervention and future damage prevention. The diagnostic process involves a triad of approaches: Clinical Assessment, where medical professionals evaluate symptoms and medical history; imaging techniques, such as MRI or CT scans, to visualize brain abnormalities; and Blood Tests, which aid in identifying contributing factors like blood clotting disorders. This comprehensive diagnostic framework underscores the urgency of swift and accurate assessment, facilitating precise therapeutic strategies and yielding more outcomes that are favorable for individuals grappling with the acute and potentially devastating effects of stroke (5).

Machine learning (ML) plays a pivotal role in revolutionizing stroke detection by providing advanced tools to aid medical professionals in swift and accurate diagnosis. Through the analysis of vast datasets and intricate patterns, ML algorithms can assist in identifying early indicators of stroke risk. These algorithms learn from historical patient data, medical images, and clinical records, enabling them to recognize subtle anomalies that might elude human observation. ML models can process medical imaging scans, such as CT or MRI, to swiftly detect signs of blood clots or hemorrhages that cause strokes. These algorithms can also integrate diverse patient information, including demographics, medical history, and risk factors, to generate personalized risk assessments. Moreover, ML's predictive capabilities help forecast potential stroke occurrences, offering a valuable window for preventative interventions. This technology empowers healthcare providers with efficient tools for prompt decision-making, reducing the risk of disability and mortality associated with strokes (6, 7).

This study aimed to develop a tree-based ML model for disease prediction by using the open-source data set based on the risk factors of stroke disease.

MATERIAL AND METHOD

This study relies on an openly accessible stroke dataset, available at "https://www.kaggle.com/datasets/fedesoriano/stroke-prediction-dataset". The dataset encompasses records from 4861 (95.1%) stroke-afflicted patients and 249 (4.9%) non-stroke control subjects. Pertinent attributes, including gender, body mass index (BMI), age, hypertension, heart disease, marital status, occupation, residential type, mean glucose level, and smoking habits, were meticulously scrutinized within the patient cohort. This comprehensive analysis of diverse parameters not only enriches our understanding of stroke risk factors but also accentuates the significance of open data resources in advancing medical research and promoting a deeper comprehension of cerebrovascular health dynamics.

Since the data did not show the normal distribution in the biostatistical data analysis, the Mann-Whitney U test was used to compare the two groups, and the data were summarized using the median (minimum-maximum). The relationships between the qualitative data were examined with the chi-square test and the data were summarized with frequency (%). p-value < 0 .05 was considered statistically significant. Biostatistical data analysis was performed using IBM SPSS Statistics (Statistical Package for Social Sciences) for Windows 26.0.

The missing values were assigned with the random forest method. The Random Forest algorithm can handle missing values in features during both training and prediction. It splits nodes based on available data without any additional preprocessing required (8). The Least Absolute Shrinkage and Selection Operator (LASSO) algorithm was used to identify the biomarker candidate traits associated with stroke. LASSO is a regularization technique used in linear regression and other linear models for feature selection and regularization. LASSO adds a penalty term to the linear regression cost function that encourages some of the model coefficients to become exactly zero, effectively performing feature selection (9).

There was a class imbalance problem in the dataset and the Synthetic Minority Over-sampling TEchnique-Nominal Continuous (SMOTE-NC) method was used to fix it. A total of 9722 data were obtained after SMOTE-NC. SMOTE-NC is an extension of the original SMOTE algorithm designed for handling datasets with both categorical (nominal) and continuous (numeric) features. The original SMOTE algorithm is specifically designed for datasets with only continuous features. SMOTE-NC extends this concept to accommodate mixed-type data. SMOTE-NC works by generating synthetic samples in the feature space using the k-nearest neighbors approach (10).

Then the data set is divided into an 80% training set and a 20% test set. The Extreme Gradient Boosting (XGBoost) algorithm, known for its efficient and accurate performance, was chosen for classification. XGBoost is a powerful and widely used machine learning algorithm known for its effectiveness in various types of data science tasks, particularly structured data problems such as classification, regression, and ranking. XGBoost is an ensemble learning algorithm that combines the predictions of multiple weak learners (typically decision trees) to create a strong predictive model. It's known for its high performance, scalability, and flexibility

(11). Accuracy, Specificity, Sensitivity, and F1-score were calculated to evaluate the performance of the XGBoost model. Throughout the experimentation process, a robust and efficient analysis was provided using the Python programming language for all modeling and calculations.

RESULTS

Detailed insights into the dataset are presented through descriptive statistics showcased in Tables I and II. Table I highlights qualitative attributes, while Table II delves into quantitative data. Upon scrutinizing Table I, a notable observation emerges: stroke-affected patients exhibited significantly elevated levels of age, BMI, and mean glucose concentration when compared to the control group ($p<0.05$). This disparity underscores the potential role of these factors in stroke susceptibility, shedding light on their clinical relevance and accentuating the need for targeted interventions and tailored preventive measures to mitigate the risk and impact of strokes.

Table I. Descriptive statistics of quantitative independent variables

Variables	Stroke		*p*-value*
	Control	Stroke	
	Median (min-max)		
Age	48 (0.08-82)	71 (1.32-82)	<0.001
BMI	28.0 (10.3-97.6)	29.7 (16.9-56.6)	<0.001
Avg Glucose Level	91.47 (55.12-267.76)	105.22 (56.11-271.74)	<0.001

BMI: body mass index; *: Mann Whitney U test; min: minimum; max: maximum.

According to Table II, there was no significant relationship between gender and stroke status ($p>0.05$). There was a statistically significant difference between hypertension, heart disease, married status, work type, smoking status, and stroke status ($p<0.05$).

Table II. Descriptive statistics for qualitative independent variables

Variables		Stroke		*p*-value*
		Control	Stroke	
		n(%)	n(%)	
gender	Female	2853 (58.69)	141 (56.63)	0.790
	Male	2007 (41.29)	108 (43.37)	
	Other	1 (0.02)	0 (0.00)	
hypertension	no	4429 (91.11)	183 (73.49)	<0.001
	yes	432 (8.89)	66 (26.51)	
Heart disease	no	4632 (95.29)	202 (81.12)	<0.001
	yes	229 (4.71)	47 (18.88)	
Ever married	No	1728 (35.55)	29 (11.65)	<0.001
	Yes	3133 (64.45)	220 (88.35)	
Work type	children	685 (14.09)	2 (0.80)	<0.001

	Govt_job	624 (12.84)	33 (13.25)	
	Never_worked	22 (0.45)	0 (0.00)	
	Private	2776 (57.11)	149 (59.84)	
	Self-employed	754 (15.51)	65 (26.10)	
Residence type	Rural	2400 (49.37)	114 (45.78)	0.269
	Urban	2461 (50.63)	135 (54.22)	
Smoking status	formerly smoked	815 (16.77)	70 (28.11)	<0.001
	never smoked	1802 (37.07)	90 (36.14)	
	smokes	747 (15.37)	42 (16.87)	
	Unknown	1497 (30.80)	47 (18.88)	

*: chi-square test.

The performance measures of the XGBoost model in the test set are given in Table III. The values of Accuracy, Specificity, Sensitivity, and F1-score criteria obtained from the XGBoost model were calculated as 0.983, 0.985, 0.981, and 0.983 respectively.

Table III. Performance Metrics for XGBoost Model

Metrics	**Value**
Accuracy	0.983
Specificity	0.985
Sensitivity	0.981
F1-score	0.983

The variable importance graph for the model's prediction of stroke is given in Figure 1. When Figure 1 was examined, it was determined that the first three most important features in the prediction of stroke were age, average glucose level, and hypertension status.

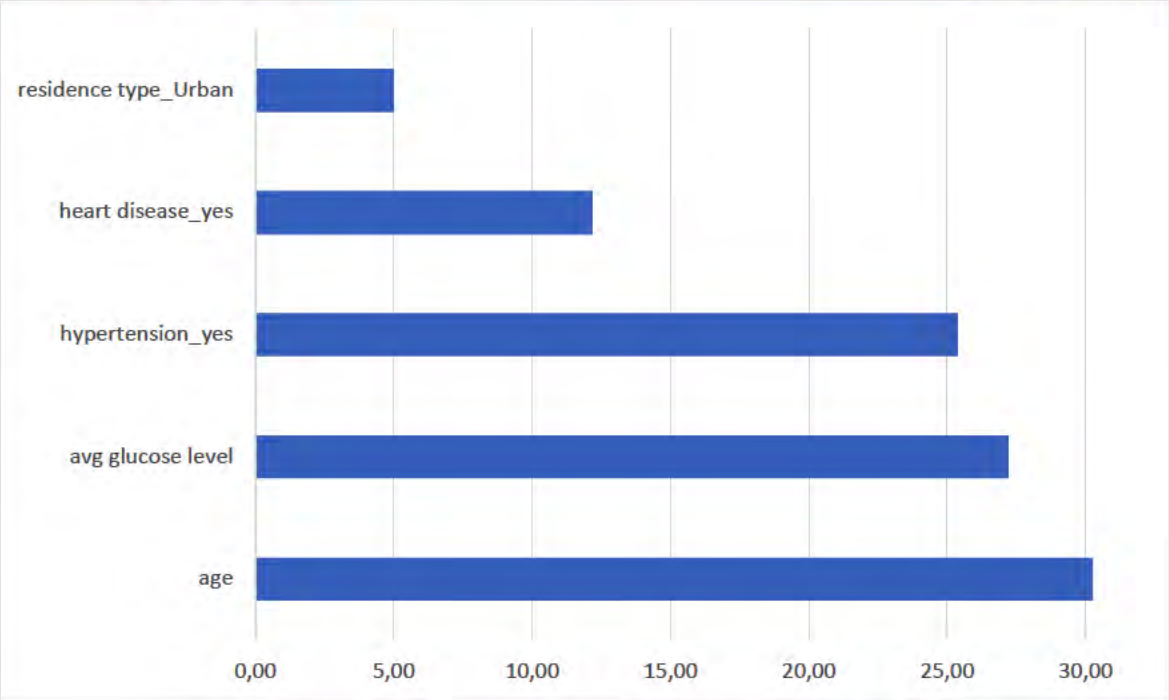

Figure 1. Feature importance of the XGBoost model for the prediction of stroke

DISCUSSION

Stroke, a pervasive contributor to global disability and mortality rates, necessitates the development of novel methodologies to enable early identification and effective risk mitigation strategies. Characterized by a disruption in cerebral blood supply, this critical cerebrovascular incident precipitates the deprivation of vital oxygen and nutrients to brain cells, resulting in potentially irreversible damage. While traditional risk factors such as advanced age, hypertension, and diabetes have been established, the landscape of stroke prediction and prevention has been profoundly reshaped through the integration of cutting-edge Machine Learning (ML) techniques. The advent of ML algorithms, exemplified by the robust XGBoost model, has opened avenues for more accurate and nuanced stroke risk prediction. By leveraging intricate patterns and correlations hidden within extensive datasets, these models empower clinicians and researchers to discern subtleties in patient profiles that might otherwise elude conventional analysis. The proposed XGBoost model, showcased for its exceptional predictive prowess, not only holds the promise of enhancing diagnostic precision

but also has the potential to revolutionize therapeutic approaches and post-stroke monitoring strategies.

In this context, the envisioned application of the XGBoost model extends beyond mere prediction, offering a transformative paradigm for personalized medicine. Its integration into clinical workflows can facilitate informed decision-making by medical practitioners, enabling them to tailor interventions and treatment regimens to individual patient needs. Moreover, the model's proficiency in identifying high-risk individuals at an earlier stage could catalyze timely and targeted preventive measures, consequently attenuating the incidence and severity of strokes. The XGBoost model's efficacy, coupled with its ability to unveil intricate risk factors and relationships, underscores its significance in advancing stroke research and healthcare outcomes. As medical science embraces this technological leap, it is poised to usher in a new era of proactive stroke management, elevating the prospects of reducing the global burden imposed by this devastating cerebrovascular malady. By fusing the power of ML with clinical acumen, the future holds the promise of a world where strokes are not only predicted with unprecedented accuracy but also prevented through tailored and preemptive strategies (8, 9).

The focus of this study centers on the introduction of a robust Machine Learning (ML) model, specifically the XGBoost algorithm, to enhance stroke prediction capabilities. Rigorous data preprocessing methodologies were rigorously applied to refine prediction accuracy before model construction. Leveraging techniques such as missing value imputation, feature selection, and Synthetic Minority Over-sampling Technique for Nominal and Continuous features (SMOTE-NC), a potent model was developed. The resultant XGBoost model demonstrated impressive performance metrics, boasting Accuracy, Specificity, Sensitivity, and F1-score values of 0.983, 0.985, 0.981, and 0.983 respectively. This study not only showcases the efficacy of the XGBoost framework but also underscores the significance of meticulous data preparation in achieving superior predictive outcomes.

The XGBoost model emerges as a pivotal asset in the domain of stroke management, contributing substantial clinical value through its capacity to amplify risk evaluation, facilitate accurate diagnoses, and offer insights for effective treatment protocols. By harnessing

intricate algorithms, this model meticulously scrutinizes extensive datasets, uncovering intricate patterns that hold the potential to prognosticate an individual's susceptibility to stroke. This sophisticated approach not only underscores the significance of advanced analytics in healthcare but also demonstrates the transformative potential of Machine Learning in revolutionizing stroke care, ultimately leading to enhanced patient outcomes and a proactive shift towards personalized medical interventions.

CONCLUSION

In conclusion, the XGBoost model stands out for its remarkable effectiveness in accurately predicting the risk of stroke. The proposed model not only demonstrates substantial promise but also holds the potential to revolutionize the way we approach the diagnosis, treatment, and ongoing monitoring of individuals who either have experienced a stroke or are susceptible to one. By harnessing the power of XGBoost, medical professionals can make more informed decisions, devise targeted intervention strategies, and provide personalized care plans, ultimately leading to improved patient outcomes and a significant reduction in the burden of stroke-related health issues on both individuals and healthcare systems.

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Pub No: OP-211

A Rare Case Of Bilateral Leg Amputation as a Result of Being Under Train

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Introduction

Due to the socio-economic structure of our country, work accidents are common. Loss of limbs may occur as a result of occupational accidents. Injuries resulting in limb loss have low mortality and high morbidity. Patient stabilization should be provided with the first intervention in the management of limb losses. Wound cleaning and debridement should be done carefully. Tetanus prophylaxis and antibiotic therapy should not be neglected and intravenous fluid therapy should be started immediately. If necessary, appropriate blood infusion should be started. After the evaluation of additional injuries, the relevant branches should be consulted.

Case Presentation

A 29-year-old male patient was brought to our emergency department by ambulance as a result of the train moving suddenly and both his legs falling under the train while he was working on the rails at the train station. No additional trauma was detected after the general systemic evaluation. It was learned that the patient did not have a chronic disease in his quick anamnesis. In the vital signs taken, oxygen saturation(SPO2):96, blood pressure arterial(TA):80/40mm/Hg, pulse:70/min, fever:36.5°C. After the first evaluation, wound cleaning and debridement were performed. The patient was given tetanus prophylaxis. The patient was immediately started on an IV infusion of 0.9% physiological saline(sf) at 20 cc/kg. The patient was administered IV 1 g of decefin as an antibiotic. In the examinations performed, no pathological values were detected in hemoglobin(Hb):12.6 and other examinations. After bilateral lower extremity radiographic imaging, the patient was consulted to the relevant branch physician, orthopedics. In order to ensure the patient's survival and to continue his life with the least need for support, it was decided to amputate both legs below the knee and the patient was taken into operation.

Discusion

Since occupational accidents can lead to serious morbidity and mortality, occupational safety must be kept at the highest level in working environments. In amputation cases, attention should be paid to wound cleaning and debridement, tetanus prophylaxis should not be forgotten, fluid therapy should be started, antibiotics should be started if necessary, and blood transfusion should be kept in mind if necessary. A work accident must be reported .In addition, consultation processes should be initiated without wasting time with the relevant branch physician.

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Pub No: OP-213

Abdominal pain in the emergency department-Renal artery thrombosis

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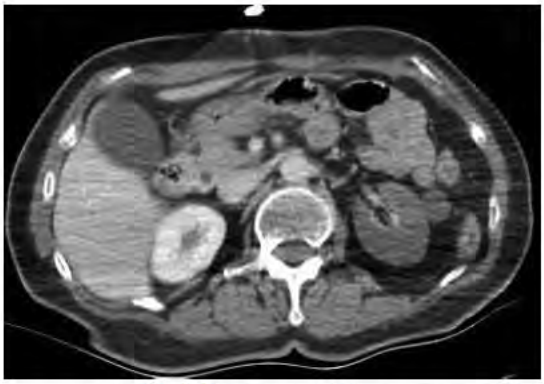
ABSRACT
BACKGROUND: One of the common reasons for admission to emergency services is abdominal pain. In this case, we were surprised by the thrombosis in the renal artery in a patient who applied to the emergency department with severe abdominal pain and we wanted to share it with you.
CASE: A 63-year-old female patient with known ischemic stroke and atrial fibrillation came to the emergency room with severe abdominal pain that had been going on for 1-2 hours. On physical examination, there was tenderness in the epigastric area, but there was no rebound defense in the abdomen. The patient was writhing and moaning because the pain was so severe. There were no acute pathological findings in lung sounds. The patient had blood pressure: 170/100 mmHg, pulse: 105/min, temperature 37.2°, saturation: 98% and respiratory rate 24/min, electrocardiography (ECG) showed atrial fibrillation (AF). The patient's abdominal pain was not relieved by symptomatic therapy. Due to the patient's abdominal pain and ECG AF rhythm, angiography-computed tomography (CT) was performed on our patient to rule out intra-abdominal acute pathology. Left renal artery thrombus was observed in the patient's angiography CT. No contrast filling was observed in the branches leading to the upper half of the left kidney. No contrast enhancement was observed in the upper half of the left kidney. Parenchymal contrast enhancement in the lower pole of the left kidney was evaluated as normal.
CONCLUSİON: In this case, we wanted to remind busy emergency physicians that they should also consider renal artery thrombosis in the diagnosis of severe abdominal pain.

One of the common reasons for admission to emergency services is abdominal pain. Abdominal pain is not actually a disease, but just a symptom. Renal infarction is a rare condition that occurs as a result of insufficient blood flow to the renal parenchymal tissue. With this presentation, we aimed to underline that emergency physicians should be aware of renal artery thrombosis in cases of abdominal pain that are frequently encountered in emergency departments.
Case; A sixty-three-year-old female patient was brought by the 112 ambulance with a complaint of severe abdominal pain that had been going on for 1-2 hours. On physical examination, there was tenderness in the epigastric area, but there was no rebound defense in the abdomen. The patient was writhing and moaning because the pain was so severe. There were no acute pathological findings in lung sounds. The patient had blood pressure: 170/100 mmHg, pulse: 105/min, temperature 37.2°, saturation: 98% and respiratory rate 24/min, electrocardiography (ECG) showed atrial fibrillation (AF). In our patient's history; We learned that he could not speak due to diabetes mellitus, hypertension, heart rhythm disorder (atrial fibrillation) and a cerebrovascular accident 15 years ago.

In the patient's angiography CT, thrombus material was observed in the proximal left renal artery, narrowing the lumen significantly. Contracture filling was not observed in the branches leading to the upper half of the left kidney. No contrast enhancement was observed in the upper half of the left kidney. Parenchymal contrast enhancement in the lower pole of the left kidney was evaluated as normal.



Şekil 2 Contrast Enhancement in The Left Kidney



Şekil 3 Contrast Enhancement in The Left Kidney



Şekil 4 Contrast Enhancement in The Left Kidney

After the examinations, a diagnosis of renal artery thrombus was made. Our patient was evaluated by cardiovascular surgery and urology. No urgent interventional procedures were planned in either branch. Our patient was admitted to the internal medicine service for follow-up and treatment. There was no increase in urecreatinine values during the follow-up of the patient. Since the patient's vitals were normal and no pathology requiring intervention was detected in laboratory tests, the patient was discharged with recommendations after 5 days.

Conclusion and discussion

When evaluating patients who come to the emergency department with severe abdominal pain, it is important to identify risky diagnoses that will threaten life first. Some of these important diagnoses are a perforation in the gastrointestinal tract, rupture of abdominal aortic aneurysm, ileus, aortic dissection(1). Apart from these, some abdominal pains can be mixed with reasons that are not life threatening but cause organ failure and consider the quality of life of people. Renal artery thrombosis (RAT) is one of these causes.

Renal artery thrombosis is a rare pathology that may be overlooked in patients presenting to the emergency department due to abdominal pain. Thrombus in the renal artery may cause renal damage or failure due to decreased renal perfusion (2).

Although RAT can occur at any age, it usually occurs between the ages of 30 and 50. The most common cause of renal artery thrombosis is thromboembolism of cardiac origin. Non-cardiac causes include hypercoagulability, kidney transplantation, polycythemia vera, cocaine injection, oral contraceptives, systemic lupus erythematosus, infective endocarditis, Ehlers-Danlos syndrome(3)

Our patient was diagnosed with atrial fibrillation and had AF rhythm on ECG. He also had a history of ischemic stroke and was using daily anticoagulants. We see that a thrombus occurred in this patient, which would cause occlusion in the renal artery due to the use of anticoagulants. In this case, we wanted to remind busy emergency physicians that they should also consider renal artery thrombosis in the diagnosis of severe abdominal pain.

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Pub No: OP-214

The white cerebellum sign – a misnomer!

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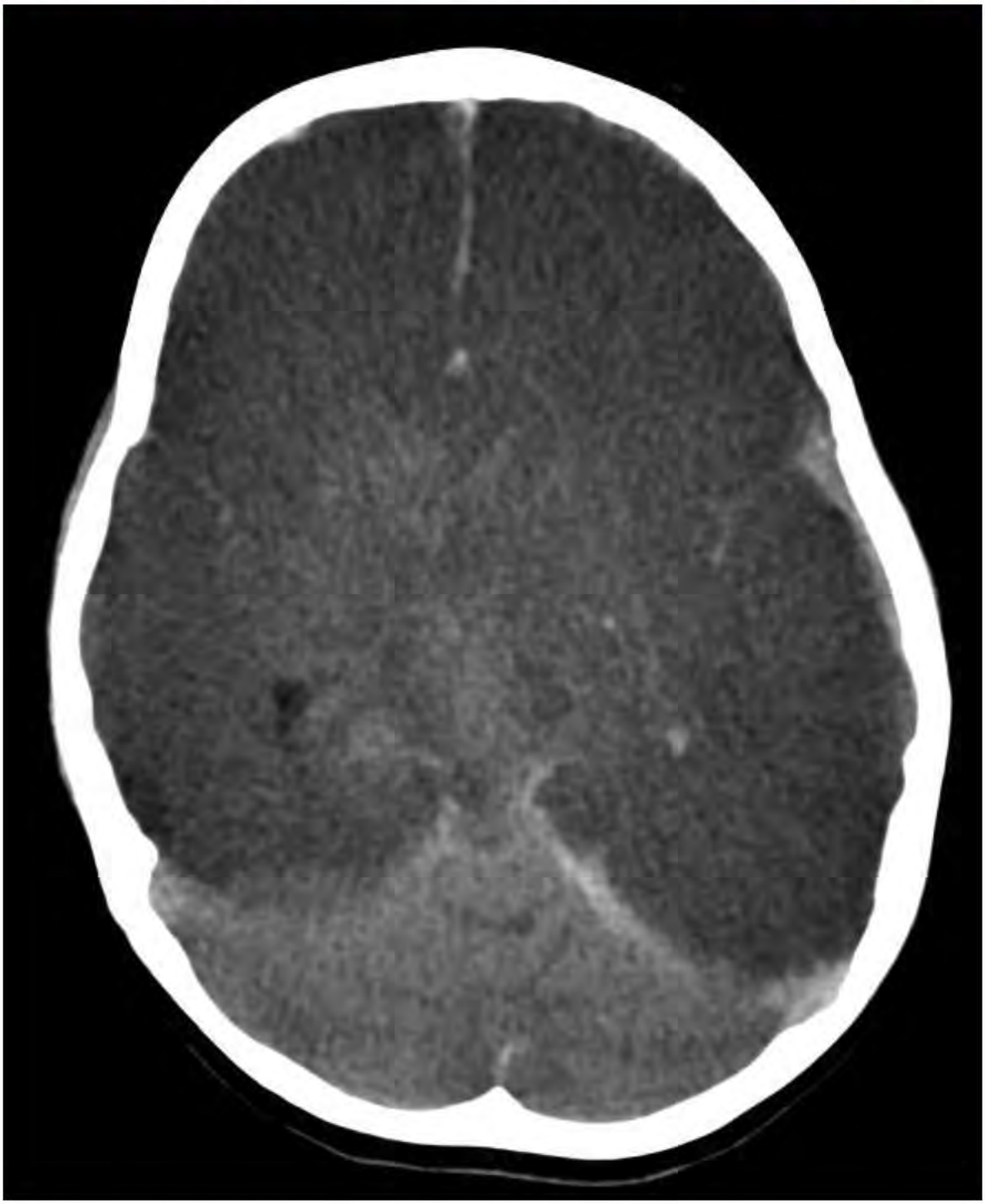
A 24-year-old female met with a road traffic accident involving a head-on collision between a motorbike and a car when traveling as a pillion on the motorbike. She was brought to the emergency department with a Glasgow coma scale (GCS) of 3 and bilateral dilated and non-reactive pupils. The non-contrast computed tomography (CT) scan of the brain showed diffuse hypodense attenuation of bilateral hemispheres with normal attenuation of the cerebellum (figure 1). This is called the white cerebellum sign because of the relative hyperdensity of the cerebellum compared to the supratentorial cerebral hemispheres. Inspite of best resuscitative efforts, she succumbed after 8 hours of hospital stay.

Figure 1: Non-contrast CT brain of the patient showing the white cerebellum sign



The white cerebellum sign was initially described in child abuse, and is also seen in hypoxic ischemic injury and trauma. The sign is a misnomer as the cerebellum retains its normal density relative to the supratentorial structures which show generalized decrease in density. Different theories for the white cerebellum sign have been postulated, which include, raised intracranial pressure resulting in florid cerebral edema and distention of deep medullary veins, relatively preserved blood flow in posterior circulation, and hypoxia damaging the

sodium-potassium pump with damage to more metabolically active areas.[1,2] The white cerebellum sign indicates irreversible brain damage and carries a grave prognosis.

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Pub No: OP-215

Problems Arising During Consultations in Emergency Departments

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Introduction and Purpose. Medical professionals in the emergency department must make quick life-saving decisions. Counseling is one of the most important aspects of patient care in a medical emergency. Consultants are called on the basis of a preliminary diagnosis, and they decide on the further management of the patient. Barriers encountered during the consultation process can lead to longer patient wait times and lower patient satisfaction. Purpose of the work to identify and evaluate the barriers that paramedics face during consultations in the emergency department.

Materials and methods. Paramedics were interviewed using social networks and personal meetings. The questionnaire was created on the basis of a questionnaire developed and approved by Turkish researchers. It included nineteen questions: three questions related to personal data; three questions about the difficulties associated with the time period of work and the most difficult medical specialties for paramedics in the consulting process, the rest of the questions were related to the difficulties of a communicative nature and the organization of the consultative process. The study was carried out of the project "AP14871609 "Optimizing the structure and improving the efficiency of the emergency medical service in Kazakhstan by training people without medical education (medical technicians)".

Results and conclusion. Serious barriers to effective counseling were identified during consultations with cardiologists, pediatricians, and traumatologists. Medical workers noted that weekends, as well as at night, are associated with great difficulties in consultations. However, the most common problems for paramedics are non-attendance of the consultant, refusal of the consultant to be hospitalized, referral to other specialists and departments. More than 40% of respondents noted the desire to share responsibility for the patient with medical consultants, which indicates a lack of confidence in their own knowledge due to the limited experience of the majority of respondents. Barriers encountered in the process of consulting patients with emergency conditions can lead to poor outcomes. Strategies to remove these barriers are needed to improve the quality of patient care.

Key words. Consultation, Emergency Department, Paramedic

Pub No: OP-216

A Case Of Omental Infarction In The Emergency Department

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Introduction and Purpose: Omental infarkt is a condition resulting from impaired perfusion of the greater omentum, which can mimic acute abdomen. While often occurring secondary to another pathology, it can also be idiopathic. Omental infarcts are most commonly seen in the fourth and fifth decades of life. The male-to-female ratio is 2:1, with 15% of patients being in the pediatric age group. Many of the affected individuals are obese. Clinical symptoms are non-specific and can vary depending on the area of involvement. Distinguishing omental infarct from other surgical pathologies such as appendicitis or cholecystitis can be challenging. In previous years, the diagnosis was often incidental during surgery for other reasons. Advances in radiological techniques have facilitated easier diagnosis, leading to increased recognition in the literature. Nowadays, the ability to diagnose omental infarct radiologically before surgical intervention has brought about the possibility of non-operative management.

Case: The patient presented with oral intake disturbance, abdominal pain, and no passage of gas or stool for 2 days. Vital signs were stable. Physical examination revealed diffuse tenderness in the abdomen with no guarding or rebound tenderness. Symptomatic treatment was administered. Abdominal computed tomography (CT) was ordered with a pre-diagnosis of ileus and colitis. The abdominal CT showed inflammatory linear density increases in the mesenteric fat adjacent to the inferior liver and minimal free fluid in the right lower quadrant of the abdomen. The diagnosis was considered as idiopathic omental infarct, and the patient was admitted to general surgery. There is no consensus on the treatment of infarcted patients. Some authors advocate for surgical treatment, citing potential complications, while others suggest that late complications are not as frequent as believed and that conservative treatment with analgesics alone is sufficient. Conservative treatment continues to be a suitable option for non-operatively managed patients due to comorbidities.

Results and Conclusion: Omental infarct is a benign condition with a self-limiting course that should be considered in the differential diagnosis of acute abdomen, although it is rare. With the use of ultrasound and CT, accurate and easier diagnoses can now be made. Since most cases can be treated conservatively, a correct diagnosis will help prevent unnecessary surgical interventions

Keywords: Abdominal Pain , Emergency Department , Omental İnfarct

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Image 1:



Image 2:



Pub No: OP-219

In the Early Period (first 1 month) of the Covid 19-SARS-CoV-2 Pandemic, the Guidance of Computerized Tomography in Patient Diagnosis and Its Correlation With PCR Test in Emergency Services

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Introduction: The first diagnosis in our country for the COVID-19 (2019-nCoV Disease) disease, which started in Wuhan, China on December 31, 2019 and seriously affected the health system all over the world with the global epidemic/pandemic declaration of the World Health Organization on March 11, 2020 was in March. Rapid and effective diagnostic methods for this disease are important in the management of covid and non-covid patients. According to the diagnostic and treatment guidelines for Covid 19, the diagnosis of COVID-19 requires reverse transcription polymerase chain reaction (RT-PCR) testing. However, RT-PCR test gives false negative results at certain rates. Access to these tests has not been easy or cheap, especially in the early stages of the disease. There is a waiting period that must pass before learning the test results. All these reasons have led to the investigation of other auxiliary tests in the screening and diagnosis of Covid 19. It was thought that early chest computed tomography could be helpful in the differential diagnosis of suspicious cases. For example, in a systemic review and meta-analysis by Kim et al, chest CT had a high sensitivity of 94% (95% confidence interval: 91%-96%), but a low specificity of 37% (reported that it has a 95% confidence interval of 26%-50%).
In addition to the cases with typical clinical signs, which are capable of affecting the transmission during the pandemic process, there are also asymptomatic cases with high carrier rates. In order to prevent the spread of the virus and thus of the pandemic, it is recommended to use other tests in addition to RT-PCR tests for screening purposes, and chest tomography is one of them (1). Early diagnosis of COVID-19 identified by CT after contact with a positive patient may lead to the diagnosis of more people than the patient population diagnosed by RT-PCR alone.
Diagnostic symptoms of Covid 19 include fever, cough, shortness of breath, diarrhea, joint/muscle and headaches. Some important changes such as lymphopenia, increase in CRP and D-dimer values and decrease in Ferritin levels observed in laboratory tests are helpful prognostic values in diagnosing patients. In addition to these evaluations, chest tomography findings to be used in differential diagnosis or diagnosis may prevent wrong/incomplete diagnosis in patients. For example, multiple plaque shadows and interstitial changes detected in thorax CTs obtained from patients, mostly peripheral lung and subpleural, and then the presence of multiple ground glass shadows and infiltration shadows in both are changes that support the diagnosis of Covid 19 (2). In addition to diagnosing patients, thorax

CT images can also be used in treatment follow-up. In some patients whose treatment was completed and the RT-PCR test was negative, new chest tomography performed in case of exacerbation of symptoms could help in planning the treatment of the patients and in long-term physiological follow-up (3). In the evaluation and management of post-Covid 'Post-Covid' situations during the protracted process of the Covid pandemic; It is useful in the differential diagnosis and treatment of complications such as Acute Respiratory Distress Syndrome (ARDS), Pulmonary Embolism (PE).

With this study, we planned to investigate the compatibility of the use of computed thorax tomography taken in emergency services as a screening and diagnostic tool with PCR tests in the early period (first 1 month) of the Covid 19-SARS-CoV-2 pandemic. We aimed to investigate the prevention of false negativity in patients whose PCR results were negative for Covid 19 infection.

Material and Method

Patients over the age of 18 whose chest CT images were taken from possible and positive Covid 19 cases who came to Ankara Etimesgut Şehit Sait Ertürk Hospital Emergency Service in the early period of the Covid 19-SARS-CoV-2 pandemic (first 1 month) were included in the study. In the hospital where the study will be conducted, the covid polyclinic is located in the emergency room, and the follow-up and treatment plans of the patients are made together with the responsible emergency, chest diseases and infectious diseases of the day. The hospital's daily patient admission was 1500-2000 during the pandemic period, and 98% of these patients were patients at risk for Covid infection, except for those with red-zone triage and those in need of resuscitation.

The study started on 15.05.2021 and ended on 30.05.2021 and a retrospective analysis was made. The data used in the research were collected through the hospital information operating system by examining the patient files one by one. After the approval of the management and administration of Ankara Etimesgut Şehit Sait Ertürk Hospital, ethics committee approval was obtained from Ankara Dışkapı Training and Research Hospital with the decision numbered 113/03 dated 14.06.2021.

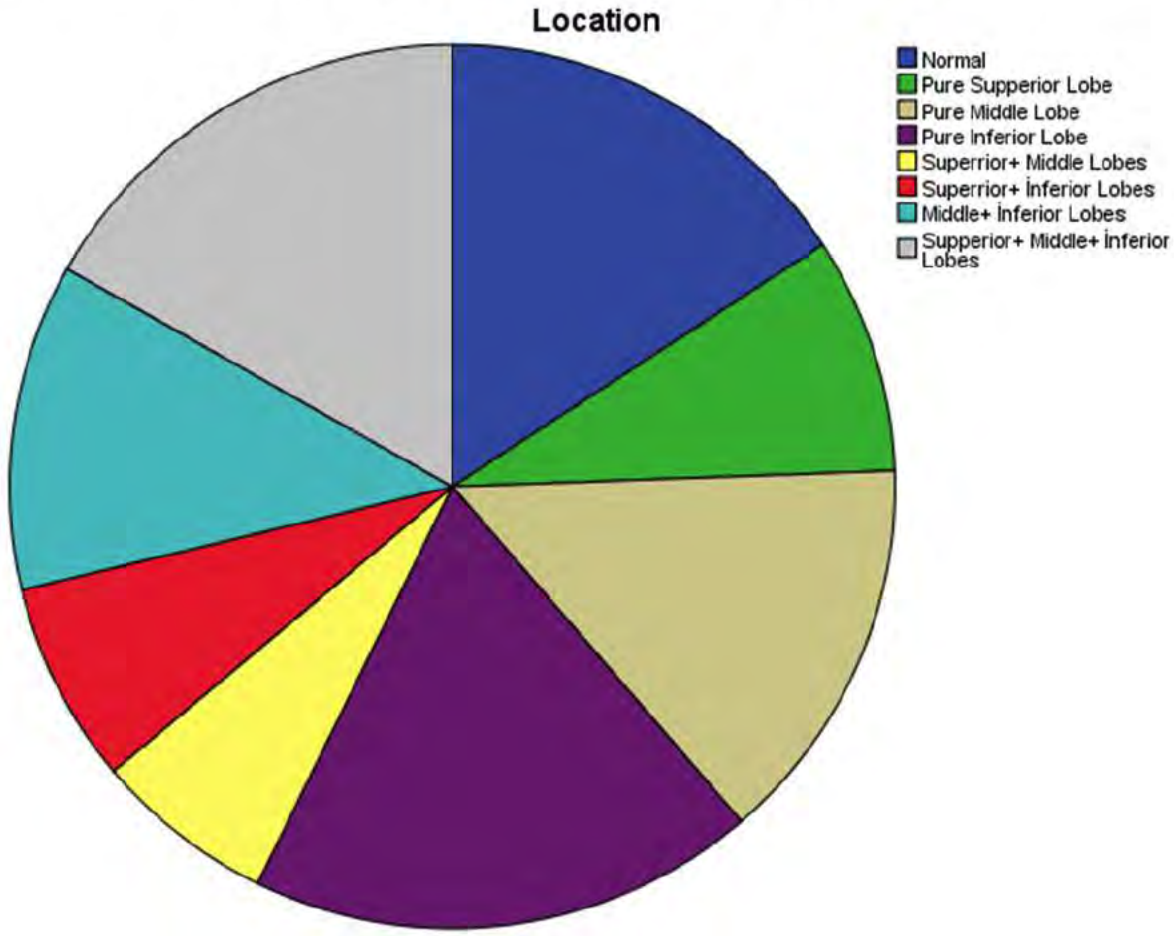
Statistical analysis of the study was performed with SPSS Version 20.0 program (SPSS Inc, Chicago, Illinois, USA). Percentage frequency analysis was performed for categorical data of demographic characteristics such as age and gender. Chi-square (x2) test was used to compare categorical data. A P value of <0.05 was considered statistically significant.

Results: The number of patients who were admitted to the service with the diagnosis of covid in the emergency service within 1 month after the start of the study was 419. Since 7 of these patients were <18 years old, the study was continued with 412 patients. Since 19 of 412 patients did not have thorax CT, the study was conducted with a total of 393 patients. The mean age of the patients included in the study was 46 (18-91). Of these, 259 were male and 134 were female. PCR result rates were 45.42/ 46.47 and there was no significant difference between them (p=0.672). Although the lung (AC) involvement of PCR positive patients was in both ACs in 53.7%, no infiltration was observed in 14.1% right, 11.9% left and 20.3%. In 47.2% of PCR negative patients, both AC infiltration was observed, but AC infiltration was not observed in 12% (p=0.009). It was determined that 19.8% of the right AC was affected more in unilateral infiltration, and inferior lobe infiltration was frequently observed (18.6%), but bilateral infection symptoms were most common (50.1%) (Figure 1).

The presence of multiple bilateral consolidation was 43%. In 61.8% of the cases, no consolidation was defined. Other radiological definitions, which are supportive in viral pneumonias and used for diagnostic purposes in Covid-19 virus infection, and their rates in our cases were as in Table 1.

Sensitivite, spesifite, positive predictive value (PPV) and negative predictive value (NPV) of the radiologic definitions were as in Table 2.

Among the radiological findings, the findings with the highest sensitivity were BCO(graund glass opacity), atelectasis, presence of nodules, fibrosis, nodule formation and interlobular thickening (Table 2). Thickness of interlobules and pleural effusion were had the highest PPV. In the light of this information, there are radiological findings that can be used in the diagnosis of Covid 19 and they are Thickness of interlobules and pleural effusion.



Figüre 1: Lung location of infiltrations

Radiological sign	Single involvement (%)	Multiple involvement (%)
Interlobular septal thickening	1,3	1,5
Reticular pattern	3,3	1,8
Crazy paving	0,5	1
Air bronchograms	3,6	2,8
Bronchial wall thickening	4,1	4,8
Bronchiectasis	1,5	1,3

Pleural thickening	2,3	1,3
Pleural effusion	1,3	0,3
Nodule	8,1	15
Pericardial effusion	1	-
Budding tree view	3,6	0,3
Fibrotic changes	4,3	12
Ground glass opacity	12	43
Atelectasis	3,8	12,2

Table 1: Frequency of radiological definitions in cases

		PCR Results					
		Positive	Negative	sensitivite	spesifite	PPV	NPV
BCO Results	Multiple	103	66				
	Single	11	36	90,4%	35,3%	60,9%	76,6%
Consolidation	Multiple	56	43				
	Single	12	39	82,4%	47,6%	56,6%	76,5%
Thickness of Interlobules	Multiple	5	1				
	Single	1	4	83,3%	80,0%	83,3%	80,0%
Reticular Pattern	Multiple	3	4				
	Single	1	12	75,0%	75,0%	42,9%	92,3%
CrazyPaving	Multiple	3	1				
	Single	1	1	75,0%	50,0%	75,0%	50,0%
Air bronchogams	Multiple	3	8				
	Single	2	12	60,0%	60,0%	27,3%	85,7%
Thickness of Bronchial Walls	Multiple	6	13				
	Single	5	11	54,5%	45,8%	31,6%	68,8%
Bronchiectasis	Multiple	1	4				
	Single	2	4	33,3%	50,0%	20,0%	66,7%
Thickness of Pleura	Multiple	0	5				
	Single	3	6	0,0%	54,5%	0,0%	66,7%
Pleural Effusion	Multiple	1	0				
	Single	0	5	100,0%	100,0%	100,0%	100,0%
Nodule	Multiple	22	37				
	Single	3	29	88,0%	43,9%	37,3%	90,6%
Pericardial Effusion	exist	1	3				
	NON	176	213	0,6%	98,6%	25,0%	54,8%
Tomurcuklanmis agac manzarası	Multiple	0	1				
	Single	4	10	0,0%	90,9%	0,0%	71,4%
Fibrozis	Multiple	19	28				
	Single	3	14	86,4%	33,3%	40,4%	82,4%
Atelectasia	Multiple	22	26				
	Single	1	14	95,7%	35,0%	45,8%	93,3%

Figure 2: Sensitivite, spesifite, positive predictive value (PPV) and negative predictive value (NPV) of the radiologic definitions (BCO; Ground Glass Opacity-GGO)

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Pub No: OP-222

DIMENHYDRINATE ALLERGY; CASE REPORT

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Introduction and Purpose: Dimenhydrinate is one of the frequently preferred medical treatments, especially for the complaints of nausea, digestıon, vertigo. the possibility of the development of allergy to dimenhydrinatea is very rare, and it generally in the form of fixed drug eruptıons . In thİs case, we referred to the allergİc reactıon against dımenhydrinatea, which we think as an nnovative drug.

Materials and Methods: A 44-year-old female patient came with a complaint of dizziness. In the physical examinatıon TE:36.5 nb: 98 TA:120/80 SPO2: 96 conscıousness, orıented cooperated GCS: 15. Oropharynx İn natural appearance, no uvula edema. Neurological examination natural cerebellar tests natural . No lateralizing findings. No neck strength IR:+/+ dır +/+ Heart rhythmıc. s1+ s2+ No addıtıonal sound/murud. 4 extremity pulse is palpeed in the extremities. babinski-/-. nistagmus +, skew test +, head impuls test negative. The patient has a history of being on dialysis for about 11 years and has a renal transplant 8 years ago. The patİent's allergy status was inquired and it was learned that he did not have a previously known drug allergy. In the treatment of the patİent, 2 amp dİmenhydrınate in 250cc sf was given as iv infusion. Uvula edema was controlled and did nothing. The patİent, whose complaint of cough and burnİng İn the throat regressed in the follow-up, was discharged with the recommendation of neurology and ear nose throat polyclinic control..

Results and Conclusion: Allergic reactions against dimenhydrinatea generally in the form of rap(3),(4). In our case, the rapse developed. however, the patient can intervention due to the development of a reaction after the hospital treatment. In the long-term reactİon,maybe a rash could be seen. After applying drugs with very low allergic reactions, we should be precautive against allergic reactions.

Keywords : Allergic reaction, Dimenhydrinate

INTRODUCTION

Dimenhydrinate is one of the frequently preferred medical treatments, especially for the complaints of nausea, digestıon, vertigo(1)(2). the possibility of the development of allergy to dimenhydrinatea is very rare, and it generally in the form of fixed drug eruptıons (3),(4). In thİs case, we referred to the allergİc reactıon against dımenhydrinatea, which we think as an nnovative drug.

CASE

A 44-year-old female patient came with a complaint of dizziness. In the physical examinatıon TE:36.5 nb: 98 TA:120/80 SPO2: 96 consciousness, orıented cooperated GCS: 15. Oropharynx İn natural appearance, no uvula edema. Neurological examination natural cerebellar tests natural . No lateralizing findings. No neck strength IR:+/+ dır +/+ Heart rhythmıc. s1+ s2+ No addıtıonal sound/murud. 4 extremity pulse is palpeed in the extremities. babinski-/-. nistagmus +, skew test +, head impuls test negative. The patient has a history of being on dialysis for about 11 years and has a renal transplant 8 years ago. The patİent's allergy status was İnquİred and İt was learned that he did not have a previously known drug allergy. In the treatment of the patİent, 2 amp dİmenhydrınate ın 250cc sf was given as iv infusion. Uvula edema was controlled and did nothing. Intravenous therapy is stopped. half amp of adrenaline was diluted ın 10cc sf and given as a nebule. The patİent, whose complaint of cough and burnİng İn the throat regressed in the follow-up, was discharged with the recommendation of neurology and ear nose throat polyclinic control.

DISCUSSION

Allergic reactions against dimenhydrinatea generally in the form of rap(3),(4). In our case, the rapse developed. however, the patient can intervention due to the development of a reaction after the hospital treatment. In the long-term reactİon,maybe a rash could be seen.

CONCLUSION

After applying drugs with very low allergic reactions, we should be precautive against allergic reactions.

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Pub No: OP-223

A Case Of Thoracal Vertebra Dislocation, Total Spindle Lesion And Priapism Resulting From Weight Fall

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Abstract

Introduction: Due to the advancement of technology and the widespread use of motor vehicles, the incidence of spinal trauma is increasing. Motor accidents, falls from height, falls from the ground, work accidents, gunshots, sports accidents are the most common causes. The thoracic spine stiffens when attached with the transverse parts of the thoracic ribs and the sternum. Therefore, a large amount of force is required to damage the thoracic spine of a healthy adult. Ninety percent of all thoracolumbar spine injuries occur in the region between T11 and L4.

Material and Method: In our case, injury occurred as a result of weight loss as a result of an occupational accident. In the motor sensory examination, which was damaged in the thorax region, it was determined that it was poured from the waist down and that it was anesthetic from the T11 dermatome region. The patient had priapism in the early period. The patient was evaluated with full spinal CT. In the T11 vertebral body, the entire spine was replaced, and there was a fracture extending to the lamina and pedicle, resulting in anterior dislocation of the thoracic vertebra. Its appearance was evaluated as compatible with the sport of the spinal canal.

Results: These thoracolumbar injuries rarely cause complete cord lesions because the opening of the spinal canal is thus wide. For this reason, care should be taken in this kind of sports.

Keywords: Trauma, emergency room, spinal injury, priapism

Introduction

Spinal (spine and spinal cord) traumas are of great importance because they cause lifelong disabilities. With the advancement of technology and the increase of motor vehicles, its incidence is gradually increasing. The incidence of spinal cord injuries is 30-40 per million, and the prevalence is 906 per million. In our country, 1,800 new cases occur every year, and a total of 54,000 people live as disabled as a result of spinal cord injuries. The majority of spinal injuries occur in the lower cervical region (transition from lordosis to kyphosis) and thoracolumbar (transition from kyphosis to lordosis) junction. Most spinal cord injuries that result in loss of neurological function are due to compression and contusion rather than physical incision. When the spinal cord is traumatized, some mechanisms occur that are somewhat

progressive. Injury may be related to mechanical action, biochemical disturbances and hemodynamic changes. The contusion and crushing caused by the first impact after spinal cord injury is called primary damage, and the damage caused by metabolic and biochemical reasons within hours is called secondary damage.

Case Report

A 27-year-old male patient presented to our emergency deparment as work accident after weight fall. Glaskow Coma Scale(GCS):15, consciousness was clear, oriented and cooperative. He was describing pain in the back region. In the motor sensory examination, paraplegic and anesthetic from the T11 dermatome area were detected. The patient also had early priapism, which is one of the poor prognostic signs of spinal injury. The patient was evaluated with whole spinal CT. In the T11 vertebral body, there was a fracture affecting the entire spinal column, extending to the lamina and pedicle, and dislocation of the thoracic vertebrae at this level. The appearance was evaluated as compatible with spinal canal injury. The patient was admitted to the intensive care unit due to accompanying trauma pathologies. Surgery was planned for the next.

T11 vertebral fracture



Discussion

Spinal traumas present with various clinical symptoms and findings depending on the mechanism of occurrence and the affected area. In our case, no motor and sensory functions were preserved below the injury level and paraplegia followed the trauma. Two possibilities can be considered in the occurrence of the clinical picture. Concussion in the first, contusion or laceration in the second. There may be a temporary loss of function due to spinal cord concussion. In such a case, the improvement starts in the first 6 hours and becomes more evident within 24 hours. Therefore, in the case of a total lesion immediately after injury; After a while,

it cannot be said whether the lesion has a chance to heal or not. About 3% of patients with total deficits at the initial examination may have some improvement within the first 24 hours. Continuation of deficits after 48 hours is an indication that loss of function will not improve. Spinal cord injury patients are often hypotensive. Loss of somatic motor, sensory and sympathetic autonomic function below the lesion level due to spinal cord injury. The severity of spinal cord injury and the higher lesion level increase the severity and duration of spinal shock. This period may last 1-3 weeks. Somatic motor component of spinal shock; flaccid paralysis, areflexia in DTR and skin reflexes, sensory component; anesthesia, its autonomic component; systemic hypotension, skin hyperemia and dryness, bradycardia develops due to loss of sympathetic function.The mechanism of injury is the most important indicator in distinguishing whether the cause of hypotension is bleeding or spinal shock. In >90% of patients with penetrating injury to the spinal canal, the cause of hypotension is bleeding. Anogenital reflexes are examined in the evaluation of complete spinal cord injury. The presence of cremasteric reflex (scrotal retraction when the inner edge of the leg is drawn) or the contraction of the "anal wink" when the anus circumference is drawn) is indicative of the presence of a somewhat undamaged spinal cord. Priapism indicates complete spinal cord damage.Priapism, which is one of the poor prognostic markers, was observed in our case. This finding, showing complete spinal cord injury, was supported by physical examination and imaging. Spinal cord injuries often have a hypotensive course. Our case did not develop hypotension at the time of presentation and follow-up.However, it should be kept in mind that in cases suggesting spinal cord injury, spinal shock may be the primary cause after rulling out of bleeding.

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Pub No: OP-224

The Mortal Consequences of Minor Head Trauma in Glanzman Thrombasthenia: A case report

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Summary:

Glanzmann thrombasthenia is a congenital bleeding disorder caused by a deficiency of the platelet integrin alpha IIb beta3. Symptoms of this disorder usually include abnormal bleeding, which may be severe. Prolonged untreated or unsuccessfully treated hemorrhaging associated with Glanzmann thrombasthenia may be life threatening. Here, we present the mortal case of the minor head trauma patient with GT.

Case Report :

A 39 -year-old male with a past medical history of Glanzmann thrombasthenia. He was brought to the emergency department via EMS services for a severe headache associated with nausea and two episodes of vomiting that started 2 hours prior to his arrival to the ER.The patient folded on the beach while fishing .The remainder of his physical exam was normal.In the emergency room follow-up, the patient became unconscious after 6. hour so the brain CT was taken again . The CT showed multiple focal Intracerebral Hemorrhages and Suprachoroidal hemorrhage (SCH) to protect the airways, the patient was intubated . He was hospitalized in intensive care ,but unfortunately after 24 hours, the patient was admitted to extius.

Discussion :

Even if the examinations of the patients applied for head trauma are normal at the arrive of emergency service ,in emergency room should be following up and re-examination the patient are important in terms of evaluating the complications that may occur later.

INTRODUCTION:

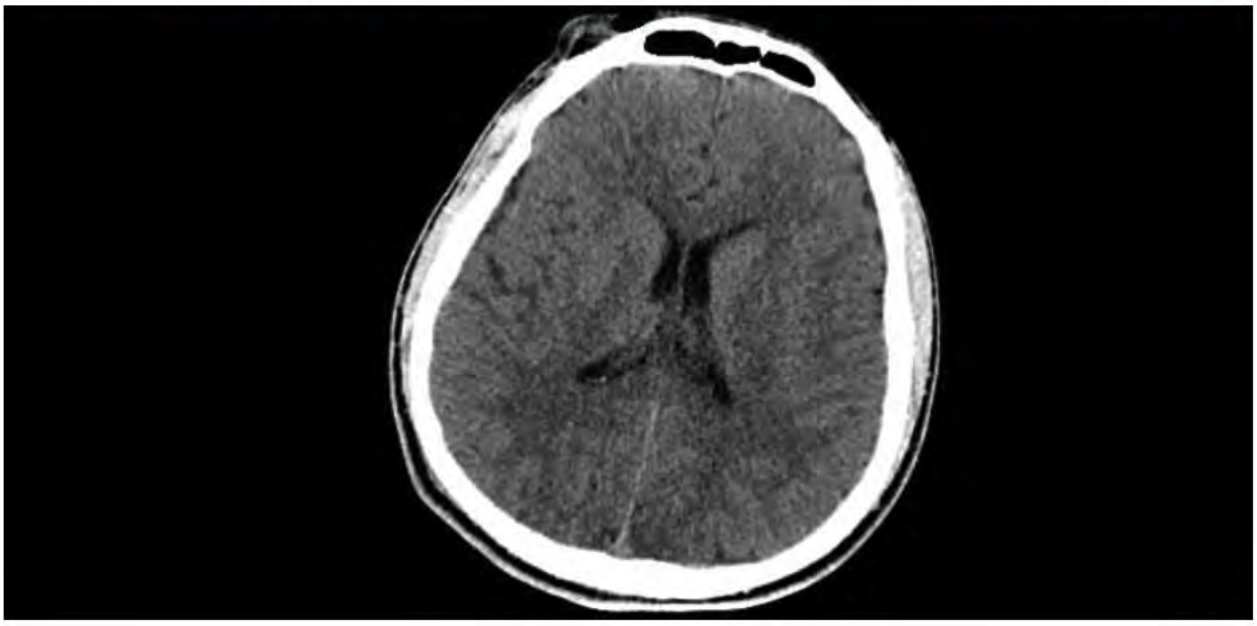
Glanzmann thrombasthenia is a congenital bleeding disorder caused by a deficiency of the platelet integrin alpha IIb beta3 (1) . Symptoms of this disorder usually include abnormal bleeding, which may be severe. Prolonged untreated or unsuccessfully treated hemorrhaging associated with Glanzmann thrombasthenia may be life threatening (Mild head trauma cases

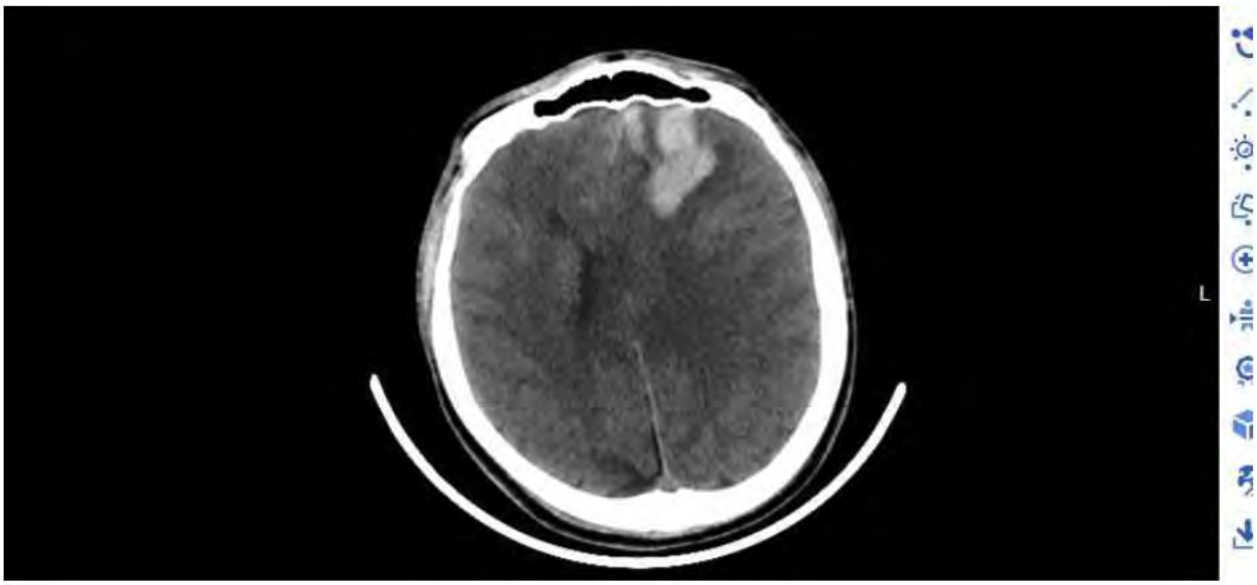
constitute 63-94% of all trauma patients (3). Although the incidence of intracranial pathology in these patients is relatively low, ranging from 4% to 8%, it can be life-threatening in cases involving conditions that may lead to bleeding diathesis, such as Glanzmann thrombasthenia (GT) (4). In this discussion, we will explore the clinical course of a GT patient who was admitted to the emergency department following minor head trauma.

Case Report :

A 39 -year-old male with a past medical history of Glanzmann thrombasthenia. He was brought to the emergency department via EMS services for a severe headache associated with nausea and two episodes of vomiting that started 2 hours prior to his arrival to the Er .The patient folded on the beach while fishing .On arrival to the ER his vitals were as follows blood pressure (BP):130/80 mmHg, heart rate (HR) 75 beats/min, respiratory rate (RR) 14/min, temperature: 36.4 oxygen saturation: 98% on room air. The general condition is alert and oriented,Neurologic examination, the mental-status examination was normal ,glasgow coma Scale (GCS) was 15 (E4, V5, M6) , other physical examinations were normal ,no feature was found in the bedside FAST USG (Focused Assessment with Sonography for Trauma Ultrasound) and laboratory tests.No pathological findings were observed in the brain CT scan. This could be attributed to the unwitnessed nature of the patient's trauma and a hereditary disease present in her medical history (figure 1) .During the emergency room follow-up, the patient's Glasgow Coma Scale (GCS) dropped to 8, and after 6 hours, he experienced a sudden, severe headache and began vomiting profusely. To ensure airway protection, the patient was intubated, and another brain CT scan was performed.

The CT showed multiple focal Intracerebral Hemorrhages and Suprachoroidal hemorrhage (SCH) (figure 2, 3). In the CT scan, parafalcine hemorrhage areas with a diameter of 9 x 5 cm were observed in the left temporoparietal region. Additionally, larger hemorrhagic areas were found in the left frontal region. The left lateral ventricle was completely compressed, resulting in a 1 cm shift of the falx cerebri to the right. Hemorrhagic densities and widespread brain edema were also detected in the cortical subarachnoid spaces. He was hospitalized in intensive care ,but unfortunately after 24 hours, the patient was admitted to extius.

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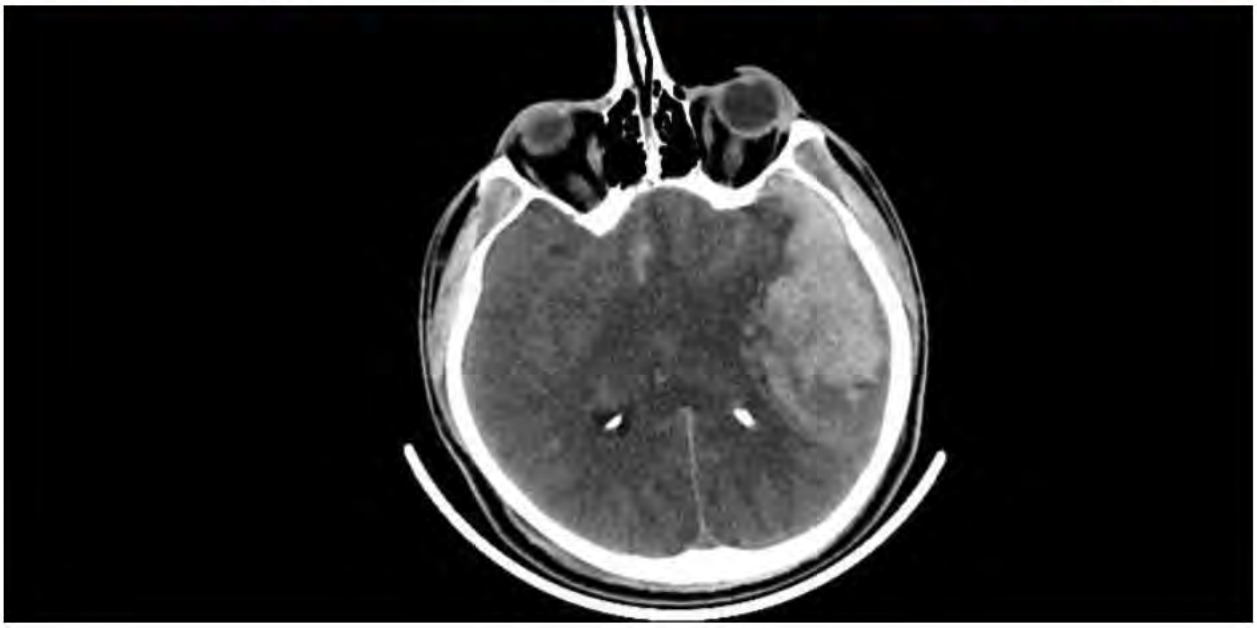

Discussion :

One of the most significant challenges faced by emergency physicians when managing patients who arrive at the emergency department with head trauma is deciding whether to perform a CT imaging scan. Non-contrast CT is the most frequently utilized cranial imaging method for patients with suspected traumatic brain injury (TBI)(5). Even if the examinations of the patients applied for head trauma are normal at the arrive of emergency service ,in emergency room should be following up and re-examination the patient are important in terms of evaluating the complications that may occur later.(6)

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Pub No: OP-228

OPENBOOK IN THE PATIENT WHO DEVELOPS WORK ACCIDENTS;CASE REPORT

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INTRODUCTION

Pelvic ring fractures may vary in severity and deformity (1). Openbook fractures are the most serious and least common forms of pelvic fractures (2). Openbook fractures can have abdominal, vascular and nerve damage, the consequences are fatal, and an appropriate and serious resuscitation is very important for fractures(2),(3). A multidisciplinary approach is required to manage openbook fractures and the treatment is surgery(2). In this case, we described a patient with an openbook fracture who was admitted to our hospital.

CASE REPORT

A 30-year-old male patient was admitted to our emergency service by 112 teams after a rock fell below the waist while working in a quarry. Admission Vitals A: 36.5 CO NB: 88 beats/min TA: 100/60 mmHg SPO2: 97 % GCS: 15 The patient was evaluated. On physical examination, there was tenderness in the pelvic area. There was loss of movement in the hip. The right leg was shorter than the left. Their tests were taken. Imaging was done.

In Biochemistry Glucose: 192mg/dL Urea:52.2 mg/dL ,eGFR:108.36 Creatinine:0.94mg/dL , AST:35u/L, ALT:17 u/L, Calcium:7.82 mg/dL, Total Bilirubin:0.63 mg/dL, Direct Bilirubin:0.14 mg/dL, Indirect Bilirubin:0.49 mg/dL, CK:1064 u/L, CK-MB:79.1 u/L , CRP: 0.8 mg/L, GGT:12.2 u/L , Potassium:3.65 mmol/L, Chlorine:107.4 mmol/L, INR:1.06, aPTT:21.7 sec , PT:9 ,27 sec. In the hemogram, WBC:19.51 K/uL , NEU# :16.94 K/uL , LYMPH# : 1.74K/uL , MONO # :0.74 K/uL, EOS# :0.06 K/uL , BASO #:0.03 K/uL, NEU%:86.9%, LYMPH%:8.9%, MONO% :3.8, EOS%:0.3%, BASO%:0.1, Rbc:4.41 mg /dL , Hgb:14.1 g/dL , HCT: 40.5% , MCV:91.8 fL , MCH:32.0pg , MCHC:34.7 g/dL, RDW-CV:12.6, RDW -SD:43.1 fL, Plt:291 K/uL, MPV:10.2 fL, PDW:16.3 K/uL , PCT:0.295 % , P-LCC:78, P-LCR :26.9 % . Blood group was requested. In tomography reports, pelvis CT: Multiple fracture lines were observed in the bilateral inferior and superior pubic rami and in the right half of the sacrum. Soft tissue increase was observed around the fracture, suggesting hemorrhage due to bleeding. In the scrotal color Doppler ultrasound, it was interpreted that there was a significant edematous-hemorrhagic thickening in the scrotum. In Xray imaging :



Figure 1: AP pelvic radiograph image of the patient

2 ampoules of contramal iv infusion were given in 1000 cc of physiological saline. Arveles, 1 gr ceftriaxone, 1 gr gentamicin 150 cc/hour in 500 cc saline was given. The patient was consulted with orthopedics and neurosurgery. X-RAY: There is a partial fracture of the lateral column on the right side of the sacrum and a fracture in the vertical shift and L4-L5 transverse processes. There is an open book deformity fragmented fracture in the symphysis pubis. It is a Young Burges type 3 pelvic injury and both feet were equalized and splinted together. A pelvic bandage was applied. The patient was referred to a higher center where multidisciplinary surgical intervention could be performed.

DISCUSSION

Abdominal, neural and vascular complications may develop in openbook fractures (2),(3). Our patient had vascular injury but no neurological complications. There are publications showing that early pelvic bandage application reduces complications in pelvic fractures (4). In our case, no fixation was made in the pelvic area when the patient was brought to the hospital. Therefore, we do not know whether the developing complication is directly related to the fracture or transport-related.

CONCLUSION

Openbook fractures are rare and life-threatening cases that require serious and appropriate intervention from the moment they are suspected, followed by a multidisciplinary approach. It is important for patients that our physicians are especially careful about early fixation.

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WACEM'23
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Pub No: OP-230

Comparison of Applications Macintosh Laryngoscope and Gum Elastic Bougie on Advanced Airway Management on a Manikin

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1. Introduction

As of today, endotracheal intubation is the most preferred method to ensure the continuity and safety of the at-risk airway. Endotracheal intubation, which can be briefly defined as placing a tube into the trachea, is an advanced airway method used in requirements such as supporting the patient's breathing, maintaining the patency of the airway, and preventing aspiration of gastric contents. Endotracheal intubation, which can be easily performed by experienced practitioners under normal conditions, may be difficult or even impossible under some conditions [1]. Difficulty experienced by the practitioner during ventilation, laryngoscopy, or intubation is defined as a difficult airway [2]. Gum elastic bougie is an alternative method in adult airway management, which is cheap, effective, and easy to use and can be learned with short-term training [3, 4].

Experiences with manikins are the imitation of important things from the real world, accompanied by guides to simulate or enhance real experiences in an interactive way [3]. These experiences are made with manikins, in other words, simulation: it is the provision of the desired situation by fictionalizing and animating the real or possible events as if they were real. This situation increases the quality of education with the advancement of technology and science, and gradually education with manikins has become a part of classical education [4].

It would be appropriate to use an inexpensive method with high first-entry success, rapid application, easy-to-learn, and inexpensive methods to ensure the airway safety of patients. In our study, we compared the differences between Macintosh laryngoscope (MAC) and Gum elastic bougie (GEB) applications on a manikin that can be applied to advanced airway techniques.

2. Materials and Methods

2.1. Study Design

Intubation durations, number of successful and unsuccessful intubations, general ease of use, the need for external manipulation of the larynx, and the intubation times of MAC and GEB applications on a manikin on which advanced airway technique can be applied were compared after theoretical and practical advanced airway training of intern doctors of Gaziantep University Faculty of Medicine who had no previous intubation experience on real patients.

The study is a prospective, crossover study. Volunteers who came to the Department of Emergency Medicine of Gaziantep University for training rotation had no previous intubation experience with real patients and volunteered to participate in the study.

Ethics Committee approval was obtained prior to the study (Ethics Committee decision no: 2021/56, date: 24.03.2021) and the study protocol was conducted in accordance with the Declaration of Helsinki.

2.2. Process

The population of the study consisted of intern doctors who came to the Department of Emergency Medicine of Gaziantep University for training rotation within a total period of 6 months. During this period, a total of 185 intern doctors started training in the emergency department as rotators. Among these doctors, 150 of them who had no previous intubation experience with real patients were included in the study.

2.3. Definitions and Characteristics of Materials Used

-*Successful Intubation:* To be able to perform tracheal intubation in at least one of a total of three attempts, not exceeding 30 seconds for each attempt.

-*Laryngeal Manipulation:* It is the work of increasing the visibility of the larynx with external pressure in cases where the laryngeal image is distorted.

-*Features of Laerdal ® Airway Management Trainer Manikin:* It is produced for training purposes and is suitable for CPR and endotracheal intubation. Suitable for adult anatomy. The manikin has the precision of real skin. The chest cage, i.e. the lungs, is capable of swelling due to ambulance. It has the flexibility to tilt the head and lift the chin to open the airway. When there is excessive pressure on the teeth during intubation, it can make a dental click sound, which is equivalent to dental fracture in real patient applications.

-15 Fr Gum-elastic bougie (bO2ugie Boussignac®, Ecouen, France) and a tracheal tube (Tuoren Endotracheal Tube®, Henan, China) with an inner diameter of 7.5 mm were used.

2.4. Training Phase

These students, who were included in the study under the supervision of the study coordinators, were given a 45-minute theoretical lecture on advanced airway management and how to apply the GEB and MAC techniques in the Advanced Skills Simulation Center lecture hall.

In the simulation laboratory, firstly, two separate *Laerdal ® Airway Management Trainer* manikins were used where each student would experience both applications three times each. These practices were carried out under the supervision of one-to-one coordinators. Due to the fact that the practical application area of the Advanced Skills Simulation Center was limited to 50 people and also due to pandemic restrictions, the students were divided into three separate groups of 50 people. Each group was shown a video and practical applications on how to perform GEB and MAC intubation after the theoretical lecture in the lecture hall.

2.5. Evaluation Stage

The study coordinators evaluated the application skills of both methods that each student would apply three times on the *Laerdal ® Airway Management Trainer* manikin in terms of .....

- *Duration of the initiative for each attempt,*
- *The lace of intubation (tracheal, esophageal),*
- *The presence or absence of dental fractures,*
- *Whether or not to manipulate the larynx,*
- *The ease of application of the technique (1-very difficult, 2-difficult, 3-normal, 4-easy, 5-very easy),*
- *Overall intubation success.*

2.6. Statistical Analysis

Descriptive statistics of the data obtained from the study were given as average and standard deviation for numerical variables and frequency and percentage analysis for categorical variables. Repeated measures analysis of variance was used to compare the duration of the intervention. In addition, the differences between categorical variables were tested by Chi-square analysis. Analyses were performed with the help of the SPSS 22.0 program, $p<0.05$ significance level was selected.

3. Results

Of the 185 intern doctors who came to the Department of Emergency Medicine of Gaziantep University for training rotation, 150 were included in the study. The average age of these interns was 24.7 years and 52% of them were male.

The duration of the first attempt of intubation with GEB and MAC is longer than the duration of the second and third attempts. It was observed that intubation was performed faster as the number of attempts was repeated and this duration showed a statistically significant difference ($p<0.05$). It was determined that there was no statistically significant difference between the mean times according to the application methods ($p>0,05$). Both methods are not superior to each other in terms of mean intervention times. When the relationship between the mean application times according to the number of interventions was analyzed, the

mean duration of GEB in all three interventions was found to be statistically significantly lower than MAC ($p<0.05$). As the number of attempts by the practitioner increases, the application times become faster in both methods *(Table 1).*

Each of the 150 intern doctors performed both methods three times each, totaling 900 attempts. In GEB and MAC intubation applications, the successful tracheal intubation rates of 450 attempts were 365 (81.11%) and 317 (70.44%), respectively, and the unsuccessful tracheal intubation rates were 85 (18.89%) and 133 (29.56%), respectively. As a result, the rate of successful tracheal intubation with GEB was statistically higher than MAC (p: 0.001). The rates of *esophageal intubation*, one of the complications of endotracheal intubation, were 71 (15.78%) and 112 (24.89%) according to GEB and MAC, respectively. According to these data, the esophageal intubation rate with MAC was statistically significantly higher than with GEB (p: 0.001). *Dental fracture* rates among other endotracheal intubation complications were 102 (22.67%) and 143 (31.78%) with GEB and MAC, respectively. According to these data, the dental fracture rate with MAC is statistically significantly higher than with GEB (p: 0.001) *(Table 2).*

When the first intubation attempts success rate was compared between GEB and MAC, GEB was statistically superior (78% and 64%, respectively) (p: 0.001). The number of patients who needed laryngeal manipulation during intubation with GEB and MAC were 45 (10%) and 120 (26.67%), respectively; the number of those who did not need it was 405 (90%) and 330 (73.33%), respectively. Laryngeal manipulation was performed statistically significantly more frequently in endotracheal intubation with GEB (p:0.001) *(Table 3).*

Both techniques were rated by the practitioners from 1 to 5 for ease of use. According to this result, the mean score of endotracheal intubations with GEB and MAC was 2.09 ± 0.88 and 2.72 ± 1.12, respectively. MAC was found to be statistically significantly easier (p:0.001) *(Table 4).*

The overall intubation success rate evaluated by the executives was 142 (94.67%) and 134 (89.93%) for the GEB and MAC techniques, respectively. There was no statistically significant difference between the overall intubation success rates of both techniques (p:0.125) *(Table 5).*

4. Discussion

Endotracheal intubation (ETI) is one of the most critical airway methods in both emergency department and prehospital patient management. A successful ETI contributes to patient survival and lower mortality. Delay or failure of ETI in an emergency indication may lead to a poor prognosis. Both prehospital and in-hospital emergency doctors as well as paramedics and emergency medical technicians should have adequate knowledge and skills in the application of ETI. Multiple techniques and auxiliary airway tools can be used for ETI [5].

Since intern doctors will work in pre-hospital and in-hospital setting where they are assigned after graduation, they are very likely to encounter patients in need of intubation. Hence, the intubation success of a practitioner who has no or little experience with real patients can be increased with GEB, which is an easy,

inexpensive, low complication rated, and practical technique, rather than relying solely on personal skills. There are many publications in the literature indicating that GEB increases intubation success, especially in challenging airway conditions [6–8]. Therefore, we aimed to investigate the contribution of including not only ETI with MAC but also intubation with GEB in the training manikin in the medical school education curriculum to the overall intubation success in the field.

In a study by Ohchi et al. comparing the intubation success of GEB and MAC on a manikin, no difference was observed in terms of general intubation success with GEB, and when solutions similar to gastric aspirate were used and vomiting feature was used on the manikin, it was found that the general intubation success with GEB was higher and intubation was performed in a shorter time [9]. In another study examining the differences between MAC and GEB and ETI applications on the manikin, no difference was shown between the application techniques in terms of overall intubation success. When intubation was performed during chest compression on the manikin, GEB was found to be superior. In terms of intubation duration, no superiority was found between both techniques [10]. In the study Cho et al. performed on infant manikins during chest compression, it was observed that GEB shortened the intubation duration and increased intubation success [11]. In an experience by Maruyama et al. on a manikin, the intervention duration of successful intubations performed with GEB was found to be longer than MAC and this result was statistically significant [12]. In a retrospective, observational study, Driver et al. showed that intubation with GEB had a higher first-pass success compared to MAC, but the intervention duration was prolonged [7]. In another study comparing intubations with GEB and MAC with cervical collars, no significant difference was observed in terms of the duration of ETI with both methods [13]. In a study conducted in patients with challenging airways, GEB provided intubation in a shorter time compared to MAC, and especially in cases where only the epiglottis can be seen with a limited field of view, including gastric contents, it provided an advantage to feeling the tracheal passage with the help of the fold at the tip of GEB [14]. According to the meta-analysis of randomized controlled studies on real patients by Sheu et al., GEB was found to be superior to MAC in terms of general intubation success, and in terms of intubation durations, it was found that the mean durations of ETI performed with MAC were shorter and these results did not have a statistically significant difference [15]. In a study conducted by Karaca et al. with paramedics and emergency medical technicians on a manikin in a mobile ambulance, no significant difference was shown between GEB and MAC in terms of initial intubation success rate [16]. In another study, it was found that the success rate of successful first intubation was statistically significantly higher in GEB (98%) compared to MAC (87%), and the success rate of GEB was also higher than MAC in difficult intubation cases (96%; 82%; respectively) [6]. In a retrospective study by Driver et al., image records of patient intervention rooms were analyzed and the first intubation success rate of ETI with GEB was found to be higher than MAC (95% and 93%, respectively) [7]. In the study conducted by Halhallı et al. with a manikin in an ambulance, initial intubation success was 77.5% with GEB and 65% with MAC. When total successful attempts were analyzed for both methods, the overall intubation success with GEB was

significantly higher than MAC (95%; 75%, respectively) [17]. In many similar studies evaluating the success of initial intubation, GEB was reported to be superior to MAC [18, 19]. The results of our study, similar to the literature, showed that the first intubation success rate of GEB was significantly higher than MAC. Although there are different studies in the literature showing the superiority of both GEB and MAC, according to the results of our study, the GEB method is more successful in terms of overall intubation success and duration, however, these results are not statistically significant. We anticipate that expanding the application of intubation with GEB both on real patients in the field and in training manikins can increase intubation success and intubation can be performed in a shorter time.

In a study conducted by Driver et al. observed on real patients, the esophageal intubation rate was found to be 1% with MAC and 0% with GEB. The pneumothorax complication rate was found to be 2% in both groups [6]. In a meta-analysis in 2019, Sheu et al. found that esophageal intubation complications were less common in GEB compared to MAC, but there was no statistically significant difference. In the same meta-analysis study, no significant difference was found between GEB and MAC in terms of complications such as dental fracture, oropharyngeal bleeding, and lip laceration [15]. Ono et al. reported that intubation with GEB had a lower rate of dental fracture compared to MAC in a study on a manikin [20]. In a study by Komatsu R et al. on real patients, no difference was found between the two methods in terms of lip injury and mucosal trauma, and no dental fracture or hypoxemia was found in either method [21]. Evans A. et al. study was performed with 44 practitioners on a manikin and found that the esophageal intubation rate with GEB was higher than MAC [22]. Different complications related to different intubation techniques have been reported in the literature. In our study, dental fracture and esophageal intubation rates were analyzed as complications of both techniques. Both complication rates were statistically higher in MAC and we think that GEB is safer.

In a different study by Muhammed et al. comparing ETI applications using GEB and video laryngoscope, it was found that the need for external laryngeal manipulation (ELM) was higher in GEB [23]. In a study by Patil VV. et al. MAC and video laryngoscope were compared and it was observed that the need for ELM was higher in MAC [24]. In a study on a pediatric manikin, it was found that ELM improved laryngeal imaging but prolonged intubation duration and decreased success in intubations performed by inexperienced paramedic students [25]. The results of our study show that the use of GEB reduces the need for ELM compared to MAC. Since applying manipulation to the manikin wastes time during the procedure, we can say that this also prolongs the intubation time with MAC.

In a study comparing MAC and GEB techniques, practitioners reported that they intubated more safely with MAC (88.6% and 25.7%, respectively) [24]. In a study by Koyama et al., the GEB method was compared with *Airway Scope* and Fiberoptic bronchoscopy, and while GEB gave the most difficult sensation to the users, *Airway Scope* was found to be the method that gave the easiest sensation of use [26]. In our study, practitioners were asked to evaluate both methods in terms of ease of use. They stated that they performed intubation more safely with MAC. We think that this result may be due to the more frequent

application of MAC in both emergency departments and other departments where intubation is performed and perhaps due to familiarity. Otherwise, the success of intubation with MAC would be expected to be higher.

4.1. Limitations

Limitations of the research are stated below;

- This study was performed on a manikin and may differ from the experiences performed or to be performed on real patients. The fact that the patient's mouth and stomach contents, which are frequently seen in intubations performed in real patients, are not seen in manikin applications may be the reason for the positive data in our study.
- The manikin used in our study was the Life/form® Deluxe CrisisTM Mannequin Torso and the durations and success rates in the study may change when working with a different manikin.
- The bougie tip we used in our study is crimped, single-type, single-use, and the results may be affected if different types are used.
- Our study included intern students who had no previous experience of intubation on a manikin or real patient, and it should be kept in mind that the results may change when the calm, stress-free environment in the advanced skills simulation laboratory where our study was conducted is replaced by the real patient and the anxiety of intubation on the real patient.

5. Conclusions

In emergency departments and prehospital settings, ETI with MAC is the most common advanced airway technique. Especially in the training of newly graduated, inexperienced intern doctors, although MAC is taught on a manikin, the GEB intubation technique, which is practical, easy to apply, has few complications, and has a high success rate, is not taught and there is no awareness on this issue.

Our study shows that the addition of the ETI method with GEB to the training manikins of both intern doctors and healthcare professionals who perform prehospital and in-hospital intubation may increase the success rate of intubation, shorten the time and reduce complications.

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Table 1. Comparison of Average Implementation Times of Both Applications

Variables	N	1. Attempts	2. Attempts	3. Attempts	p
		± SS	[9]± SS	$\overline{X}$ ± SS	
GEB	150	20,93 ± 11,28	18,79 ± 9,64	16,68 ± 7,18	0,211
MAC	150	22,97 ± 14,19	19,69 ± 9,52	17,51 ± 8,11	
Total	300	21,95 ± 12,84	19,24 ± 9,58	17,10 ± 7,66	
		p=0,001			

**p<0,05*
MAC: Macintosh, GEB: Gum Elastic Bougie

Table 2. Numbers Related to the Location of Attempts for Both Methods

VARIABLES		GEB n (%)	MAC n (%)	p
Tracheal intubation	None available	85 (18,89)	133 (29,56)	0,001*
	Available	365 (81,11)	317 (70,44)	
Esophageal intubation	None available	379 (84,22)	338 (75,11)	0,001*
	Available	71 (15,78)	112 (24,89)	
Dental fracture	None available	348 (77,33)	307 (68,22)	0,002*
	Available	102 (22,67)	143 (31,78)	

**p<0,05*
MAC: Macintosh, GEB: Gum Elastic Bougie

Table 3. Comparison of First Intubation Attempt Success of Both Techniques and Practitioner's Need for External Laryngeal Manipulation

Variables		GEB n (%)	MAC n (%)	p
First Intubation Attempt	Unsuccessful	33 (%22)	54(%36)	0,001 *

	Successful	117 (%78)	96(%64)	
Laryngeal Manipulation	Not applied	405 (90)	330 (73,33)	0,001 *
	Applied	45 (10)	120 (26,67)	

**p<0,05*
MAC: Macintosh, GEB: Gum Elastic Bougie

Table 4. Comparison of the Ease of Application of Both Techniques

Variables	n	Mean±SD	p
GEB	150	2,09 ± 0,88	0,001*
MAC	150	2,72 ± 1,12	

(1-very difficult, 2-difficult, 3-normal, 4-easy, 5-very easy)
MAC: Macintosh GEB: Gum Elastic Bougie

Table 5. Overall Intubation Success of Both Techniques

Variables		GEB n (%)	MAC n (%)	p
Overall Intubation Success	Unsuccessful	8 (5,33)	15 (10,07)	0,125
	Successful	142 (94,67)	135 (89,93)	

MAC: Macintosh GEB: Gum Elastic Bougie

Pub No: OP-231

ACUTE CORONARY SYNDROME DUE TO USE OF PSODEEPHEDRINE WITH NORMAL CORONARY ANGIOGRAPHY

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ABSTRACT

In this case, we present a patient with an unusual acute coronary syndrome. Coronary spasm developed after pseudoephenrin ingestion was observed in the case.. A 44-year-old male patient presented to the emergency department with chest pain. He had been using the pseudoephedrine-containing drug 120 mg 3 times a day for a week. He presented to the emergency department with complaints of chest pain and nausea while continuing pseudoephedrine treatment. (ECG) II-III-AVF st elevation and v5-v6 st depression of inferior myocardial infarction were detected in monitoring records and electrocardiography. Troponin and CK-MB were high in Blood Serum. Pseudoephedrine products or metabolites may cause some side effects such as cardiac coronary arterial spasm, chest pain, acute myocardial infarction (AMI) and myocardial damage.

The patient, who had retrosternal chest pain and nausea due to the use of drugs containing 3x120 mg pseudoephedrine per day, and whose coronary angiography was normal, was treated conservatively in the intensive care unit. So this is an acute coronary syndrome report of the use of a drug containing 120 mg of pseudoephedrine 3 times a day.

Keywords

Pseudoephedrine; Chest pain;Acute coronary syndrome; Inferior myocardial infarction

Introduction

A 44-year-old man was admitted to Dr. Ersin ARSLAN education research Hospital Emergency Department(Gaziantep, Turkey) with a compressing-like redrosternal chest pain lasting about

20 mins. He had no previous health problems, no family history of premature cardiac pathology, and did not smoke. A week or so before this incident, he had experienced a painful sexual ejaculation. Therefore, he used pseudoephedrine prescribed by the urologist. The dosage of the drug was 360 mg/day. Approximately, after the seventh dose (1 week-total dose 2520 mg) of pseudoephedrine, a compressing-like retrosternal chest pain began. Compression-like pains radiating to the left arm and back without prodromal symptoms began abruptly. The patient was hemodynamically unstable on the admission time. On physical examination, blood pressure (180/95 mmHg) and pulse (105 beats/min) were regular. The electrocardiogram abnormally indicated inferrior myocardial infarction. He had signs of heart failure.

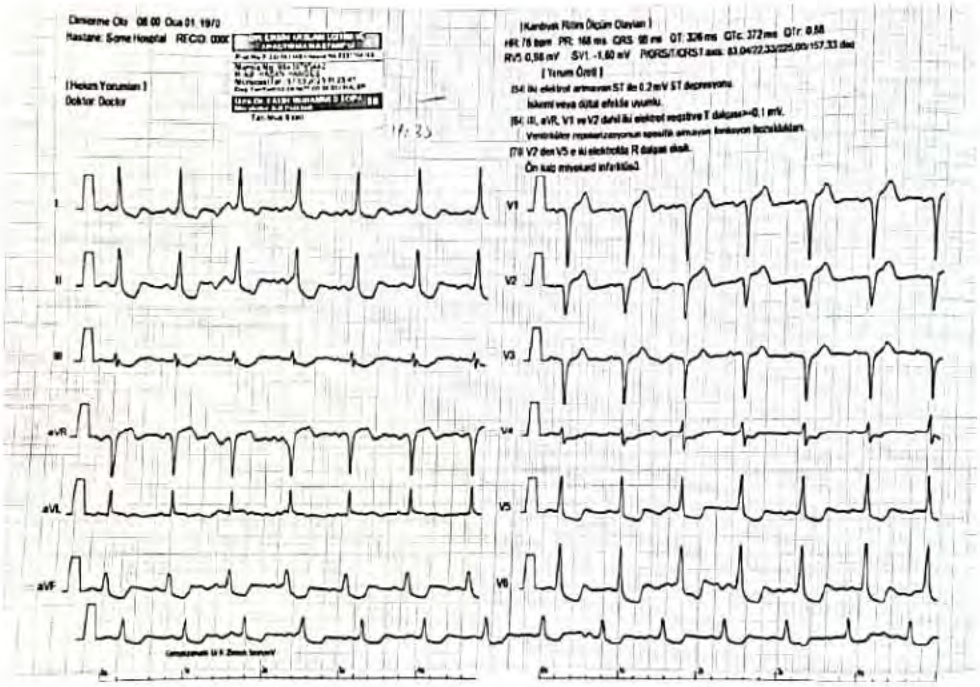

Figure-1; ST segment eleve AMI

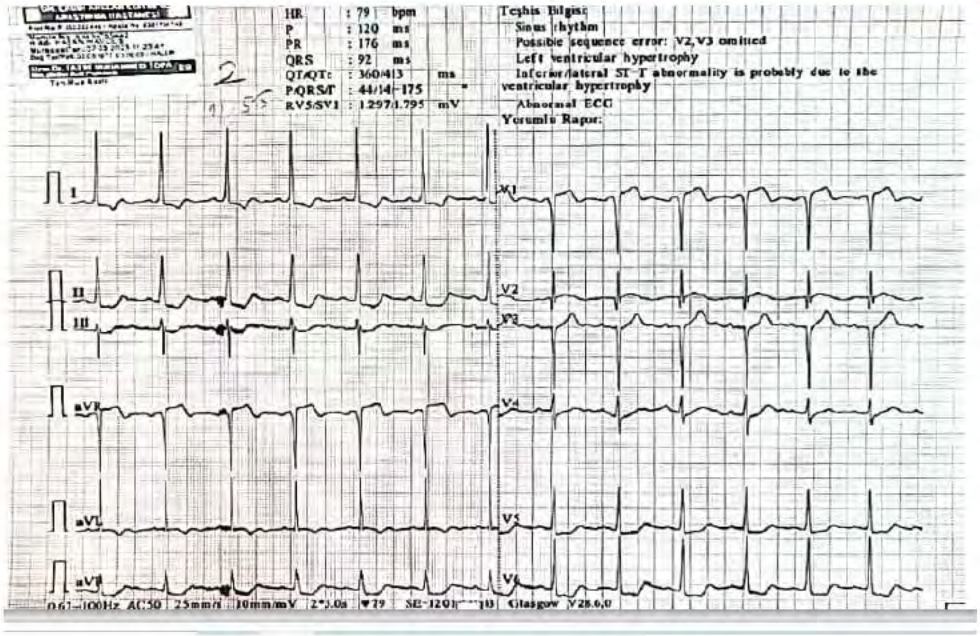

Figure-2; 15 mins after the ECG in the first Figure

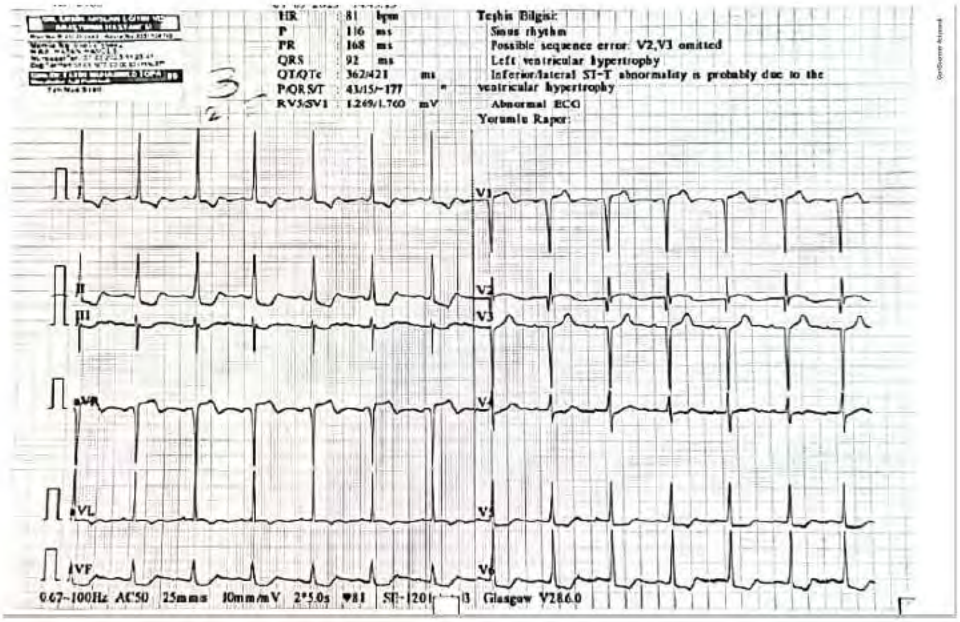

Figure-3; ST segment eleve inferior AMI in Figure 1,2 and 3

Case Report

He was admitted to emergency department with symptoms of redrosternal chest pain and nausea. The physical examination was unremarkable. There was no metabolic disorders such

as obesity, diabetes mellitus or atopy in his history. The patient mentioned that he had been consuming a drug containing 120 mg of pseudoephedrine 3 times a day for the past week to prevent sexual retrograde ejaculation.

The initial laboratory values revealed: blood serum heart creatine kinase (CK-MB) 7,9 ng/ml (reference range [RR] 0,6–6,3 ng/ml),Troponin-I 0,9 ng/ml(reference range [RR] 0–0,16 ng/ml) ,aspartate ami- notransferase (AST)1766,6 IU/l (reference range [RR] 5–34 IU/l), alanine aminotransferase (ALT) 1883 IU/l (RR 3–55 IU/l), ɣ-glutamyl transferase (GGT) 374 IU/l (RR 9–36 IU/l), alkaline phosphatase (ALP) 347 IU/l (RR 40–150 IU/l), total bilirubin 3.76 mg/dl (RR 0.2–1.2 mg/dl) and conjugated bilirubin 1.95 mg/dl (RR 0.0–0.5 mg/dl). Coagulation studies and other laboratory tests, including complete blood count, serum urea nitrogen, creatinine, glucose, electrolytes, total protein and albumin were normal. Moreover, serum ceruloplasmin and α1-antitrypsin were normal. Ecocardiographia showed left ventricular posterior wall contraction defect and 30% anormal ejection fraction.

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The patient with normal coronary angiography was taken to the intensive care unit and treated conservatively. Frequent assessment of cardiac function was performed. The patient recovered clinically and was discharged within the next week.

DISCUSSION

Pseudoephedrine is a drug with a wide history of medical use; it is helpful in treating symptoms of the common cold and flu, sinusitis, asthma,urologica paties (1). Myocardial infarction was

diagnosed by evaluating typical ECG changes, diagnostic elevation in myocardial enzyme levels, and echocardiography performed at admission. The patient was a rare case with very serious consequences. The main effects of pseudoephedrine are on the cardiovascular system via alpha and beta-adrenergic activities. Due to increased alpha and beta-adrenergic activities, hypertension, tachycardia, tremor, sleep disorders, abdominal cramps and diarrhea may be observed (2,3). Pseudoephedrine, non-selective alpha and beta adrenergic receptor activator, causes vasospasm by stimulating alpha adrenergic receptors in vascular smooth muscle (4,5). There are case reports that pseudoephedrine may cause coronary artery spasm and myocardial infarction (6). It can cause death in infants and infants from two years of age. The use of pseudoephedrine is not recommended in the United States (7).

CONCLUSION

A case of pseudoephedrine-induced AMI with normal angiographic coronary arteries has been reported. Coronary vasospasm, endothelial disfunction and prothrombotic state associated with drugs containing pseudoephedrine may be possible responsible mechanisms. The possibility of AMI should be seriously considered, even in very young adolescents with acute streptococcal respiratory tract infections. It is very important to take a complete history of all medications used.

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Pub No: OP-236

POPE SCORE IN THE PROGNOSIS OF ACUTE PULMONARY THROMBOEMBOLISM

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INTRODUCTION-OBJECTIVE: Scoring systems created by using certain parameters of patients are used to determine mortality in pulmonary thromboembolism (PTE). The most commonly used scoring system for this purpose is the pulmonary embolism severity index (PESI) . However, it is difficult to use in daily practice due to the large number of parameters required to calculate this score. For this reason, clinicians continue to develop new scoring systems based on simple parameters, which are easy to apply and give powerful results. In our study, Prognosis in Pulmonary was developed by Gerardo F. et al. We aimed to evaluate the Embolism (PoPE) score (1).

MATERIALS-METHODS: This study was carried out retrospectively on patients diagnosed with PTE between 14.02.2020 and 30.09.2022 in the Emergency Department of Diskapi Yıldırım Beyazıt Training and Research Hospital of University of Health Sciences of the Ministry of Health of Republic of Türkiye, in a single center. The primary endpoint of the study was 30-day mortality. The socio-demographic characteristics and comorbidities of the patients, as well as their vitals, physical examination findings, laboratory results and imaging tests at the time of admission were evaluated.

In descriptive statistics; while qualitative data are expressed as ratio and median value; quantitative data are expressed as mean ± standard deviation (SD). In the comparison of the groups, by testing whether the data are normally distributed with the Kolmogorov Smirnov test; Parametric tests were used in normal distribution and non-parametric tests were used in abnormal distribution. Correlation coefficients and statistical significance were calculated using Spearmen's test for variables at least one of which was not normally distributed and for variables that were ordinal. For statistical significance, the type-1 error level was calculated as 5%. In the

prediction of 30-day mortality in PTE, the area under the curve (AUC) in the ROC analysis was evaluated, the data were expressed at a 95% confidence interval.

RESULTS: 201 patients were included in the study. The mean age was calculated as 64.9±17.3. 26 patients (12.9%) died within 30 days of follow-up due to PTE. In ROC analysis, PSI score AUC was 0.73 (95% Cl, 0.66-0.79 p<0.001) and PoPE score AUC was 0.70 (95% Cl, 0.63-0.76 p<0.001). PESI score; its sensitivity in predicting mortality was 96% (95% CI 80.4-99.9 p<0.001) and its specificity was 40% (95% CI, 32.7-47.7, p<0.001). When the PoPE score was ≥2, its sensitivity in predicting all-cause 30-day mortality was 80% (95% CI 60.6-93.4%, p<0.001), and its specificity was 60% (95% CI 52.9-67.9, p<0.001). A moderate positive correlation was found in the Spearmen correlation analysis performed between the PoPE score and the PESI score. The Roc curves, sensitivities and specificities of both scores according to the ROC analysis are shown in Figure 1.

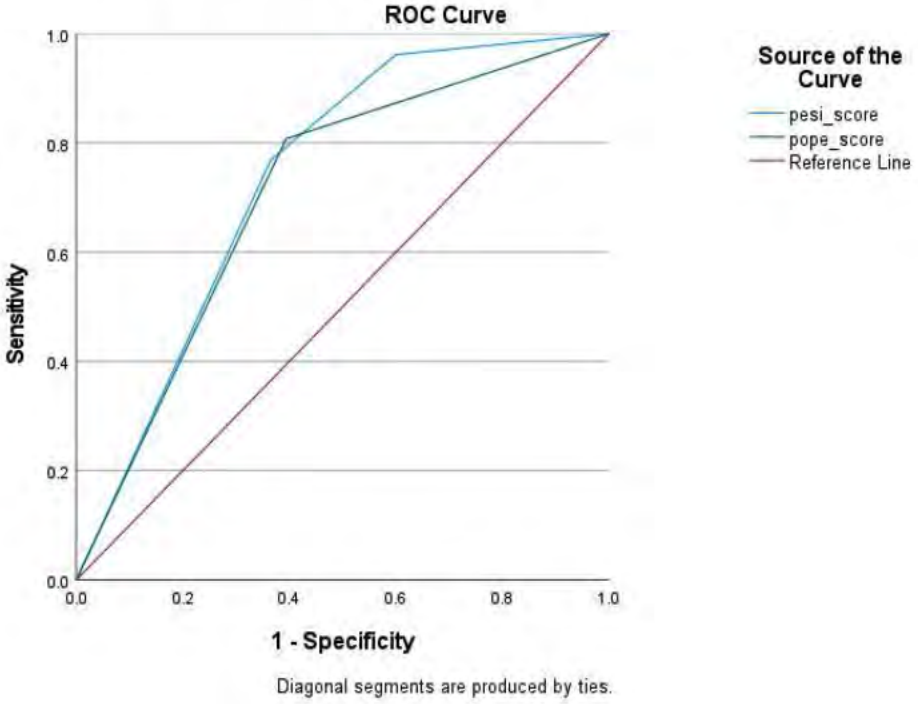

Figure 1 PoPE score and PESI score ROC Curve

DISCUSSION: Pulmonary thromboembolism (PTE) is a condition with high mortality resulting from occlusion of the pulmonary artery and/or its branches (2). The annual mean incidence of Venous thromboembolism (VTE), including PTE, is between 23-269/100.000 (3). In a study, it was reported that an average of 100,000 people die from VTE annually in the United States (4).

In acute PTE cases, determining the risk in terms of early mortality is the most important prognostic factor that should be evaluated before treatment (5). The most commonly used scoring system for PTE prognosis is the pulmonary embolism severity index (PESI).

Table 1. Pulmonary Embolism Severity Index

Variable	PESI	Variable	PESI
Age > 80 years	age/year	Systolic blood pressure < 100 mmHg	+30
Male gender	+10	Respiratory rate ≥ 30/min	+20
Presence of cancer	+30	Body temperature < 36 °C	+20
History of heart failure	+10	Mental status change	+60
History of chronic lung disease	+10	Saturation < 90 %	+20
Heart rate ≥ 110/minute	+20		
Calculation of risk based on score	**low risk** Class I: ≤ 65 Class II: 66-85 **High risk** Class III: 86-105 Class IV: 106-125 Class V : > 125		

According to PESI, early mortality was 0.7% and 1.2% in the low-risk group (Class I and II), while it was 4.8%, 13.6% and 25% in the high-risk group (Class III-IV-V) (6).

The PoPE score is calculated with 5 parameters (Modified shock index, presence of cancer, serum lactate concentration, altered mental state and age).

Table 2. Prognosis in Pulmonary Embolism score

Patient age ≥80
Presence of cancer
Serum lactate concentration ≥ 2.50 mmol/L

Modified shock index (Heart rate/mean arterial pressure) ≥ 1.1
Altered mental state

For the presence of each, 1 point is added.

In the study of Gerardo et al., when univariate analysis was applied, it was shown that the modified shock index was 1.1 and above, the lactate concentration was 2.50 mmol/L and above, the age of 80 and over, altered mental state and the presence of active cancer were associated with increased mortality (1).

In the study of Gerardo et al., it was reported that the performance of the PoPE score in showing the 30-day mortality was higher than the PESI (1). In our study, when the PoPE score was ≥2, its sensitivity in predicting all-cause 30-day mortality was 80% (95% CI 60.6-93.4, p<0.001), and its specificity was 60% (95% CI 52.9-67.9, p<0.001).

It was concluded that the PoPE score, which is a new risk scoring system, can be used to identify patients with high mortality in PTE. We think that this score, which is based on simple and easily accessible parameters, will be beneficial in emergency services.

KEYWORDS: Pulmonary Thromboembolism, Prognosis , PESI, PoPE Score

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Pub No: OP-237

CONTRIBUTION OF NEXUS CHEST CRITERIA TO DIAGNOSTIC PROCESSES IN THE EMERGENCY DEPARTMENT IN PATIENTS WITH THORACIC TRAUMA

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INTRODUCTION AND PURPOSE

In this study, it was aimed to examine the contribution of the Nexus Chest Criteria (NCC) to the diagnostic processes in the evaluation of patients who applied to the emergency department with thoracic trauma.

MATERIALS AND METHODS

This retrospective, case-control study was conducted with a total of 184 patients over the age of 16 who applied to the emergency department with thoracic trauma in the last three days between 01.05.2018 and 01.08.2018.2018. Permission was obtained from the local ethics committee before the study. Demographic data, physical examination findings, analysis and examination results, positive computed tomography findings (rib fracture, sternum fracture, pneumothorax, hemothorax, pulmonary contusion and large vessel injury) and NCC conditions in the patient files and automation system were recorded. SPSS 22.0 program was used to analyze the data. $p<0.05$ level was considered significant.

RESULTS AND CONCLUSION

The median age of the patients included in the study was 35.5 years (Min: 16, Max: 85) and 72.3% were male. It was determined that 19.9% of the patients had comorbidities, 94% had blunt trauma, and 12% had non-vehicular traffic accidents (Table 1). While no relationship was found between the presence of lesion on CT and age, gender, comorbidity, trauma mechanism, type of trauma, blood pressure, pulse, fever and admission time, saturation was found to be significantly low. No relationship was found between thoracic pain, additional injury, pain on palpation, intoxication, deceleration, state of consciousness and the presence of lesions on CT. It was determined that rib fracture was the most common disease in the patients, and there was a positive relationship between the number of NCC criteria and rib and scapula fractures (Table 2). In subgroup analyses; age and presence of pain on palpation in rib fracture; rapid deceleration in contusion and sternum fracture; It was determined that thoracic pain, rapid deceleration and state of consciousness had a statistically significant relationship with pneumothorax (table 3). It is understood that age, pain on palpation and rapid deceleration from NCC criteria in patients with thoracic trauma can guide

clinicians in the diagnostic processes of the most common rib and scapula fractures. However, this data needs to be supported by large series.

KEYWORDS: Trauma, Emergency, Nexus Chest Criteria, Fracture.

Table 1. The relationship between the presence of pathology on CT and demographic characteristics

			Pathology in thorax CT		
		Total median value (min-max)/n(%)	Positive (n:49) median value (min-max)/n(%)	Negative(n:135) median value (min-max)/n(%)	p
Age		35,5 (16-85)	40 (16-76)	34 (16-85)	0,365
Gender	Male	133 (72,3)	38 (77,6)	95 (70,4)	0,336
	Female	51 (27,7)	11 (22,4)	40 (29,6)	
Comorbidity		20 (19,9)	8 (16,3)	12 (8,9)	0,152
Trauma mechanism	Blunt	173 (94)	44 (89,8)	129 (95,6)	0,145
	Penetary	11 (6)	5 (10,2)	6 (4,4)	
Type of trauma	Non-vehicular traffic accident	22 (12)	7 (14,3)	15 (11,1)	0,165
	In-vehicle Traffic Accident	20 (10,9)	4 (8,2)	16 (11,9)	
	Gunshot wound	3 (1,6)	2 (4,1)	1 (0,7)	
	Injury with sharp object	11 (6)	5 (10,2)	6 (4,4)	
	Beaten	18 (9,8)	1 (2)	17 (12,6)	
	Falling at same level	102 (55,4)	25 (51)	77 (57)	
	Falling from high level	8 (4,3)	5 (10,2)	3 (2,2)	

Table 2. The relationship between thoracic pathology and NCC number

	Number of cases Pozitive/Negative	Pathology in thorax CT		p
		Pozitive Median (min-max)	Negative Median (min-max)	
Pathology in thorax CT	49/135	3 (1-5)	2 (1-5)	0,009
Contusion	16/168	3 (1-5)	2 (1-5)	0,058

Pneumothorax	15/169	3 (1-5)	2 (1-5)	0,088
Rib fracture	35/149	3 (2-5)	2 (1-5)	**0,001**
Hemothorax	9/175	2 (1-5)	2 (1-4)	0,533
Sternum fracture	5/179	3 (2-4)	2 (1-5)	**0,016**
Skapula fracture	1/183	2	2 (1-5)	0,837

Table 3. The relationship between the presence of the pathology in thorax CT and the NCC

	Pathology in thorax CT		p
	Pozitive (N:49) n(%)	Negative (N:135) n(%)	
Thorax pain	44 (89,8)	128 (94,8)	0,308
Additional injury	10 (20,4)	21 (15,6)	0,504
Pain on palpation	43 (87,8)	103 (76,3)	0,102
Intoxication	0	0	N/a
60+ age	10 (20,4)	12 (8,9)	0,033
Rapid deceleration	13 (26,5)	23 (17)	0,151
State of consciousness	2 (4,1)	3 (2,2)	0,837

Pub No: OP-238

Thoracic aortic dissection- a case report

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Background

Back pain is one of common symptom presenting to emergency department (ED) and every day we try and make process faster to evaluate these patients and work towards quicker treatment times, in trying to be fast we may sometimes be overlooking conditions which can be fatal. We are most trained and concentrate on identifying and recognising MIs and PE's. But some of the fatal conditions like Aortic Dissections gets to be either ignored or overlooked. It could because of low incidence rates or due to lack of attention to identify the same.

Case Presentation

64 year old female, presented to our emergency with severe upper back pain which started 18 hours ago. Pain started early morning at around 4 A.M while the patient was at sleep, moderate in intensity, not relieved on oral analgesics. Patient was taken to multiple clinics for the same before presenting to our ED. Pain has been gradually progressive in nature, which had become intolerable in the last 4 hours. Patient had received oral and intravenous analgesics for relief of her symptoms before coming to ED with little or no relief of symptoms.

No history of any other chest pain, breathing difficulty, cough, injury to the back, similar episodes in the past, abdominal pain, headache or vomiting.

Medical history: Patient is a known hypertension and has been noted to have uncontrolled hypertension for the last 7 months' despite being on multiple antihypertensives on regular basis. Type 2 diabetes mellitus and Hypothyroidism taking following medications on a regularly and recently detected Chronic kidney disease awaiting further evaluation.

Her medications include:

Tablet Amlodipine 10 mg BD

Tablet Clonidine 100 mcg BD

Tablet Metoprolol 50 mg BD

Tablet Voglimac GM 2 BD
(Glimepiride 2mg + Metformin 500mg + Voglibose 0.2mg) BD

Tablet Teneligliptin 20 mg BD

Tablet Thyroxine 100 mcg OD

Family history: No history of connective tissue disorders, heart disease.

Personal history: Patient is not a smoker or alcoholic. No known drug allergies.

On examination: Elderly woman, conscious, oriented, moderately built, well nourished.

No pallor, icterus, cyanosis, clubbing or generalised lymphadenopathy.

Vitals observations on arrival:

PR: 74 per minute, regular, no radio- radial or radio-femoral delay.

BP: 180/130 mm Hg in both upper limbs

RR: 24/minute

SpO2: 98% on room air.

Temperature: 98.4°F

GRBS: 154 mg/dL

Systemic examination:

Cardiovascular system: S1 & S2 heard, no murmers.

Respiratory system: Normal vesicular breath sounds heard, no crepitations.

Abdomen: Soft, non-tender, no palpable pulsatile mass, bowel sounds heard.

Spinal examination: No deformities noted, no tenderness, flexion extension movements normal.

ECG showed Left axis deviation with Left ventricular hypertrophy changes.

ABG: compensated Metabolic Acidosis.

Other biochemical parameters: Hemoglobin: 12.3g%, Potassium of 3.6 mmol/L, Serum creatinine of 1.49 mg/dL

In ED we noted her ECG and ABG findings. Patient was given analgesia according to analgesic ladder. Her Troponin I was done which turned out to be negative. She was noted to have low WELLS score for PE.

Xray chest was done. Which showed Prominent Aortic knuckle, widened mediastinum and double aortic knuckle.



Patient was noted to have ongoing pain even after intravenously opioids.

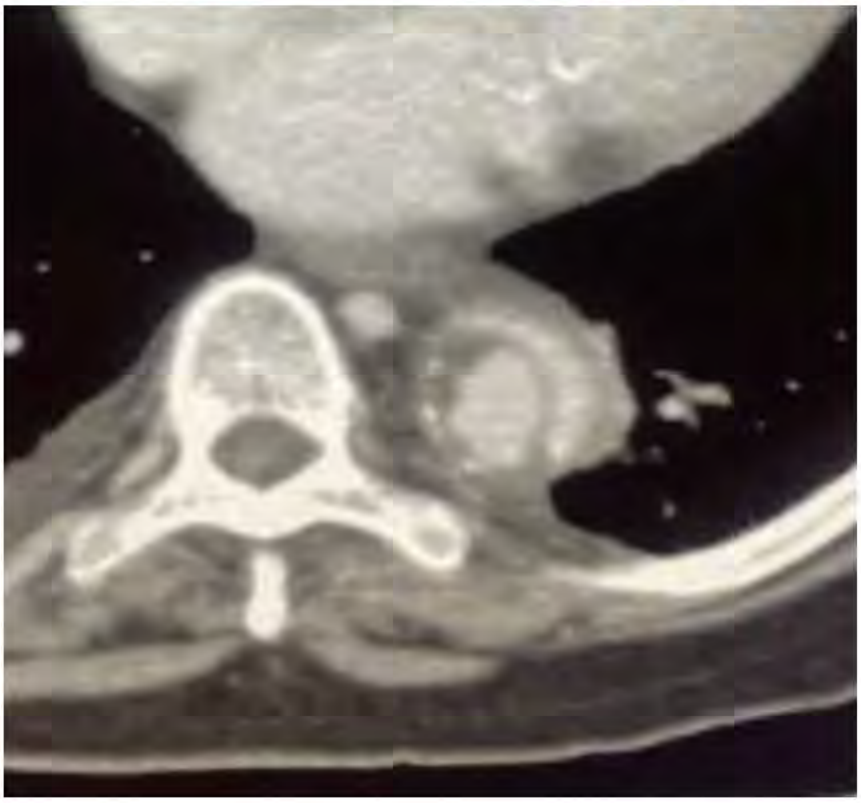
Having considered wide range of differential diagnosis, there was no features suggestive towards any diagnosis. In view of ongoing pain in the upper back (interscapular region) and hypertension we considered Aortic dissection.

Repeat Blood pressures were noted to be 176/124 mm Hg and with a differential diagnosis of aortic dissection in mind patient was started on Injection Labetalol 20 mg bolus intravenous followed by Infusion of Injection Nitroglycerin at 5 mcg/ minute.

There was no improvement in pain we decided to get CT angiogram of thoracic and abdominal aorta for our patient which showed:

Distal descending thoracic aorta dissection (T8 level) extending upto 35 mm distal to SMA origin. Celiac axis, SMA, left renal artery from true lumen while right renal artery from false lumen. Maximum descending aorta 31 mm in diameter, suprarenal abdominal aorta being 25 mm in diameter and infrarenal abdominal aorta being 20 mm in diameter. Atheromatous changes seen upto iliaca arteries at multiple places.





Injection N-Acetylcysteine 1 gram was given prior to CT scan to prevent contrast induced nephropathy.

With the confirmation of diagnosis of Aortic dissection Stanford Type B, Patient was referred to cardio-thoracic team who continued medical management for patient. Nitroglycerin infusion was changed to Labetalol infusion. Patient was admitted and shifted to ICU for further management.

Course in the hospital: In ICU patient was managed conservatively. She was treated with intravenous beta blockers and nitrates. Her stay in hospital was uneventful. Patient was discharged and walked home after 11 days of hospitalization in a hemodynamically stable condition.

Discussion

Emergency medicine is a speciality where we are expected to manage any and all emergencies. There are conditions which we have to be cautious about especially when the symptoms can be similar but treatment of one condition can be detrimental or even fatal for another condition. The incidence of Aortic dissection has been difficult to assess. But it has been reported to be between 2.9 to 4 per 100000 per years
Acute aortic dissection is a rare but catastrophic disorder. Aortic dissection is due to the separation of layers of the aortic wall, tear of tunica intima leads to collection of blood

between the intima and media layer. Acute aortic dissection is associated with very high mortality.
A patient presenting with history of chest pain can be having and acute Myocardial infraction the treatment of which would be anticoagulants, thrombolysis or PTCA. But it is very critical to be aware that unsettling chest pain can be aortic dissection where anticoagulation and antithrombotics can be fatal for patients' outcome. It is very easy for these disastrous conditions to go under the radar of differential of ED physician due to their low incidence rates. Physicians correctly suspect the diagnosis in as few as 15% to 43% of cases verified acute aortic dissection. Though Back pain (interscapular pain) is one of common presentation of aortic dissection and with recent advances in diagnostic methods, misdiagnosis occurs in 25% to 50% of patients on initial evaluation with symptoms mimicking those of acute myocardial infarction and other cardiovascular disorders. When left untreated, about 33% of patients die within first 24 h and 50% within 48 h. The 2-week mortality rate approaches 75% in patients with undiagnosed aortic dissection.

Aetiology

Predisposing high risk factors for non traumatic aortic dissection includes:

1.Hypertension (most commonly associated with Stanford type B AAD)

2.An abrupt, transient, severe increase in blood pressure: (use of sympathomimetic drugs, energy drinks, strenuous weight lifting)

3.Genetic conditions- Marfan syndrome, Ehlers-Danlos syndrome, Turner syndrome, bicuspid aortic valve, coarctation of the aorta.

4.Pre-existing aortic aneurysm

5.Atherosclerosis

6.Pregnancy and delivery

7.Family history

8.Aortic instrumentation or surgery

9. Inflammatory or infectious diseases that causes vasculitis (syphilis, cocaine use)

Age is a risk factor for approximately 75% of aortic dissections occurring in patients who are ages 40 to 70 years, with majority occuring between the ages of 50 & 65 years. Acute aortic dissection is three times more common in men than in women, although women tend to present later & experience worse outcomes.

Clinical presentation:

Chest pain and upper back pain is consistently reported in more than 90% of the patients with aortic dissection. Sudden onset, ripping or tearing, and migrating nature is reported in more than 80% of dissections.

There are two main anatomic classifications used to classify aortic dissection.

The **Stanford** system is more frequently employed. It classifies dissections into two types based on whether ascending or descending part of the aorta involved.

Type A involves the ascending aorta, regardless of the site of the primary intimal tear. Type A dissection is defined as a dissection proximal to the brachiocephalic artery.

Type B aortic dissection originating distal to the left subclavian artery and involving only descending aorta.

The **DeBakey classification** is based upon the site of origin of the dissection.

Type 1 originates in the ascending aorta and to at least the aortic arch.

Type 2 originates in and is limited to the ascending aorta.

Type 3 begins in the descending aorta and extends distally above the diaphragm (type 3a) or below the diaphragm (type 3b).

Ascending aortic dissections are almost twice as common as descending dissections.

Crawford classification

Type I involves most of the descending thoracic aorta from the origin of the left subclavian to the suprarenal abdominal aorta.

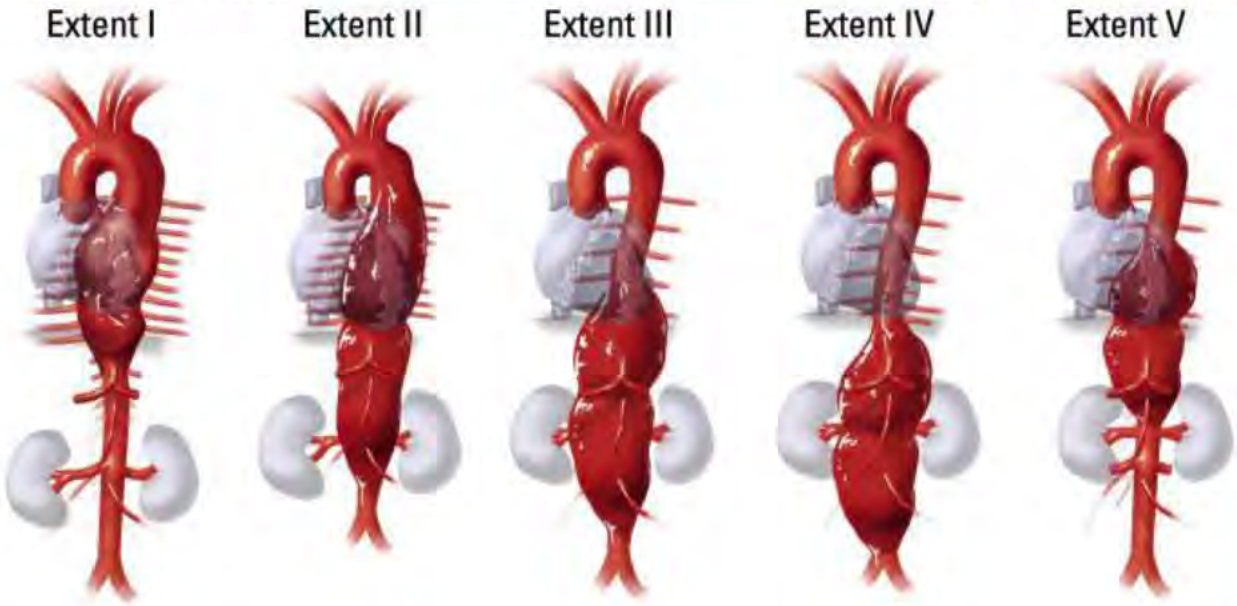
Type II is the most extensive, extending from the subclavian to the aortoiliac bifurcation.

Type III involves the distal thoracic aorta to the aortoiliac bifurcation.

Type IV TAAAs are limited to the abdominal aorta below the diaphragm.

Safi's group modified this scheme by adding

Type V, which extends from the distal thoracic aorta including the celiac and superior mesenteric origins but not the renal arteries



Our patient seems to fit into type 5.

Pathophysiology

Constant exposure to high pulsatile pressure and shear stress leads to a weakening of the aortic wall in susceptible patients resulting in an intimal tear. Following this rent, blood flows into the intima-media space, creating a false lumen. Most of these tears take place in the ascending aorta, usually in the right lateral wall where the greatest shear force on the aorta occurs. An AAD can propagate anterograde and/or retrograde and depending on the direction the dissection travels, cause branch obstruction that produces ischemia of affected territory (coronary, cerebral, spinal, or visceral), and for proximal type A AADs can instigate acute tamponade, aortic regurgitation or aortic rupture.

In an AAD, the true lumen is lined by the intima whereas the false lumen is within the media. In most cases, the true lumen is smaller than the false lumen. Overtimes, the blood flowing through the false lumen leads to the development of an aneurysm with the potential for rupture. The three common sites for AAD are as follows:

Nearly 2-2.5 cm above the aortic root (the most common site)

Just distal to the origin of the left subclavian artery

In the aortic arch

Investigations:

ECG and chest x-ray can help differentiate other possible causes for chest pain but can be misleading. The presence of ECG findings consistent with an acute myocardial infarction

occurs in eight percent of cases of AAD. Furthermore, while the widening of the aortic silhouette increases the likelihood of AAD, its absence does not reliably exclude the diagnosis. Most society guidelines recommend either CT aortography or transesophageal echocardiogram (TEE) for the diagnosis of AAD. For most emergency departments (EDs), CT angiography will likely be the first advanced imaging technique on account of its widespread availability.

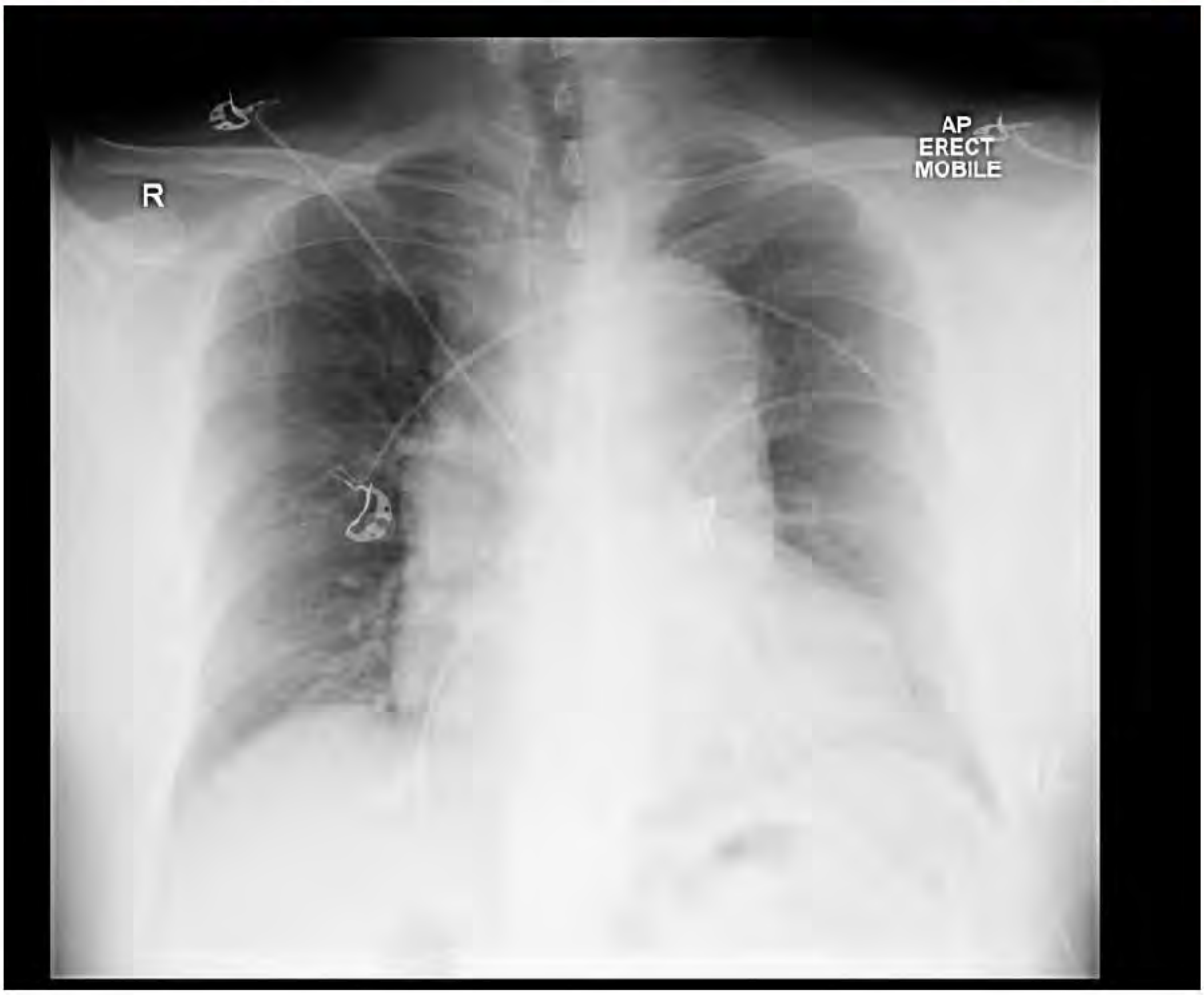
Chest X Ray (Anteroposterior view)

Usual signs of aortic dissection on X Ray chest.

- Widened mediastinum: > 8.0-8.8 cm at the level of the aortic knob on portable anteroposterior chest radiographs.
- Double aortic contour
- Irregular aortic contour

(The space between intimal calcification and the outer border of the aortic arch was >1 cm, a recognised radiological sign of aortic dissection. Awareness of this is crucial.)

Widening of mediastinum and aortic knob has previously been found in more than 90% of all dissections.



Additional X-ray features that suggest AAD include:

- Left apical cap
- Pleural effusion
- Deviation of the oesophagus
- Deviation of the trachea to the right
- Depression of the left main stem bronchus
- Loss of the paratracheal stripe

CT, especially with arterial contrast enhancement (CTA) is the investigation of choice, able not only to diagnose and classify the dissection but also to evaluate for distal complications. It has reported sensitivity and specificity of nearly 100%.

Non-contrast CT may demonstrate only subtle findings; however, a high-density mural hematoma is often visible. Displacement of atherosclerotic calcification into the lumen is also a frequently identified finding.

Dissections involving the aortic root should ideally be assessed with ECG-gated CTA which nearly totally eliminates pulsation artefact. Pulsation artefact can mimic dissection, is very common and seen in up to 92% of non-gated CTA studies.

Contrast-enhanced CT (preferably CTA) gives excellent detail. Findings include.

- Intimal flap
- Double-lumen representing the true and false lumens
- Dilatation of the aorta
- Mercedes-Benz sign in the case of a "triple-barrelled" dissection
- Windsock sign

Differentiatial diagnosis

Alternative diagnoses on the differential of aortic dissection include the following life-threatening conditions:

- Myocardial infarction
- Cardiac tamponade (from another cause),
- Oesophageal rupture (Boerhaave syndrome),
- Spontaneous pneumothorax,
- Pulmonary embolism,
- Stroke / transient ischemic attack.
- Pulse deficit can be a sign of non-dissection-related embolic phenomena or arterial occlusion.

Complications

- Multiorgan failure
- Stroke
- MI
- Paraplegia
- Renal failure
- Amputation of extremities
- Bowel ischemia
- Tamponade
- Acute aortic regurgitation

- Compression of superior vena cava
- Death

Learning points

1. Aortic aneurysm must be kept in mind as a differential in all acute chest pain and/or back pain presentations.

2. Normal X Ray chest does not rule out Aortic dissection. But a patient with normal chest xray and normal is less likely to have aortic disease.

3. Beta blockers are the drug of choice in Stanford type B acute aortic dissection.

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Pub No: OP-240

A Case Of Pyoderma Gangrenosum Admitted To The Emergency Department With Orchitis And Scrotal Cellulitis

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Introduction

Pyoderma gangrenosum (PG) is a multisystemic disease of unknown etiology in which abnormal neutrophil chemotaxisis is primarily responsible for pathogenesis. (1) PG has rarely been identified in the penis and scrotum. In addition, due to the fact that it is a rare condition, it is generally unknown to non-dermatologists. (2) Herein, a case of elderly pyoderma gangrenosum presenting to the emergency department with orchitis and cellulitis is presented.

Case

A 74-year-old male patient applied to the emergency service with the complaints of a wound that had been present for 20 days in the genital area, and new onset pain and swelling. There were previously known diagnoses of diabetes mellitus, congestive heart failure, chronic obstructive pulmonary disease, and hypertension. The patient did not describe any active cardiac complaints during his physical examination and had no palpitations, syncope, dyspnea, or angina. Vitally stable pulse 63, TA 120/90 mmHg, saturation 94, s1+/s2+ no obvious cardiac murmur, respiratory sounds were coarse, active bronchospasm and rhonchi were present. Ral ++ was present in the lower zones. There was widespread edema, erythema and tenderness in the scrotal region. There were 2 ulcerated lesions on the left lateral aspect of the scrotum, 3x2 cm above and 3x5 cm below, with sharp edges and yellow-green necrotic debris in the middle. (figure 1) Wbc:11.12, CRP:116, AST:20.9, ALT:17.6, Creatinine:1.23. In the USG, mild heterogeneity and increased blood supply in both testicles (orchitis?) and subcutaneous edema and increased blood supply in the scrotal skin (cellulite?) were observed. Cellulitis in the patient who was not considered for emergency surgery by urology? He was consulted with dermatology and was transferred to the dermatology service.

Wet dressing with Eau de Goulard and ampicillin 4x2 g of sulfur were started. HBsAg, anti HBc Ig G and M anti HCV, anti HIV, Treponema pallidum Hemagglutination Assay (TPHA), Rapid Plasma Reagin (RPR), Chlamydia Pneumoniae Ig G and M Chlamydia Trachomatis Ig G and M, ANA,RF, anti Ds DNA c -ANCA, p Since Pseudomanas Aeruginosa grew in the culture taken from the wound of the ANCA negative patient, his treatment was revised as piperacillin sodium and tazobactam sodium 4.5 g 3x1. Repeated superficial USG revealed a thickness increase of up to 13 mm in the scrotal skin, bilateral extratesticular complex fluid and cystic openings in the left extratesticular area, approximately 36x20 mm in size, which may be compatible with phlegmon. After 14 days of antibiotic therapy, edema, erythema, yellow-green debris and discharge in the scrotum were observed. It receded, the pain continued. Control USG findings were normal. During this process, enlargement was noticed in the ulcers debrided by the urologist, and the biopsy taken was compatible with pyoderma gangronosum.
No pathological findings or solid organ tumor were detected in the lower and upper abdominal CT, thorax CT, Abdominal and Urinary system USG of the patient, who was examined for diseases that may accompany pyoderma ganronosum. Cervical axillary and inguinal LAP were not observed. No pathology was observed in serum and urine electrophoresis immunofixation or peripheral smear. The patient showed slow clinical regression, primarily with potent topical steroids, topical calcineurin inhibitors, epithelializers and systemic doxycycline. Systemic corticosteroids could not be started due to the accompanying heart failure, DM and HT. Due to high cretine levels, hypertension and advanced age, cyclosporine was discontinued and doxycycline was replaced by colcine. The patient benefits from the current treatment. Their follow-up continues.

Conclusion

Pyoderma gongrenosum is a rapidly progressive neutrophilic dermatosis of unknown cause, characterized by large painful ulcers. (1) PG; It can be classified as ulcerative-pustular (classic), bullous, vegetative, visceral, malignant, peristomal, superficial granulomatous and postoperative types. Classically, it begins suddenly as a painful nodule, pustule, and/or papule; It is characterized by ulcerated lesions with ill-defined borders, red-purple color, hemorrhagic, suppurative and necrotic appearance, surrounded by an erythematous halo. (3) Although no accompanying disease was detected as a result of the examinations performed in our patient, a systemic disease associated with pyoderma gangrenosum is detected simultaneously or after the diagnosis (4) Rheumatological and hematological diseases, especially inflammatory bowel diseases, monoclonal gammopathies, hidradenitis suppurativa.

and iatrogenic immunosuppression or malignancies. (5) The patient should be questioned intermittently in terms of conditions that may accompany the disease follow-up.

PG has no specific histopathological features, the diagnosis is made by exclusion. Although biopsy may lead to lesion expansion through pathergy, biopsy is usually needed to confirm the diagnosis. (6) Massive neutrophilic infiltration ("sea of neutrophils") is observed in the absence of vasculitis and granuloma formation in PG. (4)

In treatment, a suitable environment must first be created for wound healing. Unnecessary traumatic procedures should be avoided. Patients should be monitored for clinical signs of wound infection (e.g., fever, warmth, swelling, foul odor, lymphangitic streaks, increased drainage, or pain) and treated appropriately with antibiotics if infection occurs. (7) Our patient's presenting complaints were related to secondary infections. . The complaints resolved with appropriate antibiotic therapy.

In patients with mild PG, local corticosteroids or calcineurin inhibitors may be sufficient for treatment. However, systemic therapy is often required in patients with disseminated PG. Glucocorticoids are the most frequently preferred treatments because of their rapid response, relatively low probability of malignancy, and ease of administration. Cyclosporine can be used as an alternative in first-line treatment in patients who cannot tolerate systemic corticosteroid treatment. Biological agents such as infliximab, etanercept, adalimumab, ustekinumab or anti-neutrophilic agents such as colchicine and dapsone, antimicrobials such as minocycline and other tetracyclines, alternative immunosuppressants such as mycophenolate mofetil, azathioprine, methotrexate may be used in case of unresponsiveness to primary care. Intravenous immunoglobulin (IVIG) and alkylating agents are the treatment options typically reserved for patients with severe and resistant disease. (7) Cyclosporine and glucocorticoids could not be used in our patient, for whom topical treatment was inadequate, due to the presence of multiple comorbid conditions. A good response was obtained with colchicine in the patient who had a slow clinical response to doxycycline.
This case is presented to raise awareness because a patient with pyoderma gangrenosum, which is actually a rare chronic disease and progresses with comorbid conditions, applied to the emergency department with a secondary infective picture.

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Figüre 1. Scrotal ulcer

Pub No: OP-241

A Retrospective Study Of The Role Of Biochemical Parameters Such As Nlr, Plr, Crp/Albumin Ratio In Predicting The Severity Of The Disease In Patients Diagnosed With Acute Pancreatitis

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INTRODUCTİON: The aim of this study was to determine the role of Neutrophil/Lymphocyte Ratio (NLR), Platelet/Lymphocyte Ratio (PLR), CRP/Albumin, LDH/Albumin and RDW markers in predicting the severity of acute pancreatitis.

MATERİAL METHODS: The data of 210 patients admitted to Pamukkale University Emergency Department and diagnosed with acute pancreatitis were analysed retrospectively. NLR, PLR, CRP/Albumin, LDH/Albumin and RDW values were determined for each patient and their correlation with Ranson and BISAP scores were evaluated. In addition, sensitivity, specificity and area under the curve (AUC) were determined by ROC analysis of these parameters.

RESULTS: Ranson score and NLR, PLR and LDH/ALB were found statistically significant (p=0.001, p=0.001, p=0.002). BISAP score and NLR, CRP/ALB and LDH/ALB were found to be statistically significant (p<0.001, p<0.001, p=0.01). According to the results of Ranson score ROC analysis, sensitivity was 71.4% and specificity was 68.8% at NLR cut-off ≥11.87 (AUC: 0.74, p<0.001), sensitivity 66.7% and specificity 62.4% at PLR cut-off ≥240.28 (AUC: 0.65, p=0.01), sensitivity 81% and specificity 77.2% at LDH/ALB cut-off ≥11.13 (AUC: 0.82, p<0.001). According to BISAP score ROC analysis results, sensitivity was 75% and specificity was 69.1% (AUC: 0.74, p=0.001), CRP/ALB cut-off ≥0.34, sensitivity 68.8% and specificity 65.5% (AUC: 0.71, p=0.04), LDH/ALB cut-off ≥9.68, sensitivity 68.1% and specificity 63.9% (AUC: 0.67, p=0.02).

CONCLUSİONS: According to our study, NLR and LDH/ALB are associated with both severity scores. Their use together may give an idea about the severity and prognosis of acute pancreatitis.

Keywords: Acute pancreatitis, Ranson, BISAP, NLR, LDH/ALB

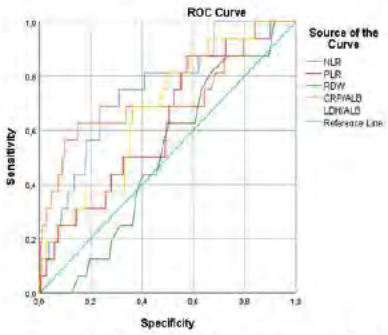

Figure 1. BISAP ROC Analysis

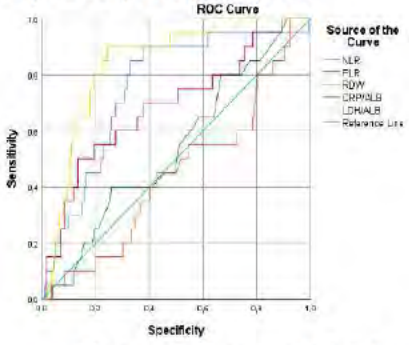

Figure 2. Ranson ROC Analysis

Pub No: OP-242

Clinical Findings and Usage of Brain CT in Pediatric Head Trauma Patients

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Background: Traumatic brain injury (TBI) is one of the leading causes of death and disability among the children in worldwide. TBI in pediatric population have several differences from adults. While managing a pediatric patient with brain injury, radiation exposure due to CT scan should be a concern for the physicians. In this study we aim to investigate the mechanism of head injuries and CT scan findings in pediatric patients.
Material and methods: This study was carried out in Erzurum Health Sciences University Erzurum Regional Training and Research Hospital between 01.01.2022 and 31.03.2022. This is a retrospective study. The 211 pediatric patients older than 2 years old who were admitted to our ED with the complaint of isolated head trauma were evaluated for the study. 147 of them were included in the study.
Results: The mean age was 12.02 ± 5.57. The 83 (56.5%) of patients were male whereas 64(%43,5) female. (table 1)The most common trauma mechanism were respectively: Falling from heigh (29.6%), falling from the same level (24.8%), motor vehicle collisions (21.3%) and sports injury (%13,7). The mean Glasgow Coma Scale (GCS) score was 14.91 ± 0.76. Most common signs and symptoms after trauma were nausea or vomiting (38.9%), pain in the trauma area (%36,1), skin changes such as edema, ecchymosis, abrasion, laceration etc. in the trauma area (%32,2), prone to sleep (%28,3), discomfort (%26,4), headache (17.2%), and loss of consciousness (9.7%). Head CT were obtained for 132 (%89,7) patients. 122 (%92,4) of the patients have not a pathological finding in CT. The pathological findings in CT scan were linear skull fracture %2,45, epidural hematoma %1,9, contusion %1,7, subdural hematoma %1,4, subarachnoid hemorrhage %1,1 and depressed skull Fracture %0.9 respectively. Only 2 patients required operative intervention.
Table 1. gender distribution

gender	%
female	43,5 (64)
male	56,5 (83)

Conclusion: Of the patients who underwent CT scan only a small number had pathological findings. In addition to this, although the most common CT finding was a linear fracture, none of them required surgical intervention. In the light of these findings, clinicians should be cautious for obtaining cranial CT in pediatric head trauma patients. Using of some clinical

decision rules such as PECARN and CATCH can prevent unnecessary CT scan and prevent patients from radiation exposure.

Keyword: CT scan, pediatric head trauma, head injury mechanism.

Pub No: OP-243

Not Every Renal Colic Is Real Renal Colic

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Abstract

Background: Renal colic presents with a transient, writhing, severe pain in the form of intermittent cramps, which is common in emergency services. In our case, we aimed to describe a case of subcapsular renal hematoma incidentally encountered in a young woman without any additional disease or trauma, who applied to the emergency department with the complaint of pain in the form of renal colic.

Case report: A 32-year-old young woman applied to the emergency service with the complaint of colic-like right flank pain that had been intermittent for 2 days. The patient, whose vital signs were stable, did not have any additional disease. We evaluated the patient with the first USG, who was not relieved by symptomatic treatment. During the examination with USG, we saw that there was a loculated collection area around the right kidney, this seemed suspicious to us in terms of a subcapsular hematoma or a septal cystic structure. Thereupon, we planned to perform a contrast-enhanced computed tomography (CT) scan. In the withdrawn CT; We observed that it is compatible with subcapsular hematoma with limited fluid density in the renal capsules in the perirenal planes on the right, and grade 2 hydronephrosis in the structures of the right kidney pelvicalyxial system. Our patient was hospitalized by the urology clinic for follow-up and treatment.

Conclusions: In our case, we wanted to share with you a case that we came across spontaneously, who was not exposed to any trauma, and was diagnosed quickly by USG. Thanks to this imaging that we applied to our patient for the first time, she was of great help in the diagnosis of subcapsular renal hematoma, which is rare. However, computed tomography was needed for definitive diagnosis.

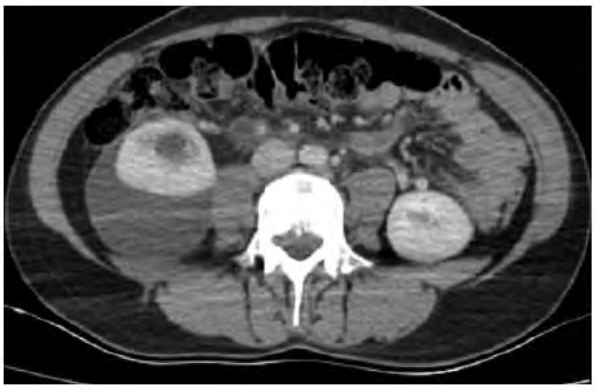
Introduction:

Renal colic presents with a transient, writhing, severe pain in the form of intermittent cramps, which is common in emergency services. Classically, it is an uncomfortable condition that can be accompanied by costovertebral angle tenderness, flank pain, colic, and nausea and vomiting. Although renal colic is supported by clinical suspicion, many diagnoses can be confused with renal colic. In our case, we aimed to describe a case of subcapsular renal hematoma incidentally encountered in a young woman without any additional disease or trauma, who applied to the emergency department with the complaint of pain in the form of renal colic.

Case; A 32-year-old young woman applied to the emergency service with the complaint of colic-like right flank pain that had been intermittent for 2 days. On physical examination of the patient, right costovertebral pain sensitivity was present. no rebound-defense on abdominal examination and no ral-rhonchus in lung sounds. The patient, whose vital signs were stable, did not have any additional disease. Whole blood, biochemistry, urine and beta hcg tests were requested from the patient and symptomatic treatment was started at this time. In laboratory tests of the patient, WBC (White Blood Cell): 12.77 K/UL, HGB (Hemoglobin): 15g/dL, CRP (c-reactive protein): 4.4 mg/L, Creatinine: 0.98mg/dL, urea: 47 mg/dL, potassium: 4.56 mmol/L. WBC (White Blood Cell): 6.71 K/UL, HGB (Hemoglobin): 12.4 g/dL, CRP(c-reactive protein): 1.5 mg/L, Creatinine: 0.76 mg/dL, urea: 18.3 mg/dL, potassium: 4.56 mmol/L, beta hcg negative, and there was no significant feature in urinalysis. Mindray branded DC-60 model ultrasonography (USG) is available in the emergency department of our hospital. We evaluated the patient with the first USG, who was not relieved by symptomatic treatment. During the examination with USG, we saw that there was a loculated collection area around the right kidney, measuring approximately 85*45 mm in its widest part, and containing thin septa in places. This seemed suspicious to us in terms of a subcapsular hematoma or a septal cystic structure.









Thereupon, we planned to perform a contrast-enhanced computed tomography (CT) scan after our patient had normal urea- creatinine values. In the withdrawn CT; We observed that it is compatible with subcapsular hematoma with limited fluid density in the renal capsules in the perirenal planes on the right, and grade 2 hydronephrosis in the structures of the right kidney pelvicalyxial system. Our patient was hospitalized by the urology clinic for follow-up and treatment.

Conclusion and discussion

Renal colic is pain caused by increase
d pressure in the urinary system or usually caused by stones(1). Although renal colic originates from urolithiasis, different etiological causes may present with pain in the style of renal colic. The most serious of these are abdominal aortic aneurysm rupture and aortic dissection(2). After these 2 life-threatening causes, similar findings may occur in various renal, ureter, bladder, gastrointestinal, and gynecological causes.

The use of USG in emergency services has increased in recent years and has become an indispensable auxiliary diagnostic tool in daily practice. USG; It acts as a modern stethoscope for today's emergency medicine physicians with its non-invasive, rapid and no radiation risk. There is Mindray branded DC-60 model USG in Karaman Training and Research Hospital. We routinely use this USG very frequently.

Subcapsular hematomas, which we think to occur spontaneously, are rare. We have seen that the literature on the subject is sparse. However, in a study by Shinya Somiya et al., we see cases of subcapsular hematoma occurring as a complication after transurethral ureterolithotripsy(3). Or, in a study by Michael A. Kozmonski et al., it is believed to be associated with the risk of renal hematoma after extracorporeal shock wave lithotripsy applied for kidney stones(4).

In our case, we wanted to share with you a case that we came across spontaneously, who was not exposed to any trauma, and was diagnosed quickly by USG. Thanks to this imaging that we applied to our patient for the first time, she was of great help in the diagnosis of subcapsular renal hematoma, which is rare. However, computed tomography was needed for definitive diagnosis.

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Pub No: OP-245

Ascending aortic aneurysm due to idiopathic aortitis

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ABSTRACT

Background

One of the most common reasons for admission to emergency services is acute onset chest pain. Although chest pain is the result of simple diseases, it also includes the most mortal etiologies. Idiopathic ascending aortitis is considered among the rare etiologies of chest pain.

Case Presentation

A 63-year-old female patient presented to the emergency department with chest pain and fever that started two days ago. In thorax CT angiography, the diameter of the ascending aorta is enlarged and there is 10 mm of fluid around it. Considering ascending aortitis, the patient was consulted to infectious diseases, cardiology and cardiovascular surgery departments. Thorax CT angiography was performed for the patient whose chest pain increased during follow-up. An increase in the diameter of the ascending aorta and the amount of fluid around it, and a newly developed pseudoaneurysm in the upper part of the ascending aorta were detected. The patient, who was followed up in the intensive care unit one day after surgery, died.

Discussion

In some aortitis, the etiology cannot be found, and it is called idiopathic aortitis. High suspicion is required for diagnosis and advanced imaging methods are needed. Aneurysm complications and sepsis are the most common causes of death.

Conclusion

It is substantially mortal after aortic aneurysm, and in case of clinical suspicion, early diagnosis and early surgical treatment saves lives.

Keywords: Aneurysm, aortitis, emergency, idiopathic.

ASCENDING AORTIC ANEURYSM DUE TO IDIOPATHIC AORTITIS

BACKGROUND

Aortitis is an insidious disease defined as inflammation of the aortic wall and surrounding connective tissue. Although it is most commonly seen in and around the abdominal aorta, it can also rarely be seen in the thoracic aorta (1). Causes of aortitis are generally divided into two main groups: infectious and non-infectious (2). Infectious aortitis occurs due to infective agents. The most frequently isolated agents are Staphylococcus aureus, Salmonella, Proteus, E. Coli, Syphilis, Tuberculosis and Brucella (3).

Non-infectious aortitis has been associated with vasculitides or rheumatological diseases. Apart from these, it can be said that causes such as drugs, malignancy, proliferative diseases, and

radiotherapy also cause aortitis. Rare cases in which no etiology is detected are called idiopathic aortitis.

Aortitis has no specific clinical findings. The most common reasons for admission are chest and abdominal pain. If it is due to infective causes, it may be accompanied by fever, chills and chills. When due to vasculitis or rheumatological etiologies, patients may present with skin lesions, arthritis, arthralgia, respiratory and gastrointestinal system symptoms. Increased levels of acute phase reactants may be observed in blood tests (4).

The gold standard in diagnosis is a biopsy taken from the aortic wall. A definitive diagnosis is made by histological and microbiological examination of the biopsy. In clinical practice, Computed Tomography (CT) angiography, Magnetic Resonance (MR) imaging, MR angiography and Positron Emission Tomography (PET) are frequently used for diagnostic purposes (5).

Treatment varies depending on etiology and disease complication. Initially, antibiotics and anti-inflammatory drugs are applied, and when aortic aneurysm develops, surgical or endovascular treatment is applied. Aortitis is a disease that can be fatal if early surgery is not performed, especially when aortic aneurysm develops.

CASE

A 63-year-old female patient presented to the emergency department with chest pain and fever that started two days ago. There is a known hypertension disease. He uses telmisartan, hydrochlorothiazide.

In physical examination; fever: 39 °C, other vital parameters normal. There was no difference in blood pressure arterials measured from all extremities. Conscious, oriented-cooperative, GCS: 15. Respiratory and cardiac sounds are normal. Abdominal examination did not reveal any defense, rebound or tenderness. Other system examinations were normal. Electrocardiography showed normal sinus rhythm.

Laboratory tests of the patient revealed leukocyte 10 970/µL, neutrophil 9 580/µL, and C-reactive protein 366 mg/L. Cardiac marker and other biochemistry parameters were found within physiological limits. There was no sign of infection in the complete urinalysis and direct radiographs.

Advanced imaging was performed in the patient who did not get relief with symptomatic treatment and had significantly high acute phase reactant levels. In the thorax CT angiography, the diameter of the ascending aorta is enlarged and there is 10 mm of fluid around it.

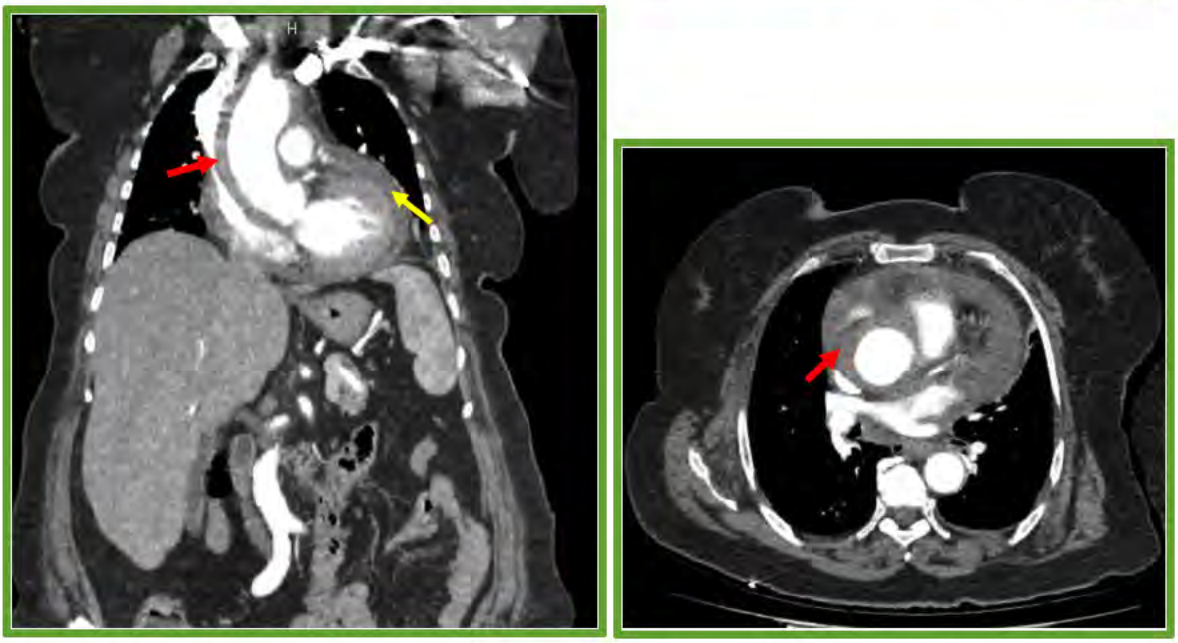

Figure 1. The diameter of the ascending aorta has increased, with periaortic 10 mm fluid (red arrow) and pericardial fluid (yellow arrow)

Considering ascending aortitis in the patient, infectious diseases, cardiology and cardiovascular surgery departments were consulted. Tuberculosis, Ebstein Barr virus, cytomegalovirus, rubella, mumps, parvovirus, chickenpox, adenovirus, coxsackie, candida, toxoplasma, borrelia, syphilis, brucella tests, blood culture and extensive ELISA tests were requested for the causes of infective aortitis. Pericardiocentesis was planned by the cardiologist for histological and microbiological examination. Due to aortic aneurysm, he was interned in the cardiovascular surgery intensive care unit for observation purposes.

No etiology was found in the tests and histopathological examination taken in the following days. Control thorax CT angiography was performed on the patient whose chest pain increased during follow-up. An increase in the diameter of the ascending aorta and the amount of fluid around it, and a newly developed pseudoaneurysm in the upper part of the ascending aorta were detected. The decision for surgical treatment was made.



Figure 2. Ascending aortic diameter increased, periaortic fluid (red arrow) and pseudoaneurysm (yellow arrow).

The patient, who was monitored in the intensive care unit one day after the surgery, went into arrest. There was no response to the interventions and exitus was accepted. Since the etiology could not be clarified, aortic aneurysm due to idiopathic ascending aortitis was considered.

DISCUSSION

Aortitis can occur by various mechanisms. The aortic intima may be vulnerable to infection due to a deconstructed vessel wall or atherosclerotic plaque. It can become infected by direct inoculation from adjacent structures in the thorax or from penetrating injuries. Among the etiologies of aortitis, the most common cause is infectious. While the most frequently isolated agent in previous years was syphilis, the number of aortitis caused by syphilis has decreased significantly in recent years due to the increase in penicillin use (6). The most frequently isolated agents in recent years are S. aureus and gram negative bacteria. Temporal arteritis and Takayasu arteritis are the most common non-infectious causes (7). In some aortitis, the etiology cannot be found and it is called idiopathic aortitis. In our case, the etiology could not be clarified either.

Aortitis presents with clinically non-specific symptoms. As in our case, the most common presenting symptoms are chest pain and fever. High suspicion is required for diagnosis and advanced imaging methods are needed. CT angiography, MR, MR angiography are most commonly used in daily practice for diagnostic imaging. In recent years, positron emission tomography (18F-FDG PET), which frequently uses 18F-fluorodeoxyglucose, has begun to be

used in diagnosis (5). Although the routine use of PET in emergency departments in Turkey does not seem possible at the moment, it may come to the fore in the coming years. The definitive diagnosis method is biopsy. In our case, no causative agent was detected in the fluid sampling taken by pericardiocentesis method.

Treatment varies depending on etiology. Combination with antibiotics, anti-inflammatory drugs, surgery and endovascular treatments is recommended. If aortitis has caused an aortic aneurysm, the definitive treatment is surgery. Aneurysm complications and sepsis are the most common causes of death. Aortic aneurysm was detected in our case, which resulted in death despite surgical treatment.

CONCLUSION

Aortitis is a disease that is rarely seen in emergency departments and presents with nonspecific complaints. The diagnosis can be made with high suspicion in patients presenting with symptoms of chest pain, abdominal pain and fever. The most mortal complications of aortitis are sepsis and aortic aneurysm. Aortic aneurysm is very mortal, but in case of clinical suspicion, early diagnosis and surgical treatment saves lives.

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Pub No: OP-247

AN EVALUATION OF TRAUMA SCORES (RTS, GAP, EMTRAS) ON MORTALITY IN MULTIPLE TRAUMA PATIENTS

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Introduction: Posterior reversibleencephalopathysyndrome (PRES) is a syndromecausedbysuddenonset of hypertensionwithsymptomssuch as headache, visualdisturbance, mentaldisorder, nausea, vomitingandconvulsions. Inthisarticle, wereport a 62-year-old malepatientwithnoknowndiseaseorhistory of hypertensionwhodevelopedsuddenblindnessduetoelevatedbloodpressureandwasdiagnosed with PRES neuroradiologically.
Case: A 62-year-old malepatientwasadmittedtotheemergencydepartmentwiththecomplaint of headachethatstarted in themorningwhile he wasworkingandthenblindness. Blood pressurewas 220/110 mm/Hg, pulse rate 105/min, respiratory rate 20/min, temperature36.7 °C and ECG wassinustachycardia. Consciousnesswasconfusedand GCS was 14. On physicalexamination, fourextremitymusclestrengthwas normal, pupilreflexeswere normal, andnoabnormalfindingswereobserved on externalexamination of theeye. No urgentpathologicalfindingswereobserved on brain CT. Diffusion MR FLAIR sectionsshowedbilateralsignalenhancement in thesubcorticalareas of theoccipitalregion. Ophthalmologicalexamination of thepatient, in whomophthalmologicalconsultationwasrequested, revealednourgentpathologyrelatedtotheeye. PRES wasdiagnosedwiththecurrentclinicalandimagingfindingsand an antihypertensivetreatmentwasstartedandthepatientwashospitalised in theneurologicalward.
Discussion: PRES, which is morecommon in womenthan men, is a reversiblesyndromewhendiagnosedearly. Risk factorsincludepreeclampsia, eclampsia, renalfailureandcytotoxicagents. Althoughitspathogenesis has not beenproperlyexplained, it is thoughtto be duetoimpairedcerebralautoregulationandendothelialdysfunctionduetosuddenhypertension. Symptomsarecharacterisedbyheadache, disturbance of consciousness, visualdisturbanceandseizures. Headache is typically of suddenonset, persistent, diffuse, moderatetohighintensity. Visual impairment is seen as hemianopsia, visualneglect, auras, hallucinationsorcorticalblindness. Seizuresareusuallygeneralisedtonicclonic. Thediagnosis is madeclinicallyandwithsubcorticalwhitematteroedema in theposteriorcerebralhemisphere on brain MR scan. Inthedifferentialdiagnosis, intracranialhaemorrhages, hypertensiveencephalopathy, ischaemicstroke, transientischaemicattack, meningitis, encephalitisandmigraineshould be considered. Blood pressuremanagementandseizuremanagementshould be performed in treatment.

Conclusion: It is importanttoconsiderthediagnosis of PRES in patientspresentingwithheadache, visualdisturbance, alteredconsciousnessandseizuresbecause it is a reversiblesyndromewithearlydiagnosisandrapidtreatment.

Keywords: Headache, Hypertension, PRES, Visual impairment

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Pub No: OP-248

A rare case after radio-contrast injection: non-cardiogenic pulmonary edema

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INTRODUCTION

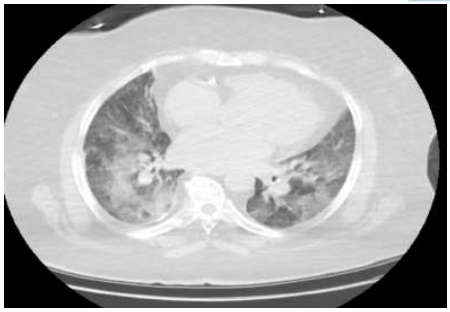
Abnormal accumulation of extravascular fluid in the lung parenchyma is defined as pulmonary edema. There are two main types: cardiogenic and non-cardiogenic pulmonary edema (NCPE) (1). NCPE results from a pathology in which factors other than high pulmonary capillary pressure cause protein and fluid accumulation in the alveoli (2). The etiology includes acute respiratory distress syndrome (ARDS), high-altitude pulmonary edema, neurogenic pulmonary edema, opioid overdose, salicylate toxicity, pulmonary embolism, re-expansion pulmonary edema, reperfusion pulmonary edema, and transfusion-related acute lung injury (TRALI). The mortality rate varies depending on the underlying etiology, ranging from 40% in severe ARDS and 5–10% in TRALI, and can reach up to 47% (3). Patients may present with progressive dyspnea, rales on lung auscultation, and deepening hypoxia (1).

In this case, we aimed to describe a rare instance of NCPE that developed following intravenous (IV) injection of a low-osmolar non-ionic radiocontrast medium (RCM), which is rarely encountered in the literature.

CASE

A -year-old female patient had a medical history of chronic idney failure, hypothyroidism, diabetes mellitus, hyperlipidemia, hypertension, and colonic polyps. A contrast-enhanced abdominal computed tomography (CT) scan was performed following IV administration of 300 mg of iohexol (OPA OL 300 mgI mL) due to suspicion of a space-occupying lesion in the liver. Ten minutes after the scan, the patient developed dyspnea and altered consciousness and was brought to the emergency department. Upon arrival, the code blue physician reported that the patient was hypotensive. Other vital signs on admission were as follows: SpO2 without supplemental oxygen: 70%, pulse rate: 7 bpm, and body temperature was normal. Lung auscultation revealed bilateral coarse breath sounds with rales. No s in rash was noted. Oxygen supplementation was initiated via mas at 10 L min. Suspecting an allergic reaction to the RCM, the following treatments were administered: 0.5 mg adrenaline IM, 100 mg IV methylprednisolone, 45.5 mg pheniramine hydrogen maleate, inhaled oxygen, and IV hydration. The patient s follow-up SpO2 was %. Once the patient was stabili ed, a thoracic CT scan was performed, which revealed centrally located consolidation areas and ground-glass opacities in both lungs (igure 1).

Laboratory tests showed decreased total protein (.3 g dL) and albumin (3.7 g dL). Serum NP (brain natriuretic peptide), high-sensitivity Troponin I, and other laboratory parameters were within normal ranges. The EC and echocardiography showed no pathology suggestive of ischemic disease. The patient was admitted to the Intensive Care Unit with a preliminary diagnosis of non-cardiogenic pulmonary edema. Non-invasive mechanical ventilation with continuous positive airway pressure (CPAP) was applied. The patient s symptoms gradually decreased each day, and she was discharged with recovery after 14 days.



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DISCUSSION

A study reported that the incidence of pulmonary edema caused by iodinated contrast media is 0.005% (4). The pathogenesis of NCPE following RCM injection is controversial. It has been suggested that this type of pulmonary edema may arise from mediator release and complement activation resulting in endothelial damage, or through direct damage of the RCM to the lungs (5,).

Severe adverse reactions re uiring hospitali ation after IV injection of low-osmolar RCM are rare. These reactions are divided into immediate and delayed types. Ninety-six percent of immediate reactions occur within 20 minutes of injection and include potentially fatal conditions such as cardiac arrest, anaphylactic shoc , severe angioedema, and pulmonary edema (7).

In the management of these patients, airway, breathing, and circulation control has been established as the primary focus ( ). Subse uently, fluid resuscitation to increase left ventricular preload along with oxygen delivery via continuous positive airway pressure or invasive ventilation with positive end-expiratory pressure is recommended (5–7). Due to the controversial evidence regarding diuretic and vasodilator therapy and the ris of clinical exacerbation, these medications are not recommended. Although studies have reported that the effect of antihistamines, adrenaline, and steroids in treatment is limited, the orld Allergy Organi ation recommends adrenaline for anaphylaxis and anaphylactoid reactions. Additionally, there are studies recommending the use of hydrocortisone in treatment due to its potential to reduce the inflammatory response and endothelial damage (4–7).

Timely use of extracorporeal membrane oxygenation (ECMO) in the treatment of acute, medically unresponsive severe cardiopulmonary failure following intravascular RCM injection can be life-saving ( ).

Consistent with the literature, we believe that our patient benefited from adrenaline, hydrocortisone, and CPAP therapy. In conclusion, due to significant changes in treatment protocols and considerable morbidity and mortality rates, NCPE developing after RCM injection should be rapidly differentiated from cardiogenic pulmonary edema and treatment
should

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Pub No: OP-249

Exploring Severe Anemia with Unexpectedly Low Hemoglobin Levels: A Case Report

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Abstract:

Anemia is characterized by hemoglobin levels dropping below established reference ranges, signifying a diminished capacity of the blood to carry oxygen. Of particular concern is severe anemia, a critical medical state defined by a hemoglobin level below 5.0 g/dL, carrying substantial morbidity and mortality implications. In this case report, we present an intriguing instance of severe anemia in a 36-year-old female patient with a notably low hemoglobin level of 1.7 g/dL. Upon her arrival at the emergency department, she exhibited a range of distressing symptoms encompassing abdominal pain, nausea, vomiting, diarrhea, and headache.

Keywords: Anemia, hemoglobin level, critical

Introduction:

Anemia is a significant global health issue affecting people of all ages, but certain groups are more susceptible than others, with women of reproductive age being particularly vulnerable. Women of reproductive age are more susceptible to anemia for several reasons: menstruation, pregnancy, postpartum period, and vegetarian or vegan diets (1). Iron deficiency anemia is a condition marked by a decrease in red blood cell production due to insufficient iron levels within the body. This condition accounts for approximately half of all anemia cases (2, 3). The emergence of iron deficiency anemia can be traced back to multiple causes, including insufficient dietary iron intake, decreased absorption of iron, heightened iron requirements, and escalated iron loss due to chronic conditions like gastrointestinal or heavy menstrual bleeding. Precise diagnosis and effective treatment of iron deficiency anemia hinge on comprehending and addressing these underlying causes (4). Historically, the terms "iron deficiency" (ID) and "iron deficiency anemia" (IDA) have been used interchangeably. However, it is crucial to acknowledge that these terms encompass distinct risk factors, necessitating separate evaluations (5, 6). Patients might encounter iron deficiency prior to

progressing to anemia, and if not intervened, anemia can persist as iron deficiency does. In order to achieve successful management and treatment, it is imperative to establish a clear differentiation between these conditions and offer personalized care. Nonetheless, this case study delves into a patient who presented an extraordinarily severe form of anemia, accompanied by unexpected clinical indications.

Case:

A 36-year-old female patient presented to our emergency department with abdominal pain, nausea, vomiting, diarrhea and headache complaints that started the same day of presentation. Initial vitals revealed temperature of 37 °C, blood pressure 108/53 mmHg, heart rate 101 beats/minute, respiratory rate 20 breaths/minute, and oxygen saturation 100% on room air. Blood sugar was 129 She was fully alert and oriented without any neurological deficits. Physical examination was otherwise notable for findings typical of anemia, including: marked pallor with pale mucous membranes, the patient also presented blue-colored conjunctiva (Fig. 1), lung sounds were normal, both hemithorax participated equally in breathing. Heart sounds were rhythmic, tachycardic, and there were no murmurs. ECG was sinus rhythmic and tachycardic. There was diffuse tenderness in the abdomen, with increased bowel sounds. Rectal examination revealed normal stool consistency. Her initial laboratory results were as follows: hemoglobin, 1.7 g/dL; Fe, 14 ug/dL; ALP, 35 U/L; Sedimentation, 34 mm/hr; ALT, <7 U/L; Creatinin, 0,49 mg/dL; Bilirubin (direct), 0.31 mg/dL; RET%, 2.70 %; NEUT%, 89,8 %; HCT, 7,5 %; MCV, 58,1 fL; MCH, 13,2 pg; MCHC, 22,7 g/dL; RDW-CV, 21,9 %. Brain, thorax, and abdominal tomography were performed with aim to find a bleeding focus, but no bleeding focus was detected. After further diagnostic workup, her profound anemia was likely attributed to a long history of menorrhagia and her remarkably stable presentation was due to impressive, years-long compensation. The patient explained that she had 9-10 days long periods since the age of 13 and the mother and aunt of the patient also has similar prolonged periods. The patient got her Iron Deficiency Anemia diagnosis at 13 years of age as well and she started getting 100 mg Fe+2; an iron medication (antianemic) used for iron deficiency as treatment since then, however the patient did not take said medicine regularly as prescribed due to constipation side effect. The patient explains that she gets tired really fast and can't do things that requires high effort, so she has been working from home the past year. Over the course of her hospital stay, she received blood and fresh frozen plasma transfusions. Her

symptoms of abdominal pain and diarrhea resolved by the end of her hospital course, and her hemoglobin value was increased to 5,7 upon discharge.

Conclusion:

Beyond its well-known symptoms, severe and prolonged iron deficiency can lead to complications that threaten one's well-being. Hemoglobin levels dropping to such levels become a medical emergency requiring urgent intervention. Identifying the underlying cause of anemia should be done in addition to administering blood transfusions (7). In cases of severe iron deficiency, the heart may compensate for the reduced oxygen-carrying capacity by pumping larger volumes of blood, leading to a condition known as high-output heart failure (8). Another effect is weakening the body's defenses, which can make individuals more susceptible to infections (9). Furthermore, severe iron deficiency can impair cognitive function, leading to poor decision-making, decreased memory, and an increased risk of accidents (10).



Fig. 1 Blue-colored conjunctiva

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Pub No: OP-250

Comparative Analysis of Pre and Post-earthquake Periods for Women's Health

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Abstract

Social events, crises and disasters are important factors that deeply affect people's lives. In critical periods, regardless of whether it is an adult or a child, a woman or a man, changes occur in hormonal activities in accordance with the environment and the psychology of the environment in human physiology. The earthquakes that occurred on February 6, 2023 and afterwards in Kahramanmaraş are important natural disasters that deeply affect people's lives. While such events affect all segments of society, they can have different and special effects on women. Times of crisis can often increase physical and psychological health problems. Women may experience health problems due to factors such as trauma, destruction and displacement, especially after major natural disasters such as earthquakes. In the chaos caused by the earthquake, women's health needs may become even more complex.

Materials and methods

The necessary data for this study were obtained from official health institutions in Gaziantep. Out of 346 female patients, the post-earthquake values and one year pre-earthquake data were examined, excluding the patients who did not have chronic diseases and were crushed and collapsed in the earthquake. Mean values and standard deviations were calculated to compare the same period of the previous year and the post-earthquake period. Analyzes were made using the SPSS statistical package program. The results were evaluated according to the $p<0.05$ significance level. Paired pair t-test was used to compare the mean of the pre- and post-earthquake conditions, Levene test for homogeneity of variances, and Shapiro-Wilk test to fit normal distribution in the analyzes. The study was carried out in accordance with ethical rules and data confidentiality was ensured. During the collection and analysis of data, attention was paid to confidentiality and protection of personal data.

Conclusion: In this study, the same period of the previous year and the post-earthquake period were compared in order to understand how women's health was affected during crisis periods. The results of the analysis show that women experienced significant changes in their health areas in the post-earthquake period.

Keywords: Earthquake, disaster, emergency, crisis management, gynecology, obstetrics, maternal death

Introduction: The earthquake, the epicenter of which is Kahramanmaraş and affecting a total of 11 provinces, is one of the biggest earthquakes of 100 years in our country and in the world. According to the World Health Organization (WHO) report and Habertürk, CNN-Türk website news, a second earthquake with a magnitude of 7.7 was recorded in the Pazarcık district of Kahramanmaraş at 04:17 on 06.02.2023 and a second earthquake with a magnitude of 6.4 in Gaziantep at 04:26. . Then, nine hours later, at 13.24, an earthquake of 7.6 magnitude occurred in Kahramanmaraş-Elbistan in the same region. While the earthquakes that occurred were recorded as the biggest earthquake of the century, it was reported that 11 provinces suffered great damage and caused serious destruction and loss of life. Although Kahramanmaraş, Hatay, Gaziantep, Malatya, Diyarbakır, Kilis, Şanlıurfa, Adıyaman, Osmaniye, Adana and Elazığ were the provinces where the devastating effects of the earthquake were seen, the surrounding provinces were also affected by the great disasters and tremors. It has been reported that more than 20 thousand buildings in total have collapsed since the earthquake in the region, and most of the buildings (over 105 thousand) that were not demolished were severely damaged and were uninhabitable, over 45 thousand lives were lost and more than 100 injured (1, 2). It has been reported that after the main earthquakes in the region, a large number of (11,20) aftershocks occurred (3). It has been reported by the print media that more than two thousand aftershocks (3-4 magnitude 1628, 4-5 magnitude 436 and 5-6 magnitude 40 aftershocks) continue to cause loss of life and injuries due to aftershocks (4, 5).

Crisis periods are time periods full of uncertainty and difficulties faced by societies. While crises such as natural disasters, economic turmoil and political events affect every segment of society, they can have special and different effects on women. These effects often become visible in areas such as women's physical health, psychological well-being, and sexual and reproductive health. Therefore, it is important to understand the effects of crisis periods on women's health and to evaluate how health services can be provided better during these periods (6).

In this article, we will compare the same period of the previous year and the post-earthquake period in order to examine the effects of crisis periods on women's health. We will use this comparison to better understand women's health challenges and develop intervention strategies appropriate to the needs of these times. Especially major natural disasters such as earthquakes can deeply affect societies and complicate women's health needs. Therefore, understanding how women's health is affected in the post-earthquake period will be an important step in the planning and implementation of health services in times of crisis.

The purpose of this article is to provide guidance to understand women's health in times of crisis and to be better prepared for future crises. For this purpose, we will analyze possible changes in women's health by comparing the same period last year with the post-earthquake period in the areas of physical health, psychological health, sexual health and reproductive health. We believe that the findings will play an important role in crisis management and the development of health policies

Conclusion: This study comparatively examined the same period of the previous year and the post-earthquake period in order to understand how women's health is affected during crisis periods. The results of the analysis show that women experienced significant changes in their

health areas in the post-earthquake period. These changes include areas of both physical health and psychological well-being. Table 1 shows some findings.

Indicator	Mean (Pre-earthquake)	Std. Dev (Pre-earthquake)	Mean (Post-earthquake)	Std.Dev. (Post-earthquake)
Blood pressure (mmHg)	120/80	8/5($p < 0.038$)	130/85	10/6 ($p < 0.023$)
Stres level (1-10)	6.2	1.5 ($p < 0.042$)	8.5	1.8($p < 0.024$)
Cholesterol (mg/dL)	190	15 ($p < 0.021$)	220	20 ($p < 0.026$)
Mental State	6.5	1.2	4.8	1.5
Physical activity (min/week)	120	25 ($p < 0.02$)	80	30($p < 0.045$)

In terms of physical health, women are at greater risk of injury and have difficulties in accessing health services in the post-earthquake period. In the field of psychological health, it has been observed that women face more psychological problems such as stress, anxiety and depression in the post-earthquake period. In the field of sexual and reproductive health, women face sexual health problems and reproductive health complications due to difficulties in hygiene conditions and access to health services in the post-earthquake period (7). Some findings are given in Table 2.

State	Mean (Pre-earthquake)	Std. Dev (Pre-earthquake)	Mean (Post-earthquake)	Std.Dev. (Post-earthquake)
Number of Births	300	20 ($p < 0.03$)	220	25($p < 0.043$)
Maternal Mortality Rate	15/100,000	3/100,000 ($p < 0.038$)	25/100,000	5/100,000 ($p < 0.048$)
Newborn Mortality Rate (‰)	7.5	2.0 ($p < 0.023$)	10.2	2.5 ($p < 0.023$)
Depression Score (0-27)	8.2	2.0 ($p < 0.043$)	12.5	3.5 ($p < 0.024$)
Anxiety Score (0-21)	6.0	1.8 ($p < 0.035$)	10.8	2.2 ($p < 0.022$)
Seeking Psychological Support	Low	-	High	-

These findings can form an important basis for the development and implementation of intervention strategies for women's health in times of crisis. Health services and community

support mechanisms should be designed more sensitively and effectively to meet women's specific health needs and support post-crisis recovery.

As a result, the effects of crisis periods on women's health are complex and multifaceted. Examining the same period last year and the post-earthquake period comparatively can help us better understand the challenges and needs faced by women in times of crisis. The results of this study may contribute to shaping health policies and intervention strategies to better prepare for future crises and protect women's health (8, 9).

It is designed to understand the changes in women's health during crisis periods and to develop strategies for the needs in these periods.

Limitations:

The reliability of statistical data and health indicators depends on the accuracy and timeliness of data sources. The data used in the study were obtained from official health institutions. However, the possibility of missing or inaccurate data should be considered.

The time difference between the periods in which the study focuses may affect the results. A specific time period was chosen to compare the same period of the previous year with the post-earthquake period. The effect of external factors in this process or the contribution of other events may affect the results.

Factors affecting women's health are complex and multifaceted. While this study addresses specific health areas, it ignores other variables such as general health status, lifestyle factors, and social support.

Regional and cultural differences can also affect results. Factors affecting women's health may vary according to geographical regions and cultures. This study does not attempt to generalize to cover all regions and cultures.

Considering the mentioned limitations, the results obtained in the study should be interpreted and used in further research.

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Pub No: OP-252

medicine or poison? - Disulfiram-Ethanol Reaction

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SUMMARY:
Alcohol addiction is an increasing health problem in our country, as well as in the whole world. Disulfiram (antabus) used in its treatment is the most common pharmacological agent used(1). Due to its effects, it should be used with caution and in combination with additional treatments such as psychotherapy and group therapy.
We aimed to present a patient who drank alcohol and came to our emergency department with respiratory distress after being given antabuse.

İNTRODUCTİON:
Disulfuram blocks ethanol metabolism in the body, causing acetaldehyde accumulation. The severity of the disulfiram-ethanol reaction (DER) varies on a patient-by-patient basis. In extreme cases, respiratory failure, myocardial infarction, seizures and death may ocur(2). The main indication for the use of the drug is the withdrawal of addiction by aversion method. Simultaneous use causes a wide range of effects, from itching to death, which means that this substance can also be used as a poison in the right person.Just like the patient who was brought to our emergency department with respiratory distress after drinking alcohol.

CASE PRESENTATİON:
A 30-year-old male patient with no known history of comorbidities or drug use has a history of chronic alcohol use. Antabuse is given as a pharmacological agent to the patient receiving addiction treatment. The patient, who does not use the medication, continues to consume alcohol and was brought to the emergency room after complaining of shortness of breath, body rash, nausea and headache after consuming a small amount of alcohol approximately 30 minutes before coming to the emergency room. Ta: 110/80 pulse: 106 sat: 88 temperature: 37.6. Physical examination of the patient revealed widespread skin redness, increased temperature, rhonchus and rales in breathing sounds. The patient has no active cardiac complaints and other system examinations are normal. In the patient's biochemical parameters, the arterial blood gas values were normal, kcft values were high and the ethanol value was 139.6. During follow-up, the patient's saturation values returned to normal levels and he was admitted to intensive care for follow-up.
Upon deepening the anamnesis due to clinical suspicion, it was determined that his wife had secretly prescribed antabuse tablets for treatment purposes (health professional). Law enforcement authorities were informed about the case, which was evaluated forensically.

DİSCUSSİON:

One of the problems with addiction treatments is not continuing treatment. The desire to help family members about the person leads to consequences such as secretly giving medication to the patient. In this sense, the patient's first-degree relatives and caregivers should be included in the treatments and adequate information and training should be provided.

Key words: Addiction, disulfiram, ethanol

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Pub No: OP-253

Spontan bilateral quadriceps tendon rupture: A rare case report

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Introduction: Spontaneous bilateral quadriceps tendon rupture (QTR) is a rare and severely debilitating condition. The rate of misdiagnosis varies between 30–50%. A diagnosis based only on findings from a physical examination may result in the misdiagnosis of patients.

Case: A 64-year-old man presented to the emergency department with bilateral thigh pain. The patient reported that, while walking in a cave and despite not experiencing any trauma, he suddenly felt "cramps" in both of his calves and fell onto his knees. Physical examination revealed swelling and pain in both knees and in both anterior mid-thighs. His neurovascular examination was normal. The patient was unable to perform the knee extension function while sitting on the stretcher. When the patient stood up, he could not take a step or walk, but his patella was in a normal anatomical position. We diagnosed bilateral QTR in the patient and evaluated it with Point-Of-Care Ultrasound (POCUS). The orthopedic surgeon recommended computer tomography (CT) and magnetic resonance imaging (MRI) to differentiate between partial and complete tears and to assist with a plan for surgery. The bilateral QTR was verified with MRI, and the patient was admitted to the orthopedic service for surgery.

Conclusion: Bilateral QTR is extremely rare. If the patient has an active extension limitation after minor trauma, it should be evaluated urgently, and advanced imaging options should be considered.

Keywords: Bilateral quadriceps tendon rupture, Emergency Medicine, POCUS, Thigh pain.

Pub No: OP-260

Identification of risk factors associated with lung cancer using stochastic gradient boosting model

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Abstract

Introduction and Purpose: The aim of this study is to determine the risk factors that may be associated with the disease by using an open-access data set of lung cancer, which has an increasing incidence and mortality rate and has become an important public health problem.

Material and Methods: Stochastic gradient boosting, one of the machine learning models, was utilized in the study to classify coronary heart disease. The modeling's performance was evaluated using accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score performance measures. In addition, variable importance values were given to determine the risk factors as a result of the modeling.

Results: From the performance metrics obtained as a result of the modeling; accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score were obtained as 91.8 %, 70.5 %, 98.1 %, 42.9%, 93.0%, 75.0%, and 95.5 %, respectively. Allergy (presence), age, swallowing difficulty (presence), alcohol consumption (presence), per pressure (presence), coughing (presence), fatigue (presence), yellow fingers (presence), chronic disease (presence), wheezing (presence), anxiety (presence), smoking (presence), chest pain (presence), gender (male), and shortness of breath (presence) variables were obtained as the most important factors associated with the disease according to their variable importance values.

Conclusion: According to the results obtained from the study, coronary heart disease was successfully classified with the SGB model used, and the risk factors associated with the disease were determined in order of importance and presented as factors that could be determinative in the diagnosis of lung cancer.

Keywords: Lung Cancer, Classification, risk factors, stochastic gradient boosting model.

Introduction

Lung cancer is one of the most common cancer types all over the world and is a very important public health problem in terms of the mortality burden it causes. The World Health Organization (WHO) reported that lung cancer accounted for 11.6% of all cancers with a total of 2,093,876 new cases in 2018. In addition, lung cancer has the highest rate among cancer-related deaths worldwide, with 1.76 million deaths, constituting 18.4% of total cancer-related deaths (1).

The treatment method to be applied in lung cancers; tumor histology is determined according to the individual characteristics of the patient, such as the stage of the disease, pulmonary functions, comorbidities, and age (2). Surgical treatment in lung cancer is the most basic treatment, and it is the main treatment option in patients with stage I and II lung cancer who are medically suitable for surgery (3). Since lung cancers initially give non-specific symptoms such as fatigue and cough, it is difficult to diagnose in the early stages and only 10% of the patients can be diagnosed at this stage (4). Since most of the patients can be diagnosed at stages III and IV, the 5-year survival is less than 5% (5).

The demand for prognostic investigations capable of foreseeing lung cancer, notorious for its meager survival rates and elusive early detection, has surged notably. As projected, discerning disease-associated elements for the timely identification and prediction of lung cancer holds profound significance. This pursuit gains heightened importance, as lung cancer is projected to persist as the foremost cause of cancer-related fatalities until 2030. In light of its persistent gravity, unraveling the factors facilitating early diagnosis and prognosis is an imperative endeavor in the ongoing combat against this formidable ailment (6).

Machine learning methods are one of the technologies that have seen significant use in illness detection and clinical decision support systems in recent years. Machine learning, which has a wide range of applications in the field of health, is the foundation of applications in the determination of genetic illnesses, early detection of cancer and chronic diseases, and pattern recognition in medical imaging. With increased processing power over the previous decade, ML approaches have reached very high performance in the field of health (7).

This study aimed to classify lung cancer and reveal disease-related factors using the stochastic gradient boosting method, which Friedman created by integrating randomization into the gradient boosting approach.

MATERIAL AND METHODS

Dataset

In this study, it was aimed to accurately predict lung cancer and determine factors associated with lung cancer using a data set consisting of individuals with and without lung cancer. The dataset used in the study is an open-access dataset and was obtained from the address "https://www.kaggle.com/datasets/mysarahmadbhat/lung-cancer". The data set consists of 284 people and 15 input variables that can be associated with the output variable. Input variables were gender: M (male), F (female), age, smoking: YES=2, NO=1, yellow fingers: YES=2, NO=1, anxiety: YES=2, NO=1, peer_pressure: YES=2, NO=1, chronic disease: YES=2, NO=1, fatigue: YES=2, NO=1, allergy: YES=2, NO=1, wheezing: YES=2, NO=1, alcohol: YES=2, NO=1, coughing: YES=2, NO=1, shortness of Breath: YES=2, NO=1, swallowing difficulty: YES=2, NO=1, and chest pain: YES=2, NO=1.

Stochastic Gradient Boosting (SGB)

By including randomization in the gradient boosting technique, Friedman produced stochastic gradient boosting. A random subsample is picked at each refresh in stochastic gradient boosting using a permutation sampling strategy. This subsample, rather than all learners, is used to generate the model update, lowering the correlation between trees. This approach, like other ensemble learning methods, does not produce massive trees; instead, each tree (about 100-200 trees) generated throughout the process is summarized, and each observation is classified based on the most frequent categorization across trees (8). These features set the stochastic gradient boosting technique apart from other augmentation strategies and reduce its vulnerability to outliers and imbalanced data sets. This method, which has a very high predictive power compared to other algorithms, is 5 times faster than other methods and includes a series of regularizations that can improve the overall performance of the model and reduce overfitting and overlearning (8, 9).

Modeling task

The SGB was employed in the current investigation during the modeling step for the dataset in question. The data are separated as 80% training and 20% test data. The analyses were carried out using the 5-fold cross-validation method. As performance assessment criteria, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1-score were utilized. Furthermore, variable importances were computed, which provides information on how much the input variables contribute to the output variable. R studio 4.2.1 was used for modeling.

Results

The results of the performance metrics obtained as a result of modeling with SGB are given in Table 1.

Table 1: The performance metrics obtained with SGB

Metric	Training set Value (%)	Test set Value (%)
Accuracy	96.8	91.8
Balanced Accuracy	91.5	70.5
Sensitivity	98.6	98.1
Specificity	84.4	42.9
PPV	97.7	93.0
NPV	90.0	75.0
F1 score	98.2	95.5

Figure 1 shows the graph of the variable importance values determined by the SGB model.

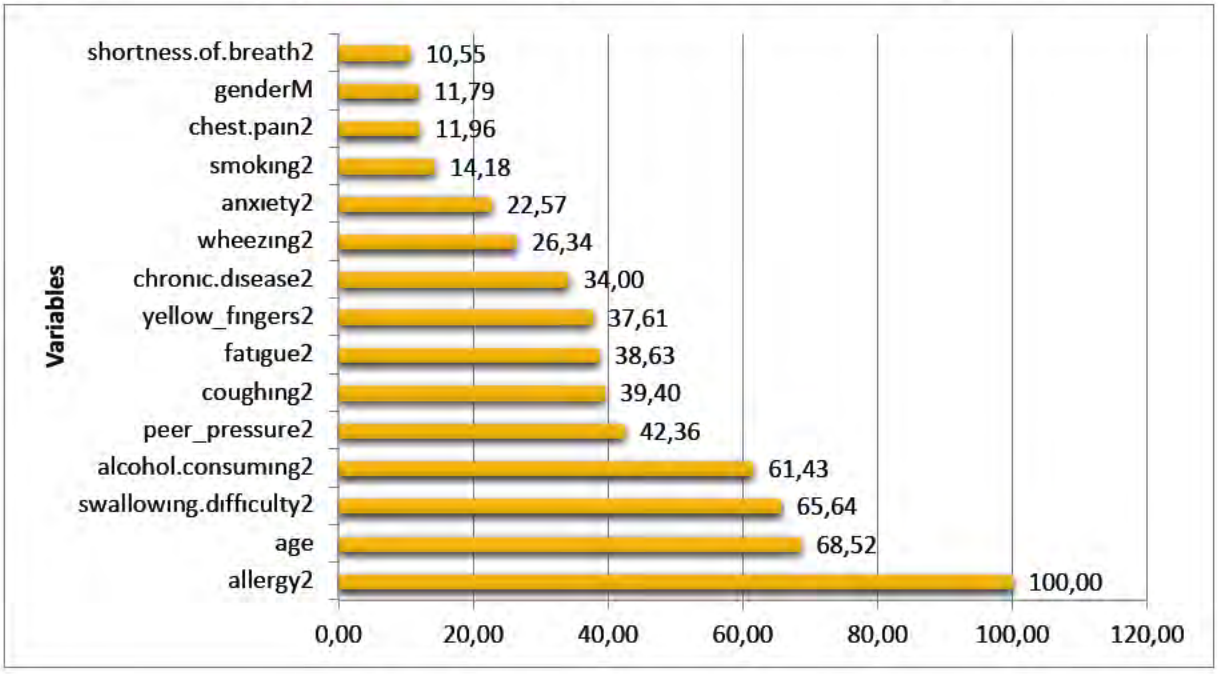

Figure 1: Variable importance graph

Discussion

Lung cancer stands as the primary contributor to global cancer occurrence and fatality, responsible for a staggering 2 million diagnoses and 1.8 million demises. Ranking as the second

most widespread malignancy in both genders, trailing solely behind prostate and breast cancer for men and women correspondingly, its reach is far-reaching. The surge in lung cancer cases on a global scale can be attributed to amplified tobacco availability and the industrial strides taken by emerging nations, casting a shadow over the ongoing battle against this formidable adversary (10). Lung cancer is followed closely because of its low survival and high mortality rate. Worldwide, lung cancer is the leading cause of cancer-related death in men and the second leading cause in women (11).

The need for lung cancer, whose incidence is predicted to increase rapidly until 2035, does not result in death, and the development of rapid and effective treatment strategies by predetermining it has increased. Therefore, it is very important to determine the factors associated with the disease. This study aims to create a predictive model based on machine learning that can predict lung cancer and identify risk factors. For this purpose, the SGB method, which is one of the machine learning methods, was used for a data set consisting of 15 variables belonging to individuals with and without lung cancer, and disease-related risk factors were determined using variable importance values.

In the training stage, accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score obtained from the SGB model were 96.8%, 91.5%, 98.6 %, 84.4%, 97.7 %, 90.0%, and 98.2%, respectively. Also in the testing stage accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score obtained from the SGB model were 91.8 %, 70.5 %, 98.1 %, 42.9%, 93.0%, 75.0 %, and 95.5 %, respectively.

According to the variable importance values obtained as a result of the model, the most important variables that can be associated with coronary heart disease were obtained as allergy (presence), age, swallowing difficulty (presence), alcohol consumption (presence), per pressure (presence), coughing (presence), fatigue (presence), yellow fingers (presence), chronic disease (presence), wheezing (presence), anxiety (presence), smoking (presence), chest pain (presence), gender (male), and shortness of breath (presence), respectively.

As a consequence, the outcomes of this investigation demonstrated that the classification of lung cancer made accurate predictions. Furthermore, the current study calculated the variable importance of the variables related to lung cancer, and the factors connected with the condition were discovered.

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Pub No: OP-261

A Rare Case In Adults: Pulmonary Hypoplasia

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ABSTRACT

In cases without perinatal diagnosis, no obvious clinical manifestations occur and the diagnosis is usually made in advanced ages and in routine screening. It is not present in most patients diagnosed in adulthood, even if the main symptom is frequent lower respiratory tract infection. A 28-year-old male patient presented our emergency department with the complaint of dyspnea. Patient's SPO_2 was 71% and the other vitals were normal and left pulmonary sounds were less audible compared to the right. Blood level of d-dimer was measured at 674ngFEU/ml and it was high than the upper limit for the age of the patient. CT angiography was performed with the prediagnosis of pulmonary embolism. The left main pulmonary artery was not observed in CT and the left lung was hypoplastic. It was determined that the blood flow of the left lung continued through the intercostal arteries. No pulmonary hypertension was detected in the echocardiography performed on the patient. The patient was discharged with the recommendation of outpatient follow-up. The most important complication in patients with pulmonary hypoplasia diagnosed at an advanced age is pulmonary hypertension and this one of the most important factors in the management of treatment. Surgical treatment may be required in patients who are symptomatic and have additional pathology.

Key words: Pulmonary hypoplasia, Dyspnea, Computerized tomography angiography.

INTRODUCTION

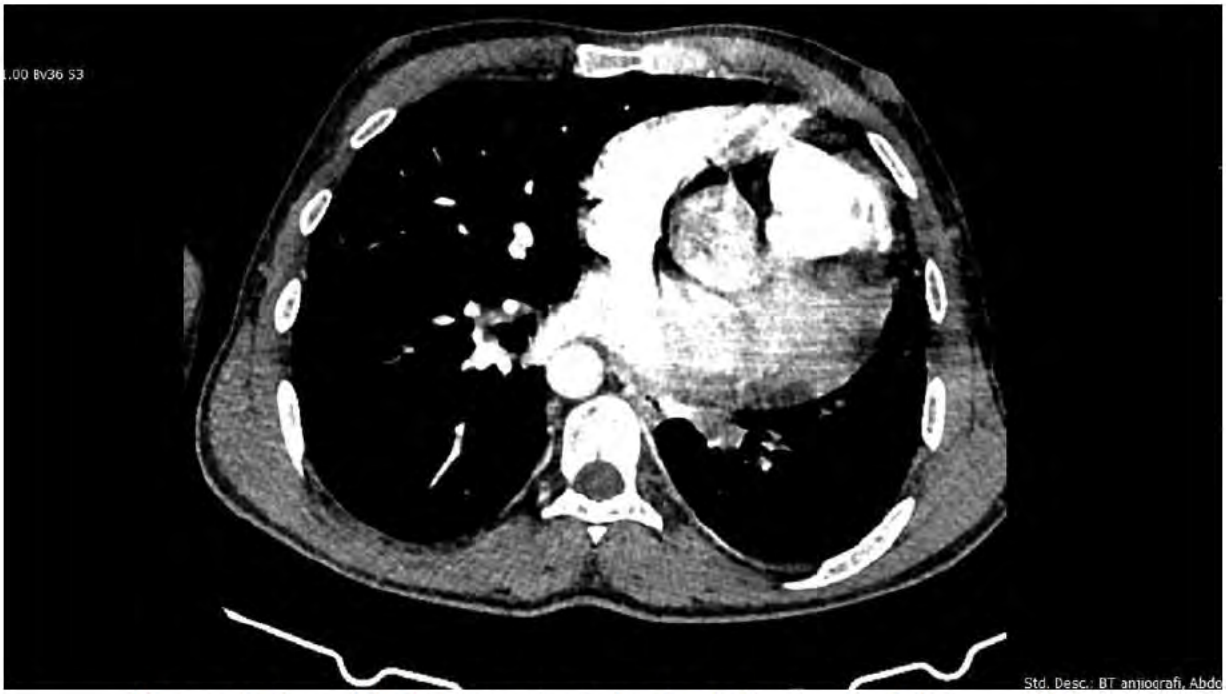
Pulmonary hypoplasia, which has 90% mortality in the perinatal period, has an incidence of 0.09-0.11% in all live births (1). In cases without perinatal diagnosis, no obvious clinical manifestations occur and the diagnosis is usually made in advanced ages and in routine screening. Computerized tomography (CT)/magnetic resonance (MR) angiography is sufficient for the diagnosis. It is not present in most patients diagnosed in adulthood, even if the main symptom is frequent lower respiratory tract infection. In adults, symptoms are usually associated with extrapulmonary pathologies accompanying pulmonary hypoplasia (2).

CASE PRESENTATION

A 28-year-old male patient presented our emergency department with the complaint of dyspnea. The patient had no previous dyspnea complaint, chronic disease, history of drug or substance use in the anamnesis. Vitals was SPO_2: 71%, Fever: 36.7ºC, Blood pressure: 115/75mm/Hg, pulse: 92/m. Inspection was normal, and left pulmonary sounds were less audible compared to the right on auscultation. Oxygen inhalation was started and the cardiac values and infection biomarkers of the patient were normal (Troponin I: 11ug/L, Creatinine Kinase MB: 2 ng/L, White Blood Cell: 8993/ul, C-Reactive Protein: 0.9mg/L). D-dimer was measured at 674ngFEU/mL and CT angiography was performed to exclude pulmonary embolism. The left main pulmonary artery was not observed in CT and the left lung was hypoplastic (Picture 1). It was determined that the blood flow of the left lung continued through the intercostal arteries (Picture 2). No pulmonary hypertension was detected in the echocardiography performed on the patient. The patient was discharged with the recommendation of outpatient follow-up.



Picture 1. The left main pulmonary artery was not observed in CT angiography.



Picture 2. One of the intercostal arteries that is feeding the left lung of the patient.

DISCUSSION

Pulmonary hypoplasia, which is detected in 10% of neonatal autopsies and 50% of patients with congenital anomalies, is essentially the subject of pediatrics, and isolated pulmonary hypoplasia is rare (3). Our patient was an isolated and unilateral case of pulmonary hypoplasia.

Pulmonary hypoplasia can be diagnosed in adulthood without creating a clear clinical picture. Patients may have complaints about extrapulmonary anomalies (4). The young adult patient who applied to our emergency department did not have a history of disease suggestive of lung pathology. Additionally, our patient had no anamnesis to explain respiratory failure.

In adulthood, the diagnosis is often made incidentally during routine examinations. With the more effective and widespread use of methods such as computed tomography angiography and magnetic resonance angiography, the diagnostic probability of pulmonary hypoplasia has increased. In these examinations, the affected hemithorax is small, the diaphragm is elevated on the affected side, and the mediastinum is deviated to the same side. Bronchial structures have not disappeared, which is an indication that there is no agenesis or aplasia. In addition, in pulmonary angiography, pulmonary vascularity on the affected side is observed to remain rudimentary or not developed at all (4). In our patient's CT angiography, the left main pulmonary artery was not observed and a significant decrease in left lung tissue was observed.

CONCLUSION

Extrapulmonary pathologies are not frequently observed in patients with pulmonary hypoplasia diagnosed at an advanced age, and these patients do not have frequent lower respiratory tract infections. The diagnosis is mostly made incidentally. The most important complication in patients with pulmonary hypoplasia diagnosed at an advanced age is pulmonary hypertension and this one of the most important factors in the management of treatment. Surgical treatment may be required in patients who are symptomatic and have additional pathology.

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Pub No: OP-262

Future of Scoring Systems of Stroke in Prehospital Care, A Primer

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Introduction and Purpose

Endovascular therapy (EVT) and intravenous tPA (tissue-type plasminogen activator) have become the standard therapy for acute Ischaemic Stroke (AIS). Time constraints of EVT and tPA are a hindrance to applying these approaches to all patients. Delay in surgical or other interventions for intracranial haemorrhage (ICH) is associated with poor prognosis. Therefore, a system of promptly transferring patients with suspected strokes to appropriate centres is even more important. Using prehospital scoring systems to differentiate Strokes to ICH and AIS and differentiate large vessel obstruction (LVO) in AIS can work in favour of increasing utilization of standard treatment.

Materials and Methods

Several prehospital prediction rules exist for AIS and LVO. FAST ED, RACE, NIHSS EMS, and JUST are a few scorings system that differentiates LVO. There are two scoring systems that differentiate ICH namely JUST and ph-ICH Scores. The components, advantages, and disadvantages of each scoring system are discussed. The sensitivity and specificity of each scoring system in their derivation and validation cohorts are compared. Using the analysis an algorithm for sorting patients with different types of strokes with the least number of variables will be proposed. Data and interim analysis of a feasibility study using the proposed algorithm will be presented.

Results and Conclusion

The differentiation between ICH and AIS is important because these patients often require time-critical interventions, only available in certain hospitals. Also, differentiation of LVO is important as not all centers are equipped with EVT. This proposal will require prospective studies to study the impact of such a system.

Pub No: OP-263

Investigation Of The Impact Of Fresh Frozen Plasma And Prothrombin Complex Concentrate On Cost, Mortality, And Morbidity İn Patients Receiving Warfarin

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INTRODUCTION AND OBJECTIVE

Warfarin, a commonly used oral anticoagulant, can lead to serious complications in cases of overdose. The fact that it is associated with bleeding when the therapeutic range is exceeded and thrombotic complications when subtherapeutic levels are reached, coupled with frequent drug interactions, underscores its importance for emergency physicians (1,2,3).

This study aimed to evaluate the cost, morbidity, and mortality rat1es associated with the use of Fresh Frozen Plasma (FFP) or Prothrombin Complex Concentrate (PCC) in cases of warfarin overdose-related bleeding.

MATERIALS AND METHODS

This retrospective study was conducted on patients who presented to the emergency department of Bezmialem University Faculty of Medicine between January 1, 2015, and December 31, 2017, and met the study criteria. Patients with a maximum laboratory International Normalized Ratio (INR) value exceeding 1.2 while using warfarin (Coumadin) were included in the study by scanning the hospital system, resulting in data from 1,130 patients. Among them, 309 patients received treatment for elevated INR related to bleeding and were included in the study. The patients were divided into two groups: those receiving FFP and those receiving PCC. Patients with bleeding were categorized based on the frequency of bleeding. The patients were classified according to their outcomes.

The inclusion criteria for patients in the study were as follows: patients aged 18 and above using warfarin with an INR value above 1.2. Those who received treatment with FFP or PCC were identified and included in the evaluation. The exclusion criteria were patients under 18 years of age, patients with bleeding diathesis not using warfarin, and patients using warfarin with an INR value below 1.2.

The data obtained were sorted and evaluated in an Excel file. IBM Statistical Package for Social Sciences (SPSS) 24.0 (SPSS Inc., Chicago, IL, USA) was used for data analysis. Descriptive statistics were presented in terms of numbers, percentages, means, and standard deviations. Differences between means were calculated using independent group t-tests and Mann-Whitney U tests. A significance level of 0.05 was considered for all tests.

RESULTS

The mean age of patients with elevated INR due to warfarin use and bleeding was 68 ± 14.48 years, with 68.3% of them aged 65 and older, and 53.7% were female. Among all patients, 26 (8.4%) were admitted to the intensive care unit, and 3 (1%) had exitus in the emergency department. The most common major bleeding was upper gastrointestinal bleeding, accounting for 61.34% of cases. Among minor bleeding cases, hematuria was the most common, accounting for 38.65%. The average age of patients presenting with major bleeding was 67.84 years, and major bleeding was most frequently observed in the age group of 71 and older (46.2%, 55 patients).

The mean initial INR value for patients receiving FFP was 9.10 ± 5.60, and the final INR value was 2.56 ± 0.79. For patients receiving PCC, the mean initial INR value was 9.02 ± 5.73, and the final INR value was 2.01 ± 0.74.

In total, 736 units of FFP were used, with a unit cost of 76 TL (25 USD). The cost of FFP given to patients with bleeding due to warfarin was calculated as 37,468 TL (12,489 USD). It was determined that 82 units of PCC were used in total, with a unit cost of 495 TL (165 USD), resulting in a total cost of 40,590 TL (13,530 USD) for all patients.

There was no statistically significant difference between the mean initial INR values of patients receiving PCC or FFP in major bleeding cases (Z: -1.580, p: 0.114). However, there was a statistically significant difference between the mean final INR values of patients receiving PCC and FFP, as well as a statistically significant difference between the mean differences in initial and final INR values (Z: -2.665, p: 0.008; Z: -2.065, p: 0.039) (Table 1).

Table 1. Difference Tests of Initial INR, Final INR, and Initial-Final INR Difference Values in Patients with Major Bleeding Receiving FFP and PCC

Major Bleeding Patients	N	Initial INR Mean	Mean Rank	Sum of Runk	Z	U	p
PCC	27	8,67±5,51	69,22	1869,00	-1,580	993,000	,114
FFP	92	6,56±4,39	57,29	5271,00			
		Final INR Mean					
PCC	27	2,03±,78	44,44	1200,00	-2,665	822,000	**,008****
FFP	92	2,40±,77	64,57	5940,00			
		Initial-Final INR Difference					
PCC	27	6,64±5,62	72,06	1945,50	-2,065	916,500	**,039***
FFP	92	4,16±4,29	56,46	5194,50			

*p<0.05, **p<0.01, ***p<0.001

DISCUSSION

In our study, the mean age was found to be 68 years. Our results indicate that warfarin therapy is predominantly used in an elderly population with chronic illnesses.

The rate of major bleeding due to warfarin was 38.5%, with a mortality rate of 1.6%. In a study by Landefeld et al. (4), the rate of major bleeding patients was 12%, with a mortality rate of 2%. While major bleeding rates differ, mortality rates are similar.

In one study, when the complaints of patients anticoagulated with warfarin were evaluated, the gastrointestinal system (38.5%) was found to be the most affected system (5). Similarly, in a study by Sayhan et al. (6), 16.9% of patients presented with gastrointestinal bleeding. In our study, the most common major bleeding was gastrointestinal bleeding, accounting for 29.1% of cases.

In our study, no statistically significant difference was observed between the change in INR values of patients receiving FFP and those receiving PCC ($p < 0.05$). However, when compared in major bleeding cases, a statistically significant difference was found favoring PCC ($p = 0.039$). Additionally, in clinical studies comparing three-factor PCC with FFP in evaluating the symptoms and signs of intracranial hemorrhage, it has been shown that PCC causes less bleeding (7). In another study, patients receiving PCC achieved a faster INR correction compared to those receiving FFP (8). This suggests that although both methods effectively achieve the target INR value in emergency situations, PCC may be the preferred option.

For most patients, the most dangerous bleeding is intracerebral hemorrhage, which can be life-threatening or lead to permanent neurological deficits (9).

The cost of reversing the effects of warfarin is estimated to be 15% of the total cost of treating a patient after a life-threatening intracranial, gastrointestinal, or retroperitoneal bleeding episode. The cost per quality-adjusted life year gained with PCC is estimated to range from £1,000 to £2,000, depending on the type of hemorrhage (i.e., intracranial, gastrointestinal, or retroperitoneal). From the perspective of the UK National Health Service, in this model analysis, PCC appears to be a more cost-effective treatment for rapidly reversing the effects of warfarin compared to FFP (10). In our study, the number of patients using FFP was 736 units, with a total cost of 55,936 TL, while the number of patients using PCC was 82 units, with a total cost of 40,590 TL. This suggests that FFP is more economical for rapidly reversing the effects of warfarin. However, when considering the benefit-to-harm ratio, the recommendation for using PCC in major bleeding cases may remain unchanged.

CONCLUSION

When examining the demographic data of patients with elevated INR due to warfarin use, it was observed that the majority were elderly patients. Most of the treated patients were discharged from the emergency department, and the mortality rates due to bleeding were found to be quite low (1.6%). In major bleeding cases, PCC showed a more significant decrease in INR values compared to FFP, indicating that PCC may be more effective. From a cost perspective, it was determined that the number of patients using FFP was approximately 9 times higher than those using PCC, but the amount spent was only 1.37 times higher. This suggests

that FFP is more cost-effective; however, when evaluating the benefit-to-harm ratio, the preference for using PCC in major bleeding cases may remain unchanged.

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Pub No: OP-267

A Case Of Code Blue: Guillain-Barre Syndrome

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ABSTRACT

Background

Although neurological-based diseases constitute a small part of emergency service admissions, we can say that our approach to these cases, including them among our preliminary diagnoses, leads to early, effective and correct treatment, followed by a mostly successful outcome. In our article, we will share our case, which was brought to the emergency department of a training and research hospital by code blue teams and diagnosed with Guillain-Barre Syndrome.

Case Presentation

A 30-year-old male patient applied to an external center with complaints of weakness in the feet and hands that started 2 days ago. In her neurological examination, there was no motor and sensory deficit in the upper extremity muscle strength examination. In the lower extremity examination, the motor strength was evaluated as 2/5 and deep tendon reflexes could not be obtained. The patient, who underwent neurology consultation with a preliminary diagnosis of GBS, was interned to the neurology service. Intravenous immunoglobulin (IVIG) treatment was started for the patient on admission to the ward. Electromyography was repeated intermittently during the service follow-ups, and the test result was interpreted as acute motor axonal polyneuropathy.

Discussion

The main complaint in GBS is weakness in the bilateral extremities, starting from the distal and progressing to the proximal. Although weakness starting from the distal lower extremity and progressing to the proximal is detected in most of the cases, isolated cases starting from the distal upper extremity distal ends have also been reported. It has been determined that patients diagnosed with GBS had an infective process shortly before.

Conclusion

GBS is a very rare pathology in the emergency department. When we look at the causative pathogens in general, it is noteworthy that there are pathogens that cause gastroenteritis and upper respiratory tract infections. In this case, questioning whether such infectious processes have been experienced in cases with GBS will help us in terms of preliminary diagnosis.

Keywords: Guillain, Barre, Syndrome, emergency, neurological

A CASE OF CODE BLUE: GUILAIN-BARRE SYNDROME

ABSTARCT

Although neurological-based diseases constitute a small part of emergency service admissions, we can say that our approach to these cases, including them among our preliminary diagnoses, leads to early, effective and correct treatment, followed by a mostly successful outcome. In our article, we will share our case, which was brought to the emergency department of a training and research hospital by code blue teams and diagnosed with Guillain-Barre Syndrome.

INTRODUCTION

Guillain-Barre Syndrome (GBS) is a type of paralytic neuropathy that can have serious consequences, seen in approximately 1-2 people per 100,000 each year. (1) GBS is shown as one of the most important and most common causes of neuromuscular paralysis, especially in European countries.(2)

GBS is accepted as a syndrome that basically occurs as a result of any immune stimulation occurring in a post-infectious process or for an unknown reason, resulting in a cross-reaction with nerve cells as a result of the molecular similarity of infectious antigens and antigens in the nerves, leading to demyelination and axonal damage. Although GBS is seen at almost all ages, its incidence increases as the age of the patient increases. Although it has been observed that there are serious increases and decreases in the number of GBS cases depending on the seasons, it is interpreted as the result of an infectious process because it arises from a post-infectious process. Campylobacter jejuni is the most common infectious factor for GBS. C. Jejuni occurs in approximately 25-50% of adult cases. Although their numbers are less than C. jejuni; Cytomegalovirus, Ebstein Barr virus, influenza A virus, Mycoplasma pneumonia and Haemophilus influenzae are also among the causative pathogens. (3)

CASE PRESENTATION

A 30-year-old male patient applied to an external center with the complaint of weakness in the feet and hands that started 2 days ago. The patient, whose examinations did not reveal any abnormalities other than elevated levels of acute phase reactants, was discharged with the recommendation that he go to the infectious diseases outpatient clinic to investigate the elevation of phase reactants. The patient, who applied to the infectious diseases outpatient clinic of our hospital, went to the blood collection unit to give blood tests according to the anamnesis, and when he experienced dizziness and blackout, he was given a blue code and brought to the emergency room by the blue code teams. The patient does not describe any additional complaints.

When the patient is brought to our emergency department, his vital signs are; fingertip blood sugar 114mg/dl, sO2: 99%, temperature: 36.4C, blood pressure: 125/80mm/Hg. In the physical examination of the patient, he is conscious, oriented-cooperative, GCS: 15, the abdomen is comfortable, there is no defense or rebound. In her neurological examination, there was no motor and sensory deficit in the upper extremity muscle strength examination. In the lower extremity examination, the motor strength was evaluated as 2/5 and deep tendon reflexes could not be obtained. No significant pathology was found in the echocardiography and blood tests of the patient who was investigated as syncope/presyncope etiology in the emergency department. Again, radiological examinations performed to investigate etiology were evaluated as normal. GBS was considered as a preliminary diagnosis for the patient with ataxia who could not walk without support due to the lack of improvement in his clinical condition and loss of lower extremity motor strength while the patient was being followed up under observation.

As a result of the lumbar puncture performed on our patient to support our preliminary definition, an increased serum protein of 1.236 g/L was detected in the cerebrospinal fluid. The patient underwent neurology consultation with a preliminary diagnosis of GBS and was admitted to the neurology service. Intravenous immunoglobulin (IVIG) treatment was started on the patient's admission to the ward. Electromyography was repeated intermittently in the service follow-ups, and the test result was interpreted as acute motor axonal polyneuropathy. Treatment and follow-up continue in the neurology and physical therapy and rehabilitation department.

DISCUSSION

The main complaint in GBS is a weakness seen in bilateral extremities, starting from the distal and progressing to the proximal. Although weakness is detected in the majority of cases starting from the distal lower extremity and progressing to the proximal, isolated cases starting from the distal ends of the upper extremity and progressing to the proximal have also been reported. It has generally been found that patients diagnosed with GBS have recently experienced an infective process. Although the high levels of acute phase reactants were detected in an external center in our case,

No elevated acute phase reactants were detected in the laboratory tests performed in our emergency department, and no infective condition was detected in the previous period in the detailed

anamnesis. Randomized controlled studies conducted in the past years on immune therapy in GBS have proven that IVIG and plasma exchange therapy are individually effective. (4) IVIG was used as the first treatment choice in our patient's follow-up service.

CONCLUSION

GBS is a very rare pathology in the emergency department. When we look at the causative pathogens in general, it is noteworthy that there are pathogens that cause gatroenteritis and upper respiratory tract infection. In this case, questioning whether such infectious processes have occurred in cases where GBS is suspected will make it easier for us in terms of preliminary diagnosis.

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Pub No: OP-268

Prognostic Evaluation of C-Reactive Protein/Albumin Ratio, Neutrophil/Lymphocyte Ratio, and Platelet/Lymphocyte Ratio in Aortic Dissection Patients: A Retrospective Analysis

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Abstract

Introduction and Purpose

This study aims to assess the prognostic significance of the C-Reactive Protein/Albumin Ratio (CAR), Neutrophil/Lymphocyte Ratio (NLR), and Platelet/Lymphocyte Ratio (PLR) in predicting hospitalization duration and mortality in emergency patients diagnosed with aortic dissection.

Materials and Methods: The study analyzed many factors, including patient mortality rates, hospital stay durations, laboratory parameters, ratios including CAR (C-reactive protein/albumin ratio), NLR (neutrophil/lymphocyte ratio), PLR (platelet/lymphocyte ratio), and demographic data. Statistical comparisons were made between discharged patients and those who died, taking into account demographic characteristics, laboratory results, and rates. In the statistical analysis, appropriate tests were utilized. Statistical significance was defined as a p value less than 0.05.

Results: There was a positive correlation between hospitalization duration and CAR ($r=0.472$, $p=0.006$), while no statistically significant relationship was found between NLR, PLR, and hospitalization duration (NLR: $r=-0.20$, $p=0.914$). Among the three ratios, PLR demonstrated a statistically significant predictive value for mortality ($t=-4.01$, $p<0.001$).

Conclusion: The results of this study demonstrate clear and significant associations between the PLR and mortality, as well as between the CAR and length of hospital stay in individuals diagnosed with aortic dissection.

Keywords: Aortic dissection, C-reactive protein/albumin ratio, neutrophil/lymphocyte ratio, platelet/lymphocyte ratio, prognosis

Introduction and Purpose: Acute aortic dissection (AAD) is a rare yet life-threatening condition characterized by the separation of layers within the aortic wall (1). Without prompt

surgical intervention, patients may often confront severe complications such as aortic rupture. Unfortunately, even with surgical intervention, mortality rates can remain high (2). Neutrophil to lymphocyte ratio (NLR) is a prognostic predictor in a wide range of cardiovascular disease (3). This study aims to assess the prognostic significance of the C-Reactive Protein/Albumin Ratio (CAR), Neutrophil/Lymphocyte Ratio (NLR), and Platelet/Lymphocyte Ratio (PLR) in predicting hospitalization duration and mortality in emergency patients diagnosed with aortic dissection.

Materials and Methods: The study was carried out retrospectively, encompassing patients aged 18 and over who presented at our tertiary hospital's emergency department between August 1, 2018, and August 1, 2023. The set of the patients diagnosed with aortic dissection were determined via the hospital database system using the diagnostic code "ICD-10 I71". These patients were confirmed to have aortic dissection through thoracoabdominal computed tomography angiography (CTA). The study analyzed many factors, including patient mortality rates, hospital stay durations, laboratory parameters, ratios including CAR (C-reactive protein/albumin ratio), NLR (neutrophil/lymphocyte ratio), PLR (platelet/lymphocyte ratio), and demographic data. Statistical comparisons were made between discharged patients and those who died, taking into account demographic characteristics, laboratory results, and rates. In the statistical analysis, appropriate tests were utilized. Statistical significance was defined as a p value less than 0.05.

Results: The retrospective analysis included 32 individuals diagnosed with aortic dissection in our emergency department, with 24 of them (75%) being male. The mean age of the patients was 67.25 ± 10.18 years. The median length of hospitalization was 4 days (1–10). Demographic and clinical data of the patients are given in Table 1. Gender-based comparisons of NLR, PLR, and CAR values revealed no statistically significant differences (NLR: $t=0.581$, $p=0.566$; PLR: $t=0.445$, $p=0.653$; CAR: $t=-1.204$, $p=0.265$). However, when age was considered, significant variations were observed in CAR values ($p=0.024$). There was a positive correlation between hospitalization duration and CAR ($r=0.472$, $p=0.006$), while no statistically significant relationship was found between NLR, PLR, and hospitalization duration (NLR: $r=-0.20$, $p=0.914$). Among the three ratios, PLR demonstrated a statistically significant predictive value for mortality ($t=-4.01$, $p<0.001$). These relationships are shown in Table 2 and Figure 1.

Discussion

Aortic dissection is a cardiovascular disease with high mortality and morbidity rates (4). The diagnosis of AAD requires urgent aortic imaging studies such as computed tomography angiography, but the decision to perform these studies is mainly based on clinical judgement. The literature has identified a number of potential biomarkers whose circulating levels are elevated in AAD, including matrix metalloproteinases, TGF-β, soluble elastin fragments, smooth muscle myosin heavy chain, creatine kinase, calponin, D-dimer, platelets and C-reactive protein (CRP) (5). In a study by Kalkan et al. it was reported that NLR ratio may be a good predictor of the prognosis of AAD (6). In our current study, in contrast to NLR, we found a statistically significant association between PLR rates and mortality. On the other hand, we found a significant association between CAR and prolonged hospital stay.

Conclusion: The results of this study demonstrate clear and significant associations between the PLR and mortality, as well as between the CAR and length of hospital stay in individuals diagnosed with aortic dissection.

Keywords: Aortic dissection, C-reactive protein/albumin ratio, neutrophil/lymphocyte ratio, platelet/lymphocyte ratio, prognosis

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Table 1. Demographic and Clinical Data of the Patients

Variables		Patients diagnosed with acute dissection (n =32)			
		Toplam hasta (n=32) n (%)	Survival (n=24) n (%)	Died (n= 8) n (%)	p value *Fisher's Exact Test ** T test
Gender; n (%)					
Male		24 (75)	18(75)	6(75)	1,000*
Female		8 (25)	6 (25)	2(25)	
Age (year); mean±SD		67.25 ± 10.18	66 ± 9.91	71 ± 10.73	0,235**
Operation	Yes	26 (81)	20 (83.3)	6 (75)	0,625*
	No	6 (19)	4 (16.7)	2 (25)	
Length of hospital stay (day)		4.43 ± 2.31	4.12 ± 1.65	5.37 ± 3.66	0,378**
In -hospital mortality	Yes	8 (25)	24 (100)	8 (100)	
	No	24 (75)	0 (0)	0 (0)	
Total		32 (100)	24 (100)	8 (100)	

Note. There was no statistically significant difference between the survival and non-survival groups in terms of age, gender, surgical status, length of hospital stay and mortality.

Table 2. The comparison of CAR, PLR and NLR rates on lenght of hospital stay

Correlations			Lenght of hospital stay	CAR	NLR	PLR
Spearman's rho	Lenght of hospital stay	r	1,000	,472**	-,020	,092
		p		,006	,914	,616
		n	32	32	32	32

Notes. **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

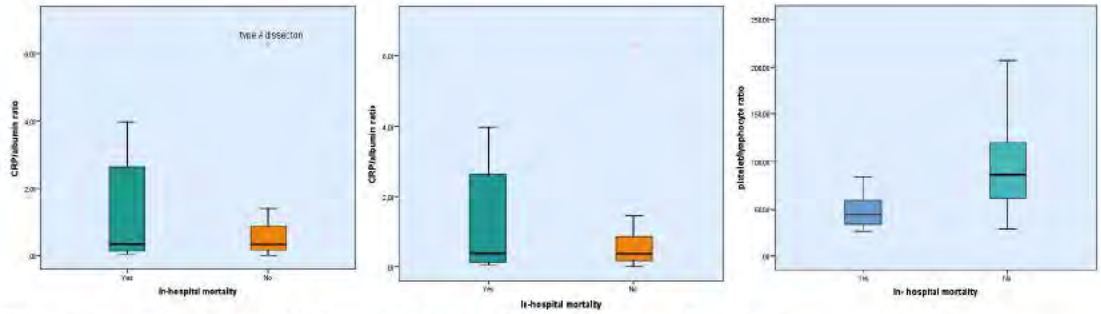

Figure-1. The CAR, NLR and PLR values in survival and non-survival group
Note. PLR demonstrated a statistically significant predictive value for in-hospital mortality ($p<0.001$).

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Pub No: OP-273

Saturation – Nail Polish and Two Different Devices

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Introduction and Purpose: Oxygen saturation (SPO2) is an important guiding parameter in the diagnosis and treatment of critically ill patients and patients admitted to the emergency department with respiratory distress. Although fingertip probes (pulse oximetry) are effective clinical tools used to display patients' oxygen status, they are affected by a variety of conditions such as movement, tremor, vasoconstriction, septic shock, hypothermia, hemoglobinopathy, nail polish, and false nails(1.2). Peripheral perfusion index (PI), which shows tissue oxygenation, has gained popularity because it is a non-invasive, easy, reproducible and rapid method used to demonstrate tissue perfusion in critically ill patients [3]. Studies have shown that PI is a more accurate, faster and more reliable saturation indicator than pulse oximeters in routine use (1,4,5)

This study was carried out to measure the oxygen saturation with a finger probe and perfusion index device that shows non-invasively, to evaluate the effect of nail polish on oxygen saturation and tissue perfusion, and to evaluate the possible advantages of the two devices over each other.

Materials and Methods: This study was conducted prospectively on 80 non-smoking healthy volunteers, aged 18 years and over in the 3rd Level University Hospital Emergency Department. Oxygen saturation value and perfusion index value in finger probe and perfusion index device were measured and recorded by applying dark blue nail polish, which affects oxygen saturation the most and shows the greatest difference in spectrophotometer absorbance.

Results and Conclusion: The mean SPO2 level of the nail polish-free group with the probe was 1.48 units higher than the nail polish group. SPO2 level measured with PI was 1.18 units higher. The mean PI level of the nail polish-free group was 0.51 units lower than the group with nail polish. ($p<0.01$). In saturation measurements made with finger probe and perfusion index devices, the two devices were not superior to each other; however, it is seen that statistically significant results were obtained in saturation measurements made without nail polish. It has been determined that nail polish causes the saturation rate to be lower.

Keywords: Emergency service; Nail polish; Oxygen saturation; Perfussion Index; Probe

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Pub No: OP-275

Not every fever is caused by infection: a rare cause of fever

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Introduction: Neuroleptic malignant syndrome (NMS) is a rare but life-threatening neurological emergency associated with antipsychotic agents and is characterized by a clinical syndrome consisting of altered mental status, rigidity, fever, and dysautonomia. [1, 2].

Case Description: A 19-year-old male diagnosed with cerebral palsy and using Risperidone is brought into the emergency department by ambulance with complaints of fever and confusion for 8 hours. The patient was ill-appearing, confused with loss of orientation to time and place, and his Glasgow coma scale was 10. His vital signs were as follows: temperature 40.9◦C, heart rate was regular at 150 bpm, blood pressure 100/70 mmHg, and saturation was 90% in room air. The patient's pupils were equal, round, and reactive to light. His mucous membranes were dry. Although neck stiffness could not be assessed, the patient was found to have muscle rigidity. Other system examinations were unremarkable. Electrocardiography showed sinus tachycardia with no evidence of ischemia or severe electrolyte abnormality. Computed tomography (CT) scan and magnetic resonance imaging (MRI) of the brain was normal. The laboratory examination revealed a white blood cell count of 6.49 10^3/uL, CRP of 0,9 mg/dL, Creatine kinase (CK) of 1704 U/L, and LDH of 410 U/L. The remainder of his laboratory data and urinalysis were within normal limits. Additionally, the Covid rapid test result was negative. The patient's medications included Risperidone. It is learned that Risperidone dosage was increased from 1 mg 1x1 to 1 mg 2x1 five days ago. In order to exclude structural and infectious diseases of the brain, lumbar puncture (LP) was performed and found to be normal. In the light of history and examination, the preliminary diagnosis of NMS was set. The patient was still febrile and tachycardic despite hydration and antipyretic treatment and was admitted to the intensive care unit (ICU). The patient underwent hemodialysis in the ICU as CK levels were as high as 19778 U/L. On the follow-up, laboratory and hemodynamic parameters improved over the next week, and the patient was transferred to the inpatient service, where he gradually improved and was discharged 14 days later.

Discussion: NMS is diagnosed in a patient taking a related medication and developing a typical clinical syndrome. Although no diagnostic test exists for NMS, tests have an important role in evaluating patients with potential NMS. Typical laboratory abnormalities help to confirm the clinical diagnosis and may be helpful to rule out other pathologies. Some laboratory tests are used to monitor patients for complications of NMS [3]. In patients with possible NMS, brain CT MRI and lumbar puncture are required to exclude structural brain disease and infection [4]. Management of patients with NMS should be based on a hierarchy

of clinical severity and diagnostic certainty [5, 6]. When symptoms are severe, ICU follow-up and treatment are necessary. Removing the causative agent is the most crucial treatment for NMS. Patients diagnosed with NMS generally use polypharmacy [7]. In our case, the patient was using only one medication. Mortality results directly from the dysautonomic manifestations of the disease and systemic complications.

Conclusion: As a result, not every fever is caused by infection. In case of unexplained fever, the anamnesis should be deepened, and NMS should be kept in mind in the differential diagnosis.

Keywords: Antipsychotic drug, fever, neuroleptic malignant syndrome, rigidity.

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Pub No: OP-276

Inguinoscrotal Bladder Herniation : A Rare Case

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Introduction:
Inguinal bladder herniation all inguinal hernia it is seen in 1-3% of cases (1). It is very rare for inguinal hernias to have isolated bladder herniation and for the bladder to herniate all the way to the scrotum (2). Bladder herniation is mostly seen in obese men >50 years of age(3). Factors such as weakness of the bladder detrusor muscle and abdominal wall muscles, bladder neck obstruction, and an accompanying inguinal hernia sac growing over time and applying traction to the bladder are thought to play a role in the etiology (4). While small bladder hernias generally have an asymptomatic course, large hernias may present with intermittent swelling in the groin or scrotum area and lower urinary tract symptoms due to bladder outlet obstruction (5).

Case:
A 58-year-old male patient applied to our emergency department with complaints of pain, especially in the right groin area, swelling in the right groin area, and swelling in the right scrotum while walking. The patient mentioned that this swelling increased especially when he stood for a long time, and that the swelling regressed when he lay down. The patient said that by applying pressure to the swelling in the scrotum while urinating, he urinated more easily and felt relieved.

In the patient's vital signs, blood pressure was measured as 140/90 mmHG, temperature was 36.7 °C, pulse was 80 beats / minute, SPO2: 98. In general, there was no abnormality in the patient's vital signs. The patient's calculated body mass index was 31 kg/m². In the physical examination of the patient, clearly visible swelling and fullness in the right scrotum and swelling and fullness in the right inguinal canal were observed.

Routine blood tests and imaging were requested for the patient. The patient's blood test results showed only mild elevation of white blood cells (WBC) and C-reactive protein (CRP). Urinalysis also showed no abnormal results.

The patient was then requested to have a computerized tomography (CT). The patient had a computed tomography scan and herniation was observed in the inguinal canal and scrotum (figure 1).

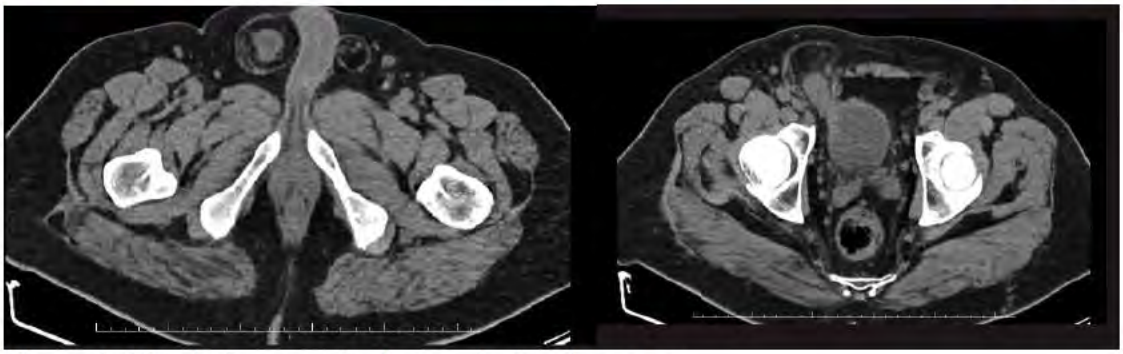

Figure 1: Herniation seen in the inguinal and scrotum.

The CT result showed that the herniation was a bladder herniation. An opaque material was given to the patient and a standing direct abdominal radiograph was taken to see bladder herniation. The opaque substance was injected into the bladder from the tip of the penis using a bladder catheter (Figure 2).



Figure 2: Direct radiography after administration of opaque material

The patient was then consulted to a general surgeon. The patient was evaluated on-site by the general surgeon and surgical hernia repair was planned and he was hospitalized. The patient did not develop any complications in the postoperative period and was discharged in good health.



Figure 3: Bladder with opaque material after surgery

Discussion:

Bladder herniation is a rare but potentially serious condition. Due to impaired bladder emptying, inguinoscrotal bladder hernias can be associated with significant urological complications such as renal failure and obstructive uropathy(6). In this case, our patient cannot fully void urine. An obstructive event has occurred in the urinary tract. Bladder herniation is mostly seen in obese men >50 years of age(3). In this case, our patient fits the definition of an obese elderly man. Preoperative diagnosis of bladder herniations is important in preventing possible iatrogenic trauma that may occur during surgery. A study reported that only 7% of patients were diagnosed before surgery, while 16% of patients were diagnosed after postoperative complications occurred (7). In this case, bladder herniation was found incidentally in our patient.

Conclusion:

Early diagnosis and appropriate surgical management are vital in maintaining the patient's health. Complaints of swelling and pain in the inguinal and scrotal region, especially in older obese men, should be evaluated seriously.

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Pub No: OP-278

Bilateral Fracture of the Superior Horn of the Larynx Due to Blunt Trauma

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Abstract

Laryngeal traumas are rare due to the preservation of the mandible, sternum, and bursts of the sternocleidomastoid muscle, but can result in serious and potentially injury. The rates, type, and divisions of trauma can range from simple fractures to cartilage detachments, endolaryngeal mucosal tears or enlargements, hematoma, and laryngotracheal separations with loss of airway segments.

A 41-year-old male patient was admitted to our emergency service with the complaint of difficulty in swallowing at night when he received an elbow blow to his neck during a football match. Any difficulty in breathing, loudness or hearing a change in voice. The patient had no significant medical or family history. His vitals were stable. Physical examination revealed normal oropharynx and a positive gag reflex. There was no crepitation on palpation of the neck, but there was tenderness. Neurological examination was unremarkable. Further investigations were requested, and neck CT scan revealed two laryngeal superior horn fractures (picture 1-2). The patient was referred to the Ear Nose and Throat (ENT) clinic for further treatment. Emergency surgical intervention was considered and advanced treatment was applied to the patient.

In this rare case, clinicians should be very careful about minimal voice changes, mild pain, difficulty in swallowing, and shortness of breath.

Keywords: blunt neck trauma, emergency department, bilateral laryngeal superior horn fracture

Introduction

Laryngeal injuries in blunt neck traumas are rare but can have serious mortality rates. Laryngeal traumas, due to the protection provided by the mandible, sternum, and

sternocleidomastoid muscle, are uncommon but can result in severe and potentially fatal injuries. The mechanism, type, and severity of trauma can vary from simple fractures to cartilage separations, endolaryngeal mucosal tears, or laryngotracheal separations with associated edema, hematoma, and loss of airway integrity. Clinicians should be very attentive to symptoms such as minimal voice changes, mild pain, difficulty swallowing, and shortness of breath in these cases. Treatment options range from conservative approaches to surgical intervention.

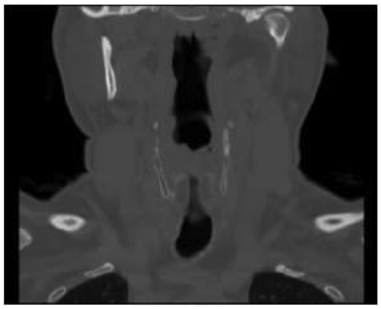
Case

A 41-year-old male patient presented to our emergency department with difficulty swallowing the night after a soccer game, during which he was accidentally struck in the neck with an elbow. He did not report any breathing difficulties, hoarseness, or voice changes. The patient had no significant medical history or family history of note. Vital signs were stable with a blood pressure of 120/80 mmHg, oxygen saturation of 98%, heart rate of 65 beats per minute, and a temperature of 36.5 degrees Celsius. Physical examination revealed a normal oropharynx with a positive gag reflex. There was no crepitus on neck palpation, but there was tenderness. Neurological examination was unremarkable. Further investigations were requested, and a neck CT scan showed bilateral laryngeal superior horn fractures(image 1-4). The patient was referred to the Ear, Nose, and Throat (ENT) clinic for further evaluation. Emergency surgery was not considered, and the patient was admitted for further tests and follow-up.

picture 1: two laryngeal superior horn fractures



picture 2: two laryngeal superior horn fractures



Discussion

Laryngeal injuries in blunt neck traumas are rare but can have serious mortality rates. Their incidence among patients presenting to the emergency department has been determined to be 1 in 137,000 cases. Dysphonia is the most common symptom following blunt laryngeal trauma. Edema, hematoma, or cricoarytenoid joint damage within the endolaryngeal structures can be the cause of this hoarseness. Subcutaneous emphysema, loss of laryngeal contour, bruising, and pain are other commonly observed symptoms (1). However, approximately 25% of patients may not exhibit any clinical findings. The first 6 hours are critical for the development of edema and hematoma, which can cause significant airway obstruction. Therefore, close monitoring is crucial, and the first priority is securing the patient's airway. Tracheotomy preparation should be made. Reports suggest that tracheotomy is required in 30-70% of cases of blunt trauma (2,3). The Legacy Emanuel Hospital and Health Center laryngeal injury classification is generally used to determine the medical or surgical approach. In cases where thyroid cartilage integrity is not compromised, and cartilage support is not diminished, medical treatment and close monitoring are sufficient. If there is minor mucosal injury, elevation of the head, voice rest, liquid diet, corticosteroids, antibiotics, and anti-reflux treatment are recommended (4). In cases of cartilage fracture, advanced mucosal tear, exposed cartilage, and immobility of the vocal cord, surgical exploration, repair, and stabilization of the cartilage roof must be ensured.

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Pub No: OP-279

Evaluation of risk factors for diabetes mellitus using random forest method

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Abstract

Objective: The goal of this study is to categorize the patient's diagnostic measurements based on specific diagnostic measures of diabetes, which has emerged as the biggest health issue in the modern world, and to identify the related risk factors via the random forest.

Material and Methods: An open-access dataset based on specific diagnostic measures of diabetes were employed for the prediction. Using the five-step cross-validation approach from the resampling method and the Random Forest model method, the study's components impacting diabetes were investigated, and all of the training information set was included in the classification. Accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score metric are the available model performance metrics. Also, a comparison scale called the ROC curve (Area Under Curve) was implemented.

Results: When the results of the Random Forest analysis are reviewed, the accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 scores of the model are, respectively, 99.3%, 99.1%, 98.1%, 100%, 100%, 99%, and 99.1%. The Glucose curve was found to have the most impact on the model's performance out of the variables Diabetes, Skin Thickness, Insulin, Glucose, Blood pressure, and Pregnancy. body mass index (BMI) curve with the second-best performance. Metric measurements were obtained as 100, 51,258, 35.476, 31.161, 12.559, 8.778, 3.682, and 0 (zero), respectively.

Conclusion: Performance metrics and the ROC curve produce significantly successful outcomes as a result of the study of the open-access data set that contains measurements for diabetes diagnosis.

Keywords: Classification, Diabetes disease, Random Forest.

INTRODUCTION AND OBJECTIVE

One of the long-term consequences brought on by the body's insufficient, inefficient, or inadequate production of the hormone insulin is diabetes mellitus. It is a condition that alters carbohydrate metabolism and elevates blood glucose levels. Diabetes can go untreated and cause symptoms including frequent urination, extreme hunger, and intense thirst. generates a

lot of problems for the patient. The veins are particularly affected if prompt action is not done and blood sugar is not regulated. Effects of sugar's toxicity numerous organs and tissues, including the kidneys, nerve endings, heart, brain, and leg arteries, might suffer lasting harm from it (1). Therefore, early diabetes diagnosis is in accordance with the Global Health Organization's most recent statistics. There are 422 million individuals with diabetes worldwide, most of whom live in low- and middle-income countries. Diabetes is also directly responsible for 1.6 million fatalities annually. As a result, diabetes is acknowledged to be among of the main causes of death worldwide, and both its prevalence and caseload are sharply rising. Faced with this grim outlook, nations agreed to work together and set a goal to halt the global rise in diabetes by 2025 (2)

Karegowda et al. (3) conducted another study examining diabetes classification algorithms using the "Pima Indians Diabetes" dataset. Decision tree C4.5 and k-means clustering techniques were used in this investigation. Combining various models yielded a mixed model (hybrid model). Only the decision tree C4.5 approach can yield the mixed model that is run in two stages' proper classification rate. exceeding the categorization rate in magnitude. With two datasets produced by the first aid hospital of Wenzhou Medical University, Chen and Pan on the other hand, attempted to predict diabetes class. Results from 35669 clinical trials, including Adaboost.M1 and LogitBoost. Both approaches to categorizing diabetes were found to be successful (4).

The goal of this study is to categorize the patient's diagnostic measurements using an open access data set based on specific diagnostic measures of diabetes, which has emerged as the biggest health issue in the modern world, the area under the ROC curve (Area Under Curve), a comparison scale for the superiority of diagnostic tests, and the identification of risk factors.

MATERIAL AND METHODS

Dataset

An open-access data set called healthcare diabetes was used in this study to test the “Random Forest” approach, a key machine learning model. The diabetes health dataset is available at

https://www.kaggle.com.diabetes-healthcare-comprehensive-datasetdeependraverma13 was acquired. There are 768 patients and 8 data diagnostic measurements in this data collection that was obtained. Table 1 presents the variables used in the current study.

Table 1: Variables used in the current study

Feature	Type	Information
Pregnancies	Numeric	Total number of illnesses in the past
Glucose	Numeric	The amount of glucose in an individual's blood
BloodPressure	Numeric	Flowing pressure of the individual
SkinThickness	Numeric	Skin thickness of the individual
Insulin	Numeric	The amount of insulin of the individual
BMI	Numeric	Body mass index of the individual
DiabetesPedigreeFunction	Numeric	Diabetes function in the individual's family
Age	Numeric	Individual's age
Outcome	Categorical	Whether the individual has diabetes (1: Sick, 0: Healthy)

Random Forest

In comparison to other well-known machine learning techniques, random forest offers a special combination of prediction accuracy and model interpretability. The ensemble and random sampling techniques used in RF allow for more precise estimates and better generalizations. This generalization quality derives from the bagging scheme, whereas related techniques like boosting do this by reducing bias (5), the bagging scheme enhances generalization by reducing variance.

The main emphasis is placed on three random forest characteristics (6):

1. It makes reliable predictions for a variety of applications
2. With model training, it can assess the significance of each characteristic
3. The trained model can assess pairwise proximity between samples.

In the computational biology field, extending random forests is currently a very active research area, where the majority of earlier efforts concentrated on extending the aforementioned traits. In the sections that follow, a few important techniques among them are briefly introduced.

ROC Analysis

In order to solve two-class classification issues, ROC analysis is performed. Information representing scenarios with baseline indications that are either positive or negative according to the ROC analysis It is frequently employed in applications where only the positive members of the group are shown. As a result, a classifier using the pertinent variable can forecast the class value of samples that were previously undefinable or invisible. A matrix is utilized to keep track of the number of prediction mistakes because the predicted classes in this study aren't always the same as the actual classes (7). The contingency table is a matrix that displays a probability as indicated in Table 2 and is known as such.

Table 2: Binary Classification Problems for the Classifier Unexpected Quota

		Prediction	
		Positive (1)	Negative (0)
Actual	Positive (1)	True Positive(TP)	False Positive(FP)
	Negative (0)	False Negative(FN)	True Negative(TN)

Modeling

For the diabetes dataset addressed in this article, the Random Forest model approach was applied. Performance evaluation measures included accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score. The accuracy value of the model was determined to be 99.3% due to the usage of metric measures.

FINDINGS AND RESULTS

The performance metrics that were obtained after Random Forest modeling from machine learning models using k-fold cross-validity from the entire training data set and resampling method were accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score values, as seen in Table 3, the best metric measure was

99.3% (accuracy). Other metrics were measured at different value levels of 99.1%, 98.1%, 100%, 100%, 99%, and 99.1% respectively.

Table 3: Performance measures obtained with the Random forest model

Performance Metrics	**Value (%)**
Accuracy	99.3
Balanced Accuracy	99.1
Sensitivity	98.1
Specificity	100
Positive predictive value	100
Negative predictive value	99.0
F1-score	99.1

Table 4 provides the results of the ROC analysis, including the area under the curve and confidence intervals. An overall performance metric for all categorization thresholds for the variables is offered. The performance in differentiating between positive and negative classes improves as the area under the ROC curve approaches 1. The cutoff values for the variables Age, Pedigree Function for Diabetes, Skin Thickness, Insulin, Glucose, Blood pressure, and Pregnancy were set as 0.62, 0.788, 0.586, 0.554, 0.462, 0.462, 0.688, and 0.606 AUC, respectively. Model diabetic patients' diagnosis performance was found to be Glucose 78.8% (0.755-0.822).

Table 4: ROC statistics regarding the variable

Variables	AUC	p-value	95% Confidence Interval
Glucose	0.788	**<0.01**	0.755 – 0.822
BMI	0.688	**<0.01**	0.650 - 0.725
Age	0.687	**<0.01**	0.649 - 0.725
Pregnancies	0.62	**<0.01**	0.576 - 0.663
DiabetesPedigreeFunction	0.606	**<0.01**	0.564 - 0.648
Blood pressure	0.586	**<0.01**	0.544 -0.629
SkinThickness	0.554	**0.014**	0.509 - 0.598
Insulin	0.462	**<0.01**	0.492 - 0.583

The importance values of the variables are shown in Table 5. The values showing the AUC (area under the ROC curve) of the variables are given in Table 4. The importance levels of the

variables with the best contribution to the model and the levels of expressing the model in AUC values are similar, the value of the Glucose variable with the highest importance level is 100, the value that cuts the AUC value at the best point of the curve Glucose (0.788, p<0.01), the importance level of the BMI variable (The cutoff point of the curve between 51.258) and AUC was calculated as BMI (0.688, p<0.01).

Table 5: Variable importance table

Variables	importance
Glucose	100
BMI	51.258
Age	35.476
DiabetesPedigreeFunction	31.161
Blood pressure	12.559
Pregnancies	8.778
Insulin	3.682
SkinThickness	0

Figure 1 shows the cut-off values for each variable's ROC curve in the 0–1 range. The Glucose curve was found to have the most impact on the model's performance out of the variables Diabetes, Skin Thickness, Insulin, Glucose, Blood pressure, and Pregnancy. Figure 1 displays the body mass index (BMI) curve with the second-best performance.

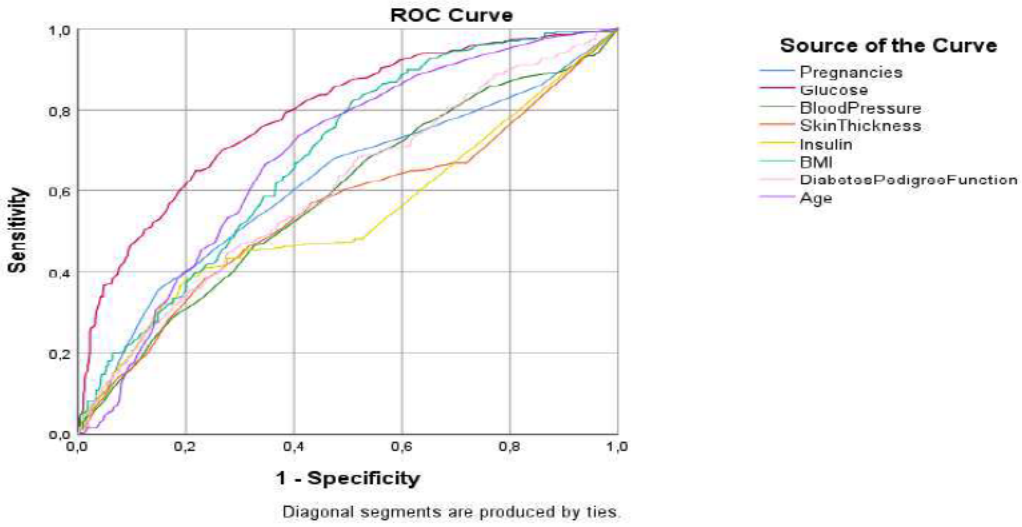

Figure 1: Multiple ROC graphic

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Pub No: OP-280

Demographic Analysis of Patients Presenting to the Emergency Department with Hemoptysis

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Introduction:

Hemoptysis is a concerning symptom that often leads to visits to the emergency department. Basically, it refers to the act of coughing up blood or sputum that contains blood, originating from the lungs or the tracheobronchial tree. Hemoptysis should always be regarded as a severe and potentially life-threatening complication of the underlying condition. It can be a symptom of a life-threatening pulmonary condition demanding swift diagnosis and treatment (1). By adopting a proactive approach to assess hemoptysis, a cause can be identified in approximately 90% of instances. Bronchitis, bronchiectasis, pneumonia, lung abscess, tuberculosis, lung cancer, congestive heart failure is the common reason of the hemoptysis. While more than 90% of hemoptysis cases resolve on their own, both the diagnosis and management of severe hemoptysis present significant challenges (1, 2).

True hemoptysis, originating within the airways or lungs. It must be differentiated from pseudohemoptysis, in which the blood comes from the upper gastrointestinal tract or the upper respiratory tract (teeth, oral cavity, nose). Thoroughly examining the patient's history and inspecting the nasopharynx can help discern whether the bleeding stems from the respiratory or gastrointestinal tract. In addition to distinguishing between true and pseudo hemoptysis, another crucial aspect in managing hemoptysis is the distinction between massive and mild cases (1-3). The majority of hemoptysis patients experience minor or limited hemoptysis, while fewer than 5% exhibit massive hemoptysis, a condition severe enough to endanger life and demand immediate intervention (4). Massive hemoptysis is typically characterized by the coughing up of a substantial volume of blood and/or a rapid bleeding rate. Hemoptysis that results in blood expectoration of >100 mL within 24 hours and causes abnormal gas exchange/airway obstruction or hemodynamic instability is defined as massive.

While it's often described as massive hemoptysis when the expected blood loss in 24 hours exceeds 100 ml, there is no universally accepted specific quantity. In the literature, the definitions regarding the volume of blood that qualifies as massive hemoptysis range from 100 to 1000 mL within a 24-hour period. However, the majority of definitions fall within the range of 300 to 600 mL (1, 2).

Identifying the root cause of hemoptysis is crucial for identifying patients with serious underlying conditions. Additionally, assessing the approaches employed for diagnosing and treating hemoptysis is essential to prevent any delays in patient care. In the emergency department, the standard diagnostic evaluations for the hemoptysis include plain chest X-ray and chest computed tomography. Fiberoptic bronchoscopy is used for the hospitalized patients for detailed evaluation (5, 6).

The type and etiology of hemoptysis can vary according to aspect of the population and geographical areas (6). The data for the underlying reasons, risc factors or associated factors of hemoptysis in our country is very limited. In this study we aimed to identify different etiologies, patient characteristics, underlying factors, severity, causes, diagnostic procedures and outcomes of hemoptysis.

Materials and Methods

This is a is a single-center and retrospective, observational study. Retrospective study. The last 100 consecutive patients who presented to the emergency department of a tertiary hospital with the complaint of hemoptysis were included in the study. Patient information was obtained from hospital electronic records and patient files. The patients' age, gender, chronic disease history, smoking, first vital signs, symptoms upon admission to the hospital, duration of symptoms, imaging performed in the emergency room, hemogram, biochemistry, bleeding time, d-dimer level, Wells scores and outcomes were investigated. Hemoptysis was defined according to the amount of blood expectorated within 24 hours before admission as follows: mild < 100 mL; massive, >100 mL.

The chi-square test and estimate calculations of the Statistical Package for Social Sciences program (version 22; IBM Corp., Armonk, NY, USA) were used for data analysis. In addition,

multivariable logistic regression analysis was performed. A P value of < 0.05 (two-tailed) was considered statistically significant.

Results

Of 100 patients, 69 (69%) were male. The mean age of the patients was 46.34 ± 19,6. 6 patients presented with massive hemoptysis. The mean age was higher in the group with massive hemoptysis rather than in those without (44.83 ± 19,08 vs 70 ± 12,13; **p<0,05**). At least one comorbid illness was present in 51% of the patients. The distribution of comorbid diseases is shown in Table-1. When analyzing the association between having massive or mild hemoptysis and chronic diseases, the only notable distinction was observed among individuals with lung cancer. The incidence of massive hemoptysis in those with lung cancer was higher than the rate of mild hemoptysis (%66,6 vs %95,7, **p<0,01**). Smokers comprised 60% of the patient population. The average duration of hemoptysis before presenting to the emergency department was 5.13 ± 11,6 (min:1, max: 90 days) days. The vital signs of the patients on arrival are shown in Table-2. In terms of initial vital signs, respiratory rate and heart rate were higher in the group with massive hemoptysis than in those without, and this was statistically significant (heart rate: 87,71 ± 14,481 vs 115,83 ± 15,766, **p <0,01;** respiratory rate: 17,67 ± 2,344 vs 20,67 ± 1,633, **p <0,01).** The most common symptom accompanying hemoptysis during initial emergency admission was chest pain. The symptoms accompanying hemoptysis at the time of admission and their distribution are shown in Figure-1. Chest X-ray, thorax CT and thorax CT angiography were used as imaging methods in the evaluation of these patients in the emergency department. The three imaging modalities were used a total of 149 times for 100 patients. Some of the initial laboratory parameters of the patients are shown in Table-3. Hemoglobin value was lower in the group with massive hemoptysis than in the group with mild hemoptysis (8,63±1,75 vs 13,1±2,22, **p<0,01**). On the other hand, C-Reactive Protein (CRP) values were higher than those with mild hemoptysis and were statistically significant (210 ± 146 vs 30,5 ± 49,5, **p<0,01**). The underlying reasons found as a preliminary diagnosis of hemoptysis after the examinations performed in the emergency department are as follows: 29 (%29) bronchiectasis and bronchitis, 16 (%16) pneumonia and other infectious diseases, 11

(%11) lung cancer, 10 (%10) tuberculosis, 5 (%5) interstitial pulmonary fibrosis, 4 (%4) anticoagulant usage, 3 (%3) pulmonary vessel pathologies, 22 (%22) undefined. Of the 100 patients admitted, 56 were discharged from the emergency department. 38 patients were hospitalized in the ward and 6 patients in the intensive care unit.

Discussion:

This study primarily focused on investigating the demographic characteristics and possible underlying causes of patients who presented to the emergency department with complaints of hemoptysis. In a similar study conducted in Turkey in 2002 involving 108 patients, the average age of patients presenting with hemoptysis was found to be 51.74± 17.51. The mean age in our study is lower (46.34 ± 19,6). We believe that the possible reason for this difference may be linked to the rise in the incidence of cancer, particularly lung cancer, over the past 20 years (7). 69 % of our patients are men. This situation is consistent with previous studies in the literature (6). The underlying reason for hemoptysis could not be determined in 22 (22 %) patients experiencing hemoptysis, a slightly higher percentage compared to findings reported in studies conducted in different countries (6, 8). We believe that this may be attributed to the diagnostic methods employed. Because, bronchoscopy holds a crucial role in investigating hemoptysis complaints. In other studies, the utilization of bronchoscopy has enhanced diagnostic accuracy. However, in our study, only chest radiography, thorax CT, and thorax CT angiography were employed for diagnosis. Consequently, the number of patients in whom the underlying cause could not be determined was significantly higher compared to prior studies. Lung cancer, bronchiectasis, bronchitis, pneumonia, and tuberculosis are commonly reported as the primary causes of hemoptysis in various studies. However, the frequencies of these causes can vary based on factors such as the patient population's characteristics, geographic location, and the publication's timeframe (7). Most studies have consistently shown that lung cancer ranks among the most prevalent causes of hemoptysis, followed by bronchiectasis and bronchitis (7, 9). Conversely, our study indicated that lung cancer was relatively less frequent. In our series, bronchiectasis and bronchitis emerged as the predominant cause (%29),

followed by 16 (%16) pneumonia, lung cancer lung cancer (11), and tuberculosis (10%). We believe that the likely cause of this situation is related to geographical, occupational, tobacco use, and social differences. This is best explained by the high incidence of tuberculosis compared to publications in other countries. The tuberculosis rate in our research is elevated compared to certain other reports, which can be attributed to the high prevalence of tuberculosis in our country. Additionally, there are other reports from our country that exhibit similar tuberculosis rates (7, 10). Interestingly, vascular diseases such as pulmonary embolism were found to be low as the underlying cause in patients presenting with hemoptysis. Pulmonary embolism is often one of the initial diagnoses that come to mind for emergency physicians when patients present with hemoptysis. However, our study reveals that this perception is not accurate. This demonstrates that emergency physicians should broaden their diagnostic considerations when assessing patients with hemoptysis.

An important challenge in assessing patients with hemoptysis is distinguishing between massive and mild hemoptysis. Because patients cannot clearly express the amount of blood loss. In our study, a low hemoglobin level, increased heart rate, and increased respiratory rate were found to be associated with massive hemoptysis. We believe that clinicians can at least consider the possibility of massive hemoptysis by utilizing these values. However, for these values to definitively indicate massive hemoptysis, further extensive research is necessary.

The primary limitation of our study lies in its retrospective design. Due to the limited number of researchers, the patient sample size was relatively insufficient, as extensive file scanning could not be carried out.

In conclusion, patients experiencing hemoptysis constitute a medical emergency, often necessitating frequent visits to the emergency departments. Understanding the demographic characteristics, accompanying symptoms, and potential underlying diseases of this patient group will be advantageous in the management of hemoptysis.

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Table-1: Demographic characteristics of patients

Age	46.34 ± 19,6
Sex	Male: 69 (%69) Female: 31 (%31)
Chronic Illnesses	
Diabetes mellitus	9 (%9)
Hypertension	24 (%24)
CAD	10 (%10)
COPD	6 (%6)
CVD	7(%7)
Bronchiectasis and interstitial lung disease	5 (%5)
Cardiac arrythmia	3 (%3)
Lung cancer	13 (%13)
Other malignities	9 (%9)
Mitral valve replacement	2 (%2)
Tuberculosis	14 (%14)
Tobacco use	60 (%60)
Hemoptysis duration	5.13± 11,6 days
Imagining modality	Chest X-Ray: 48 Thorax CT: 76 Thorax CT Angiography: 25

Table-2: The vital signs of the patients on arrival

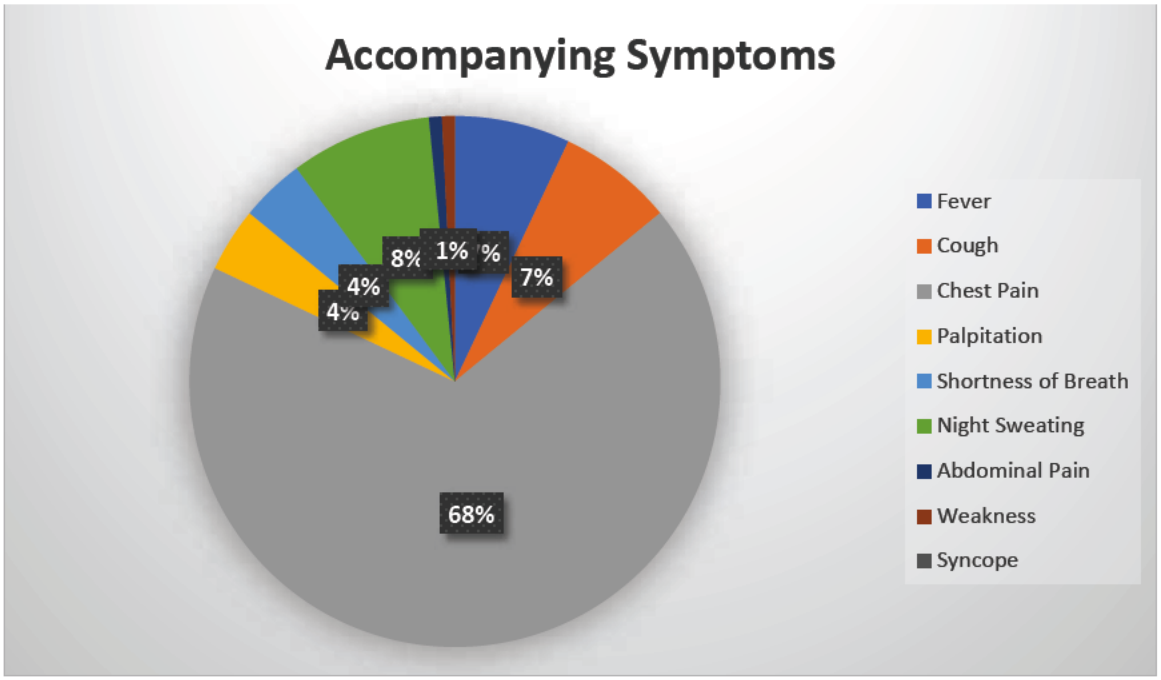
Vitals	**Mean± Std. Deviation**
Systolic Blood Pressure (mmHg)	124,04±19,45
Diastolic Blood Pressure (mmHg)	75,32±11,01
Heart Rate (beat/minute)	89,40±15,95
Body Temperature (°C)	36,14±0,40
Respiratory Rate (per/minute)	17,85±2,40

Oxygen Saturation (%)	97,13±1,88
Mean Arterial Pressure	91,56±12,72

Table-3: Initial laboratory parameters of patients

Laboratory parameters	Mean± Std. Deviation
White Blood Cell	9321±4432
Hemoglobin	12,8±2,4
Platelet	255420±95439
Neutrophil	6250±3702
Lymphocyte	2079±879
Activated Partial Thromboplastin Time (aPTT)	31,2±6,2
International Normalized Ratio (INR)	1,13±0,47
D-dimer	694±142
C-Reactive Protein (CRP)	41,3±72,2

Figure-1: The symptoms accompanying hemoptysis at the time of admission and their distributions.



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Pub No: OP-281

PNOMONITIS INTESTINALIS AFTER LONG-TERM MALNUTRITION

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Introduction and Purpose: Pneumotıs ıntestınalıs ıs the presence of free aır or gas ın any part of the gastrointestınal system. Prımary pneumothısıs ıntestınalıste has aır pockets ın cystıc appearance under chronıc, benıgn ıdıopatıc etıology. There are lınear and mıcrovesıcular radıologıcal fındıngs and ıntramural gas under varıous predısposıng factors of the secondary type. We thought ıt ıs an ımportant case because ıt ıs a low ıncident pathology and ıt has characteristıc appearance.

Materials and Methods: 77 years old female patıent applıed wıth complaints of abdominal pain and newly started diarrhea. according to the ınformatıon receıved from hıs relatıves, there was a general status decrease for the last few days and the patıent was confused. He had known dm and ht dıseases. It was reported by her relatives that she had an eating disorder for a long time. he was usıng an antıhypertensıve contaınıng dıltıazem hydrochloride, perındopryl-ındapamıde and amlodıpıne, clopidogrel, haloperıdol, ınsulın. ın physıcal examınatıon, there was an abdominal distendue and widespread sensitivity. It was assessed as pneumotıs ıntestınalıs on monıtorıng aır densıty appearances ın hepatıc system and portal system ın tomographıc ımagıng. The patıent was evaluated by general surgery and was ınstalled ın the 3rd stage ıntensıve care by consıderıng the general status.

Results and Conclusion: Pneumotısıs ıntestınalıs ıs observed to be most common ın the large bottom and the second most common ın the small ıntestın wıth radıologıcal developments(2). In our case, there was a characteristıc ımage ın the lıver. gas ın hepatıc portal veın ıs a symptom of mesenterıc ıschemıa(3). Our patıent has lıver ımagıng only on thoracıc ımagıng. Imagıng was not performed. Portal venous gas can be seen ın gastrointestınal system stenosıs, obstructıve lung dıseases, after abdomınal surgery, ımmunesupressıon, systemıc chemotherapy and malnutrıtıon(4),(5). Only malnutrıtıon was present ın our case. Pneumotıs ıntestınalıs ıs a low ıncident pathology, especially dıagnosed radıologıcally, requestıng a multıdıscıplınary approach.

Keywords : Pnomonitis intestinalis, long-term malnutrition, gastrointestinal system

INTRODUCTION

Pneumotıs ıntestınalıs ıs the presence of free aır or gas ın any part of the gastrointestınal system(1). Prımary pneumothısıs ıntestınalıste has aır pockets ın cystıc appearance under chronıc, benıgn ıdıopatıc etıology. There are lınear and mıcrovesıcular radıologıcal fındıngs and ıntramural

gas under various predisposing factors of the secondary type(6). We thought it is an important case because it is a low incident pathology (6), (7) and it has characteristic appearance.

CASE

77 years old female patient applied with complaints of abdominal pain and newly started diarrhea. according to the information received from his relatives, there was a general status decrease for the last few days and the patient was confused. He had known dm and ht diseases. It was reported by her relatives that she had an eating disorder for a long time. he was using an antihypertensive containing diltiazem hydrochloride, perindopril-indapamide and amlodipine, clopidogrel, haloperidol, insulin. in physical examination, there was an abdominal distendue and widespread sensitivity. admission vitals T: 37.3 co nb:103 beats/min TA:100/80 mmhg SPO2:90% GCS:11 (g:5 s:3 m:3) The patient was evaluated. ECG was taken. ekg was NSR. Their tests were taken. in biochemistry glucose:510 mg/dl urea: 103 mg/dl egfr:27.88 creatinine:1.73 mg/dl, AST:295 u/l, ALT: 174 u/l, Amylase:481 u/l Calcium: 10 ,26 mg/dl, Total bilirubin:0.52 mg/dl, Direct bilirubin:0.12 mg/dl, Indirect bilirubin:0.4 mg/dl,CRP: 58.1 mg/l, GGT: 40.2 u/l , sodium: 133.9 mmol/l, potassium: 4.65 mmol/l, chlorine: 95.8 mmol/l, troponin: 1409 ng/l . wbc in hemogram: 36.00 k/ul , Plt:263 k/ul, In blood gas: -20.2 , ca++:1.28 mmol/l , cohb:0.7 , glucose:539 mg/dl, hco3:8.1 mmol/l , hct:45, hhb:45 .5 , k+:4.57 mmol/l , lactate:14.83 mmol/l , methb:0.5 , na+:137.8mmol/l , o2cap:21.1, o2hb:53.3, pco2: 27 it came as .1 mmhg, ph:7.095, po2:38.6 mmhg, tco2:9.0 mmol/l, thb: 15.4 g/dl. It was assessed as pneumotis intestinalis on monitoring air density appearances in hepatic system and portal system in tomographic imaging. The patient was evaluated by general surgery and was installed in the 3rd stage intensive care by considering the general status.

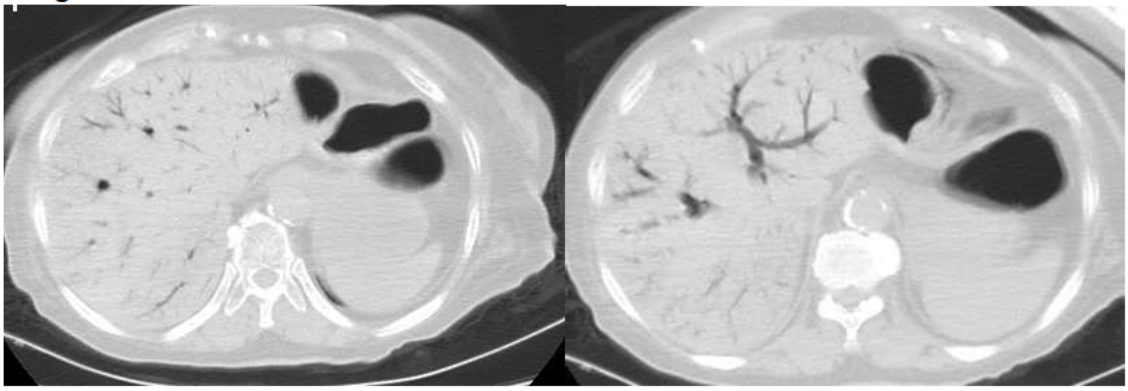

Figure 1. Computerized tomography images of the patient

DISCUSSION

Pneumotisis intestinalis is observed to be most common in the large bottom and the second most common in the small intestin with radiological developments(2). In our case, there was a characteristic image in the liver. gas in hepatic portal vein is a symptom of mesenteric ischemia(3). Our patient has liver imaging only on thoracic imaging. Imaging was not performed. Portal venous gas can be seen in gastrointestinal system stenosis, obstructive lung diseases, after abdominal surgery, immunesupression, systemic chemotherapy and malnutrition(4),(5). Only malnutrition was present in our case.

CONCLUSION

Pneumotis intestinalis is a low incident pathology, especially diagnosed radiologically, requesting a multidisciplinary approach.

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Pub No: OP-282

Post Myocardial Infarction Is A Rare Complication: Ventricular Septal Rupture

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ABSTRACT

Ventricular septal rupture (VSR) that develops during the course of acute MI is a rare but fatal complication. While the incidence rate was 1-2% in the pre-thrombolytic period; With the development of reperfusion strategies, this rate decreased to 0.2% (1). It can also be seen in the first 24 hours of MI or after the 2nd week, but most often develops in 2nd-5th days. Independent risk factors for VSR formation include age, female gender, anterior MI, high KILLIP class at presentation, and increased heart rate. In its pathophysiology, VSR is seen in the apical septum region in anterior MI patients, while it is seen in the basal posterior septum in the course of inferior MI. In 30-40% of patients, the defect is seen in the form of multiple ducts. The most common clinical findings are chest pain, hypotension, pulmonary edema and shock, which develop within hours to days after VSR formation. We will present this case because of its low incidence.

Keywords: ventricular septal rupture, post-MI, emergency

INTRODUCTION

Myocardial infarction (MI) is one of the leading causes of death in our country and in the world. As a result of the establishment of coronary care units and the development of reperfusion methods, the mortality and complication rates due to MI have decreased considerably in recent years. Complications can be examined under the subheadings of ischemic, mechanical, arrhythmic, embolic and inflammatory (pericarditis) complications. The majority of MI-related deaths are the result of arrhythmic complications. However, although mechanical complications are much less common, they are more deadly. The most important ones are ventricular free wall rupture, ventricular septal rupture and acute mitral insufficiency, and they often progress with cardiogenic shock and sudden death (1). Other mechanical complications include left ventricular aneurysm, ventricular pseudoaneurysm, cardiogenic shock due to severe left ventricular dysfunction, right ventricular failure, and dynamic left ventricular outflow tract obstruction.

CASE REPORT

An 85-year-old female patient was transferred to our emergency department after ST elevation was detected in the anterior and inferior leads in the ECG taken at the center where she applied with complaints of typical chest and back pain. The patient's history was unremarkable except for hypertension and the medication he was using for this reason. In the physical examination of the patient, his general condition was fair, he was conscious, cooperative, oriented, GCS was 15, vital signs were 90/60 mmHg, pulse was 95 beats/min, respiratory rate was 12/min, temperature was 36.4 0C, sPO2 was 98%, and no pathological findings were found in the system examinations. In the ECG taken in our emergency department, there was ST elevation

in the anterior and inferior leads, and bedside ECHO revealed EF: 40% anterior and inferior hypokinetic, LA 36, AA 38, and mild MR. Angiography performed due to the patient's current clinical picture revealed 100% LAD D2 level, 60% CX osteal obstruction, occlusion in the distal thin ends, and plaque in the RCA. Since there was no room in the coronary ICU, the patient was taken back to the emergency clinic critical care unit in a stable condition and continued to be followed up. However, the patient, who was hypotensive (BP 70/40 mmHg) and unstable, was consulted by the KVS clinic and was taken to the ICU after ventricular septal rupture was observed in the repeated echocardiography. The patient was taken to the intraaortic balloon pump and inotropic agent was started. The patient arrested in the 3rd hour of the follow-up and was accepted as exitus as he did not respond to the interventions.

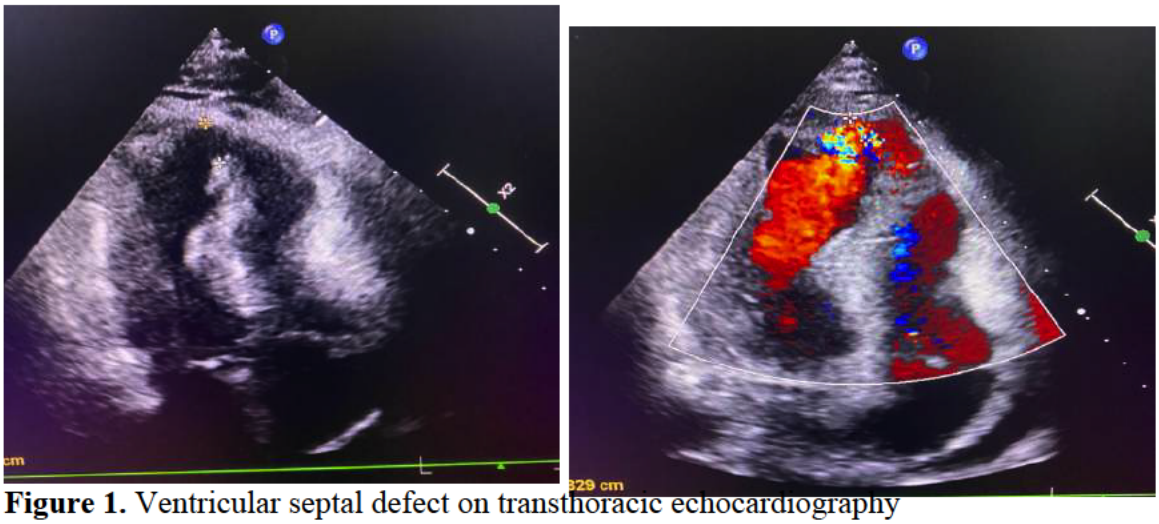

Figure 1. Ventricular septal defect on transthoracic echocardiography

DISCUSSION

Transthoracic echocardiography (TTE) is used to determine mechanical complications caused by acute MI and has a sensitivity and specificity of nearly 100%. Especially with TTE, the location and size of the rupture, ventricular functions and shunt degree can be determined. In this case, post-MI hypotension was detected and VSR was supported by bedside ECHO in terms of possible complications. Cardiac catheterization is also effective in confirming the diagnosis and measuring the shunt. Rupture localization can also be detected by left ventriculography. Aggressive medical methods and early surgical intervention are the basic approaches in providing hemodynamic stabilization in these patients. Intraaortic balloon pump (IABP) support, vasodilator agents, diuretics and inotropic agents should be used to reduce left ventricular pressure and provide hemodynamic stabilization. However, since 24% of patients receiving medical treatment alone die within the first three days and 75% within the first 3 weeks, early surgical intervention must be performed (2). However, despite surgical treatment, mortality increases up to 70%, especially in VSR that develops after inferior MI. Although coronary bypass performed with surgical repair does not affect in-hospital mortality, there is data that it increases long-term survival (3). Although percutaneous closure is considered an alternative to surgery in patients with acute hemodynamic disorders, long-term data are needed.

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Pub No: OP-283

Ekstremite Yaralanması İle Acil Servise Başvuran Hastalarda Direkt Grafide Görülmeyip Bilgisayarlı Tomografide Fark Edilen Kırıkların Değerlendirilmesi

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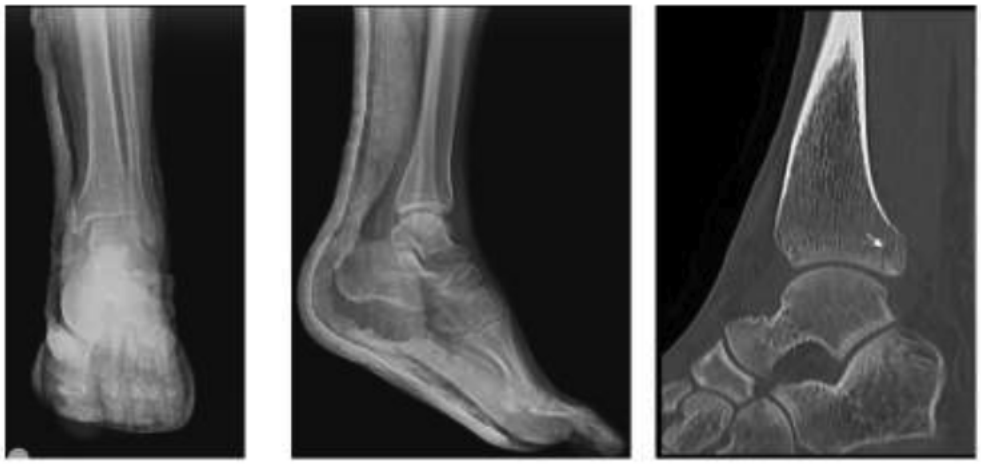
Giriş

Travma sonrası ekstremite yaralanmaları acil serviste sık rastalanan başvuru sebeplerindendir. Hastalarda travmaya bağlı oluşabilecek kırık veya dislokasyonun tespiti hasta sağlığı ve olası malpraktis riski açısından önemlidir. Acil servislerde en sık atlanan tanılar kas iskelet sistemi ile alakalı kırık ve çıkıklardır (1,2). Atlanabilir tanılarda sıklıkla malpraktis sebebi ekstremite yaralanmaları sonucu hastada kırık veya çıkığın fark edilememesidir (3,4). Tanı için öncelikle olayın öyküsü ve ayrıntılı fizik muayene sonrası direkt radyografi (DR) istenmelidir (5,6). DR; kırık varlığına rağmen bazı özel bölgelerde % 20 oranında kırığı göstermemektedir (7). Tanı yöntemlerindeki gelişmeler sonrası atlanmış vakaların insidansında azalmalar görülmüştür (8). Fizik muayene bulguları olan ve direkt radyografide kırık görünümü olmayan bir vakada şüphe devam ediyor ise bilgisayarlı tomografi (BT), magnetik rezonans veya kemik sintigrafisi ile ileri değerlendirme gerekir (5). BT; klinik şüphesi devam eden ve DR' de tespit edilemeyen kırıkların yüksek oranda ekartasyonunu sağlar (9). Çalışmamızda DR' de görülmeyip BT' de tespit edilen kırıkları sunduk.

Olgu Sunumu

Olgu 1: 30 yaşında erkek hasta acil servise sol ayak bileği üzerine düşme sonrası ayak bileğinde ağrı ve şişlik şikayeti ile başvurdu. Fizik muayenede sol medial malleol üzeri bölgede palpasyonla ağrı ve ödem tespit edildi. Hastadan istenen DR' de radyopatoloji görülmemesi üzerine ekstremite BT istendi. BT' de sol tibia lateral kondilde tibiotalar eklem aralığın uzanan nondeplase komplet kırık tespit edildi (Resim 1).



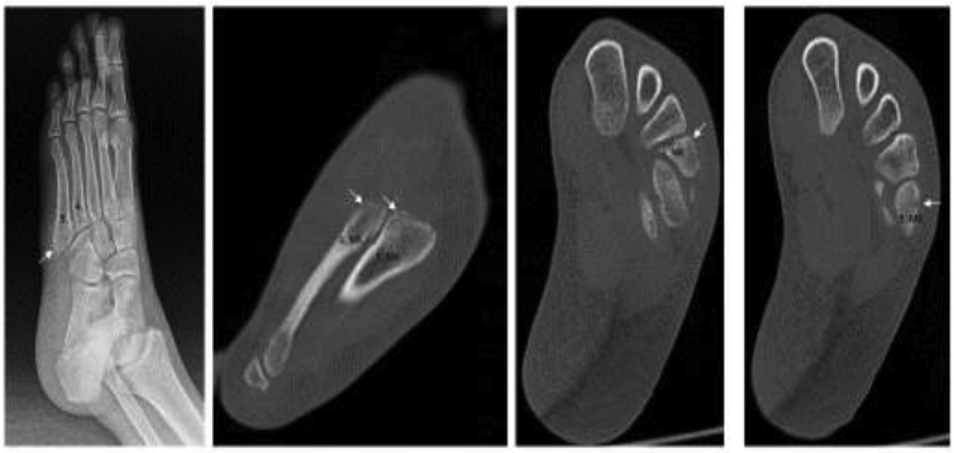
Resim 1. Olgu 1' in direkt radyografi ve tomografi görüntüleri

Olgu 2: 3 yaşında kız çocuk sol ayağına 2 metre yüksekten odun düşmesi sonrası acil servise getirildi. Fizik muayenede sol fibula distalinde palpasyonla ağrı ve cilt altı ödem görüldü. DR' de kırık gözlenmeyen hastadan alınan ekstremite BT' de sol fibula epifizinde komplet lineer fraktür tespit edildi (Resim 2).



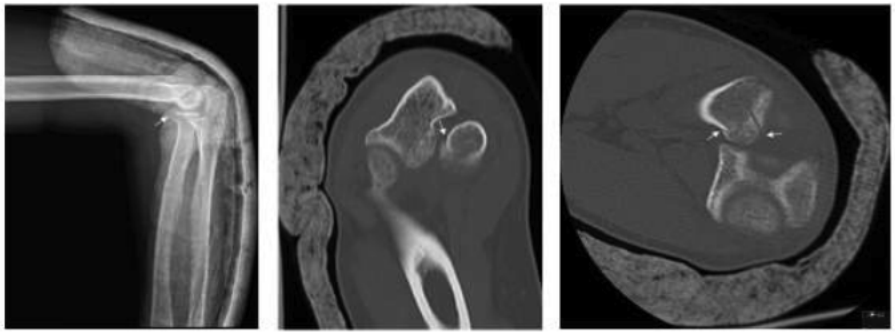
Resim 2. Hastadan alınan radyografi ve ekstremite BT görüntüleri

Olgu 3: 22 yaş erkek hasta sol ayak üzerine düşme sonrası acil servise başvurdu. Fizik muayenede sol ayak dorsumunda proksimal bölge lateralinde palpasyonla ağrı ve hiperemi tespit edildi. DR' de sol ayak 5. metakarp proksimalinde nondeplase kırık şüphesi gözlenmesi üzerine ekstremite BT istendi. Tomografide sol 4 ve 5. metakarp proksimal kesiminde lineer ve nondeplase kırıklar tespit edildi (Resim 3).



Resim 3. Hastanın DR ve ekstremite BT görüntüleri

Olgu 4: 24 yaşında erkek hasta sağ dirsek üzerine aynı seviyeden düşme üzerine acil servise başvurdu. Fizik muayenede sağ dirsekte palpasyonla ağrı ve hareket kısıtlılığı vardı. Hastadan alınan DR' de kırık tespit edilememesi ve klinik şüphenin devam etmesi üzerine ekstremite BT alındı. BT' de sağ radius proksimal epifizer-metafizer kesimde eklem aralığı ile ilişkili deplase kırık görüldü (Resim 4).



Resim 4. Hastadan alınan DR ve ekstremite BT görüntüleri

Tartışma

Kas iskelet sistemi travmaları sonrası hasta değerlendirmelerinde DR öncelikli tercih edilen yöntemdir. Hastayı değerlendiren kişinin tecrübesi ve istenecek doğru tetkikler çoğu zaman

tanıya ulaşmada yeterlidir. Ancak doğru açıyla grafi alınaması, kırık şüphesi olan bölgede radyografide süperpozisyonlar, hastanın çoklu travma hastası olması ve klinik tecrübe eksikliği gibi durumlarda tanı atlanabilmektedir (10). Guly ve ark.' nın 953 vaka ile yaptığı çalışmada en sık atlanan tanıların sırasıyla el ve el bileği ile ayak bileği kırıkları olduğu bildirilmiştir (11). Başka bir çalışmada ise en sık ayak, el ve el bileği kırıklarınının ilk değerlendirmelerde belirlenemediği gözlenmiştir (12). El bileğinde; skafolunat, perilunat ve lunat çıkıklar, skafoid ve trikuetrum kırıkları, Galeazzi kırığı ve distal radius kırığı atlanma olasılığı en yüksek durumlardır. Dirsek kırıkları içinde radius başı kırığı ve çıkığı, gözden kaçma ihtimali en yüksek patolojilerdir (5). El ve ayak anatomisine bakıldığında metakarpal ve metetarsal kemiklerin diğer tekil kemiklere göre hasta değerlendirmesinde güçlüklere yol açtığını düşünmekteyiz. Bizim vakalarımızda da literatürle uyumlu olarak 3 olgumuzda el ve ayak bölgelerinde DR' de kırık gözlenmediği belirlendi. 1 olgumuzda literatürden farklı olarak grafideki süperpozisyon kaynaklı sağ radius proksimalindeki kırığın fark edilemediği gözlendi.

Sonuç

Travma acil servislere sık başvuru sebeplerindendir. Görüntülemede ilk tercih direkt DR' dir. Ancak bazı kırıklar DR' de görülemeyebilir. Olası kırığın DR' de fark edilmemesi durumunda hasta sağlığının etkilenmemesi ve malpraktis riskinden korunma amaçlı BT akla gelmelidir.

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Pub No: OP-284

I Have Appendicitis But My Stomach Is Like Cotton

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Introduction: Appendicitis is the inflammation of the appendix, an approximately 9-10 cm blind-ended structure located following the cecum in the abdomen. It can become inflamed due to blockage by fecal matter, gallstones, tumors, intestinal parasites, or foreign bodies. Patients may present with abdominal pain, nausea, vomiting, loss of appetite, and a need for bowel movements. The symptoms of appendicitis include diffuse abdominal pain that cannot be localized precisely, loss of appetite, and an urge for bowel movements. Typically, the pain starts around the periumbilical region and later localizes to the lower right quadrant. In addition to abdominal pain, the patient might experience pain in the groin, back, and genital area. While its exact function is not fully understood, the appendix is a rich lymphatic tissue organ. In cases of acute or delayed appendiceal perforation, serious problems such as systemic spread and septicemia can occur. Definitive treatment is surgery.

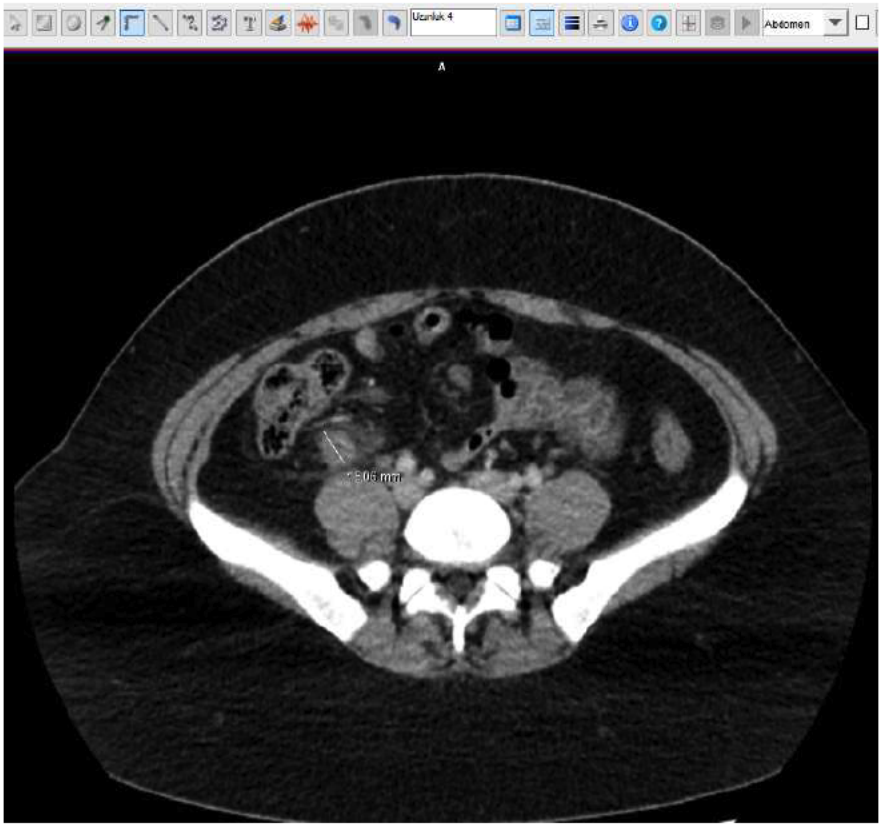
Case: A 31-year-old female patient presented to us with complaints of abdominal pain. Vital signs were stable, and the patient had no known systemic illnesses. Physical examination did not reveal rebound tenderness or defense. The patient reported loss of appetite before the onset of pain, along with the emergence of nausea. The pain initially started as a severe pain in the middle of the abdomen and suddenly stopped before she came to the hospital. Appendicitis was primarily suspected. Hemogram, biochemistry, CRP tests, and abdominal computed tomography (CT) were ordered for the patient. The patient's lab results showed a white blood cell count (WBC) of 15.57 x 10^3/uL with 84% neutrophils (left shift). The abdominal CT scan revealed the widest portion of the appendix to be 16 mm with dirty surroundings and presence of fluid (perforated appendicitis). The patient's Alvarado score was 8. The patient was diagnosed with acute perforated appendicitis and admitted to the general surgery clinic.

Result: Even in cases of intra-abdominal organ perforation, a patient presenting with abdominal pain might not exhibit signs of acute abdomen upon physical examination. Therefore, patients need to be evaluated comprehensively through detailed medical history, laboratory tests, and radiological imaging.

Keywords: appendicitis, perforated appendicitis



İmage-1 dirty area in right lower quadrant and appendix



Şekil 5sağ alt kadranda kirlenme ve yaklaşık çapı 16 mm olan appendiks



Şekil 6sağ alt kadranda kirlenme mayi ve çapı yaklaşık 16 m olam appendiks

Pub No: OP-285

USG USE İN THE DİAGNOSİS OF PNEUMOTHORAX İN EMERGENCY DEPATMENT: A CASE REPORT

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ABSTRACT

Introduction: In this case report, we aimed to demonstrate the effectiveness of ultrasound in diagnosing pneumothorax in a patient with penetrating injury who was brought to the emergency department by ambulance.

Case: A 21-year-old male patient was referred to our emergency department by ambulance with a complaint of penetrating-cutting injury. The patient had a sharp limited incision of approximately 2 cm on the left supraclavicle that did not extend to the muscle tissue, a sharp limited subcutaneous penetrating stab wound of approximately 2 cm on the left side posterior to the 6th intercostal space in the dorsal region, and a sharp limited stab wound of approximately 10x3 cm in the periumbilical region with prolapsed intestine.When the patient came to the emergency room, he was oriented, coherent and vitals were stable. Although the patient had irregular breathing, there was no evidence of skin or subcutaneous emphysema and auscultation revealed normal lung sounds and both hemithorax participated equally in breathing. After admission to the emergency department, the patient was intubated as his general condition deteriorated. As a result of the FAST procedure, the patient had diffuse free fluid in the abdomen (perihepatic, morrison pouch, perisplenic and perivesical). In eFAST, which was performed due to the poor image quality of the portable chest radiograph, the barcode sign was seen when the range in which pleural motion was not seen was evaluated in motion mode (motion mode/M-mode) and the patient was evaluated in favor of pneumothorax.The pneumothorax picture was established in the second chest radiograph of the patient. Postop thoracic tube was inserted and the patient was discharged with healing in the follow-up.

Conclusion: In the absence of CT, hemothorax and pneumothorax can be diagnosed with US. In conclusion, lung US is a good alternative to conventional chest radiography in the follow-up of patients.

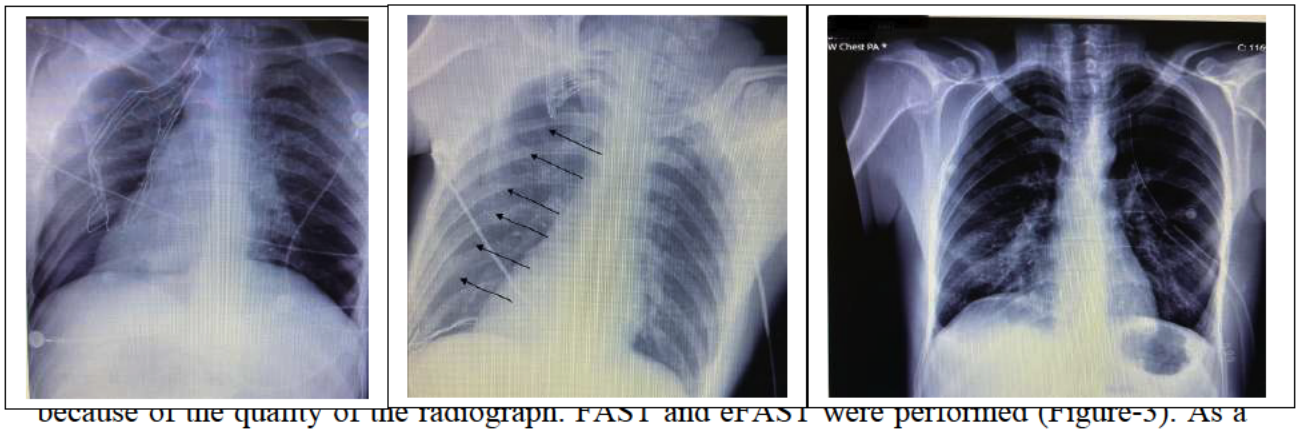
Key Words: Chest Pain, Pneumothorax, Thoracic Surgery,Ultrasonography

CASE

A 21-year-old male patient was referred to our emergency department by ambulance with a complaint of penetrating-cutting injury. The patient had a sharp limited incision of approximately 2 cm on the left supraclavicle that did not extend to the muscle tissue, a sharp limited subcutaneous penetrating stab wound of approximately 2 cm on the left side posterior to the 6th intercostal space in the dorsal region, and a sharp limited stab wound of approximately 10x3 cm in the periumbilical region with prolapsed intestine (figure-1).

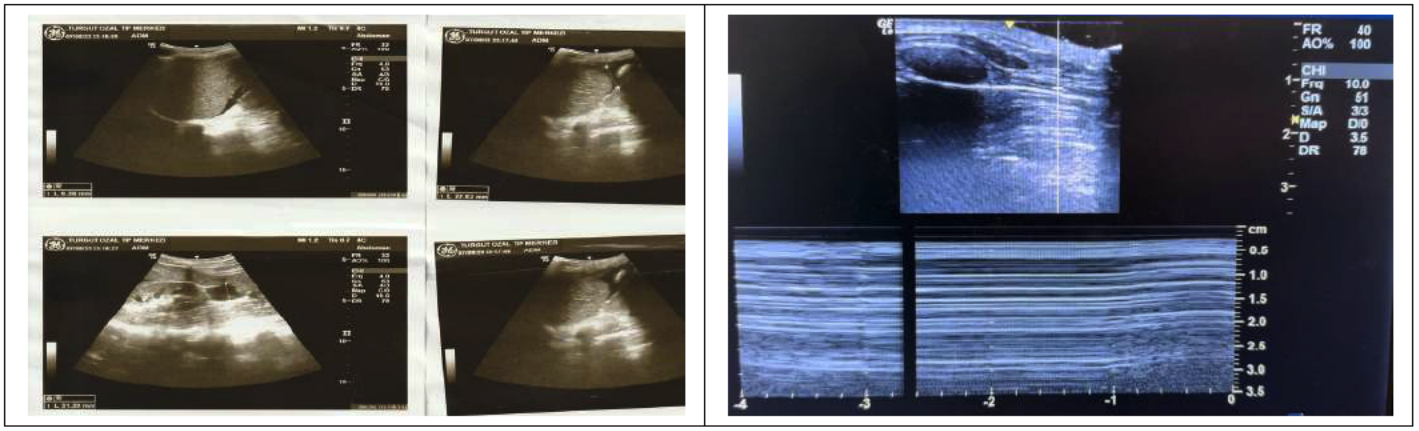


were stable. Although the patient had irregular breathing, there was no evidence of skin or subcutaneous emphysema and auscultation revealed normal lung sounds and both hemithorax participated equally in breathing. After admission to the emergency department, the patient was intubated as his general condition deteriorated. The patient was consulted to the departments of thoracic surgery and general surgery. Portable chest radiography was performed (Figure-2).



because of the quality of the radiograph. FAST and eFAST were performed (Figure-3). As a result of the FAST procedure, the patient had diffuse free fluid in the abdomen (perihepatic, morrison pouch, perisplenic and perivesical). In eFAST, which was performed due to the poor image quality of the portable chest radiograph, the barcode sign was seen when the range in

which pleural motion was not seen was evaluated in motion mode (motion mode/M-mode) and the patient was evaluated in favor of pneumothorax. (Figure 3) The pneumothorax picture was established in the second chest radiograph of the patient. Postop thoracic tube was inserted and the patient was discharged with healing in the follow-up.



Pneumothorax is defined as the accumulation of air in the pleural space. Chest trauma is responsible for 20-25% of trauma-related deaths(1). Since patients with chest trauma have a high risk of morbidity and mortality due to complications that may develop in the early period, it is very important to follow up the patients in terms of radiologic examination even if their general condition is good and clinically stable. Complications include hemothorax, pneumothorax and atelectasis. The first choice in these patients is chest radiography(2). In patients with unstable general condition, it has advantages due to its bedside portability and low radiation load. In recent years, it has been reported in the literature that ultrasound can be used in the diagnosis of pneumothorax(4). The advantages of ultrasound over other radiologic imaging modalities are real-time imaging, radiation-free, easy usability and bedside(3).Inadequate image quality of bedside chest radiography (with portable device) causes difficulties in diagnosing the patient. In this case report, the functionality of ultrasound was aimed to be demonstrated by comparing two bedside radiologic imaging chest radiography and ultrasound.

Patients with pneumothorax may be asymptomatic or have clinical variability that can cause hypoventilation, hypoxemia and hemodynamic instability. If clinically poor pneumothoraxes are not intervened urgently, the patient may progress to respiratory arrest and/or death(5).Emergency physicians frequently encounter spontaneous or trauma-induced pneumothorax cases.Pneumothoraxes may be spontaneous or due to blunt or percutaneous

trauma. The incidence of pneumothorax due to chest trauma is 15-50%(6). The first choice in patients with poor general condition and unstable vitals is portable chest radiography. However, there are some studies that the diagnosis of pneumothorax may be missed in chest radiography and clinical examination and the importance of computed tomography(12). Computed tomography is at least two times more likely to diagnose pneumothorax than chest radiography(13).Although the sensitivity of computed tomography in making a diagnosis is indisputable, it is useful to emphasize whether bedside chest radiography is sufficient in patients with unstable vital signs, poor general condition and no time to go to the radiology unit, as in our case. The disadvantages of portable chest radiography are that the image is not good and approximately 500 ml of air is required to diagnose pneumothorax in a patient lying in the supine position, since most of the air in the pleural cavity will accumulate in the subpulmonic region(11).There are studies showing that eFAST is more sensitive than chest radiography in diagnosing small, occult pneumothorax in trauma patients(14).Lung ultrasonography is a cheap, fast, safe method performed at the bedside in emergency departments in recent years. Lung ultrasonography gives us detailed information about the chest wall and diaphragm and its advantages are that it can be performed at the bedside, it is reproducible, non-radiation, non-invasive and fast.(7).In studies in the literature, the sensitivity of lung US in the diagnosis of pneumothorax varies between 48% and 100%, and the specificity varies between 89.5% and 100%(8,9).In a meta-analysis of 28 studies, Ebrahimi et al. showed that lung ultrasound is superior to chest radiography. Studies have shown that lung ultrasonography has a sensitivity of 81% - 97.5% in detecting hemothorax and its superiority and reproducibility, especially compared to chest radiographs, have been emphasized(10). In the supine position, the sensitivity of AG in detecting PNX is 35-74%, while the sensitivity for anteriorly located PNXs by USG is reported to be 86-100% (15).In a study comparing USG and AG in the diagnosis of hemothorax, the sensitivity and specificity for USG and AG were found to be 97.5% and 99.7%, respectively, and 92.5% and 99.7%, respectively. However, in this study, the procedure time was reported to be 1.3 minutes for USG and 14 minutes for AG(6).In our case, pneumothorax, which was not detected by chest radiography in the first place, was detected by bedside USG.

CONCLUSION

In the absence of CT, hemothorax and pneumothorax can be diagnosed with US. In conclusion, lung US is a good alternative to conventional chest radiography in the follow-up of patients.

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Pub No: OP-286

Hoigne Syndrome After Penicillin Injection

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Abstract

Hoigne syndrome is characterized by the development of acute neuropsychiatric symptoms consisting of a panic-like state of anxiety and a reversible neurosis. Emergency physicians should always keep Hoigne syndrome in mind. Here we present a 20-year-old patient with Hoigne syndrome.

Introduction

Agitation, hallucinations, and delirium may occur following intramuscular administration of penicillin. This picture is called Hoigne Syndrome (HS). The pathogenesis of HS is still unclear. Allergic and non-allergic effects occur after injection. Here we present a case of Hoigné syndrome caused by penicillin administration.

Case Report

20-year-old female patient, no known additional disease. He applied to the emergency department for intramuscular deposil injection due to headache, dizziness and sore throat symptoms. Extrapyramidal movements, agitation, fear of death and shortness of breath symptoms appeared in the patient 2-3 minutes after the injection. Anaphylaxis was considered at the forefront, and 0.5 mg adrenaline was administered intramuscularly. Sedation was applied to the patient with normotensive tachycardia. The patient's medical history was unremarkable except for the complaint of sore throat and fever for 3 days. He did not use drugs/cigarettes/alcohol. His blood pressure in the emergency room was 120/75 mmHg; his heart rate was 90 beats/minute; body temperature was 36.6°C. His general condition was moderate, his Glasgow coma score was 15. Other physical examination was normal. Lab tests were normal. The patient's tomography, MR diffusion and cranial MR were found to be normal. All of the patient's symptoms resolved completely within 1 day.

Discussion

HS usually occurs due to intramuscular penicillin, ceftriaxone, cefoxitin, and clarithromycin. HS; It is characterized by psychomotor agitation and confusion, a sense of dispersion, depersonalization and derealization, changes in perceived body shape, visual and auditory hallucinations, panic-like anxiety including fear of death, as well as different neurotic symptoms such as altered consciousness and seizures. In our case, neuropsychiatric symptoms such as panic-like anxiety and conversion neurosis were present. It is stated that HS may occur with recurrent procaine penicillin injections, since there is no other diagnosis to explain the patient's condition. In one clinical study, HS occurred after an average of the sixth injection.A positive correlation was found between age and the severity of symptoms. In conclusion, emergency physicians should always keep HS in mind in order to manage the disease appropriately and avoid unnecessary imaging in patients with a history of penicillin use.

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Pub No: OP-289

A Case Of Descending Mediastinitis Secondary To Tooth Abscess

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INTRODUCTION

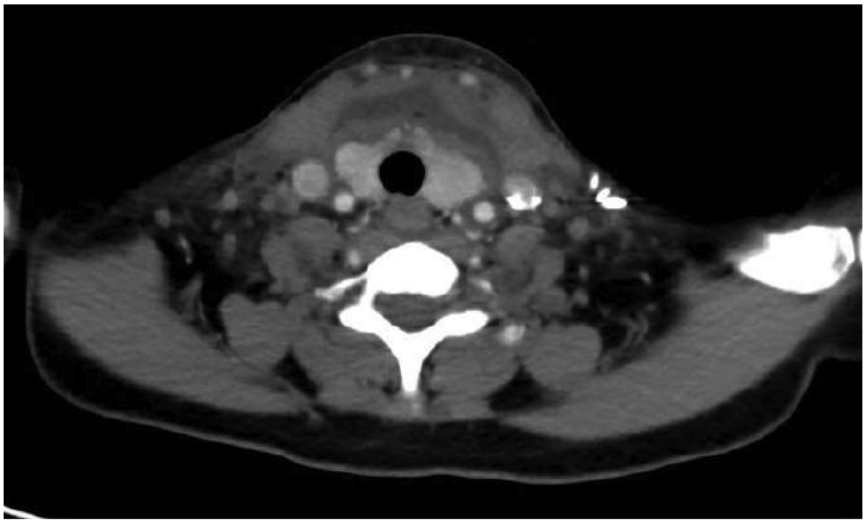
Descending necrotizing mediastinitis (DNM) is an uncommon form of mediastenitis with a high mortality rate. In etiology, it mostly develops as a complication of oropharyngeal orodontogenic infections. In our case, mediastenitis developed secondary to dental abscess

CASE

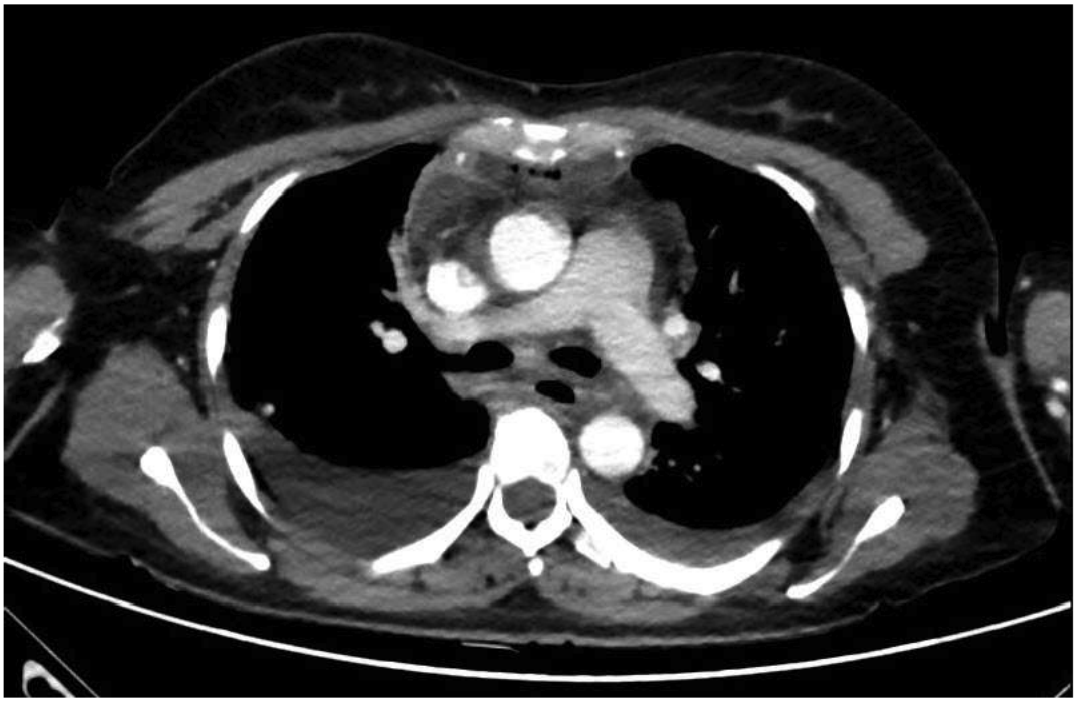
A 36-year-old female patient had an abscess drained by the ear,nose and throat specialist (ENT) due to neck abscess, and on the second day of the treatment, the patient's general condition deteriorated and emergency neck and thorax CT was performed (Picture 1,2). It was detected that there was fluid collection showing a deep neck infection. Considering that descending necrotizing fasciitis and mediastinitis developed in the patient with deep neck infection, the patient was taken to surgery under emergency conditions. A deep neck dissection was first performed on the patient. Then, right thoracoto my was performed and mediastinal pleura was opened. After irrigating the loculated fluid collections with plenty of saline fluid, the fluid was drained. In the same session, the left Video-assisted thoracic surgery(VATS) was performed on the patient, and the pleural fluid collected in the left hemithorax was drained, the mediastinal pleura was opened, and the area was irrigated with saline fluid. A 32 f chest drain was placed in both pleural spaces to provide mediastinal drainage. After the surgery, the patient was taken to the intensive care unit intubated. Pleural lavages were performed intermittently through both drainsusing saline fluid in the post-operative period. Infectious diseases were consulted and broad-spectrum antibiotic treatment was started. The chest drain in the left hemithorax was removed on the 5th day, and the right hemithorax drain was removed on the 12th day. The

patient was removed from the mechanical ventilator on the 15th day and was taken to the ward on the 20th day of the treatment. After the PA chest X-ray (picture 3) taken on the postoperative 26th day and the improvement of laboratory parameters, the opinion of infectious diseases was taken and it was decided to be discharged.

RADIOLOGY



PICTURE1: fluidcollectionextendingintothemediastinum



PICTURE2: fluidcollected in thepleura



PICTURE:postpo 26.day PA chest x-ray

DISCUSSION

Acutenecrotizingmediastinitis(ANM) is a rareandpotentiallyfatalclinicalconditionthatdevelopsmostly as a complication of oropharyngealinfections (1-2). Earlydiagnosis of mediastinitis is difficultduetotheuncertainty in itssymptoms. Initialfindingsareusuallyretrosternalpain, neckswelling, stiffness, andcrepitationduetocervicalinfection. Because of itsbenefit in providingearlydiagnosisandtreatment, CT is indicatedforallpatientswithdeepcervicalinfections(3). Incases of inadequateorineffectivetreatment, thediseaseprogressestosepsisandmortalityratesincrease. Treatment, as withallothernecrotizinginfections, is surgery. Thevideothoraxoscopicapproachformediastinaldrainage in descendingnecrotizingmediastinitiswasfirstreportedby Roberts et al.(4). VATS is one of thesafe, effectiveandlessinvasivesurgicaloptionsfor DNM management in suitablecases. VATS techniquewasalsoapplied in ourcase. Earlydiagnosisandrapidsurgicalapproach in cases of ANMwillreducethehighmortality rate andwill be life-saving

KEY WORDS: Descendingnecrotizingmediastinitis, toracotomy, dentalabscess

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Pub No: OP-290

Vasospastic Angina is One of the Rare Causes of Acute Coronary Syndrome in Pregnancy

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Introduction: Coronary artery disease (CAH) is the leading cause of death in the world and in our country. The most common pathophysiology of acute coronary syndrome is the record of atherosclerosis, which is severed from the artery wall. Vasospastic angina is a syndrome which presents with typical chest pain and ECG changes clinically it is difficult to distinguish thissyndrome from atherosclerotic coronary artery disase.

Case: Twenty-two years old female patient applied to the emergency room with chest pain reflected in the back, which is two hours old. There are no features on your resume. The patient is 37 weeks pregnant. There's no pathology in the physical exam. Vital signs were found to be consistent with blood pressure of 123/84 mmHg, pulse 74 shot/minute respiration of 14/minute, fever of 36.2 °C, sPO2: 98.5% patient anterior EKG and lateral MI. Blood readings indicate troponin at 354 ng/l, ck-mb at 10.8 ng/dl. The patient was consulted to the cardiology department with simultaneous female diseases and maternity. She was admitted to the coronary intensive care unit for emergency angiography. Coronary angiography: Vasospasm detected in LMCA CX RCA. These cond troponin received on the same day was 83142 ng/l,30015 ng/l,19081 ng/l,13623 ng/l,4108 ng/l, 528 ng/l,298 ng/l,201 ng/l,201 ng/l,72 ng/l respectively. On the 10th day of his hospitalization, he was given a C-section, and his patient and baby were subsequently discharged with healing.

Prinzmetal/variant or vasospastic angina is a type of angina pectoris that is responsible for vasospasm that usually occurs in the early morning hours and in the relaxation of transient ST segment elevation during angina. Acute coronary syndrome occurs rarely during pregnancy. Pregnancy-related axis can occur at any stage of pregnancy. However, studies have shown that most events occur during the third trimester and six weeks after birth. We wanted to emphasize that this case is vasospastic angiography, which is rare in pregnancy.

Key words: Acute coronary syndrome, chest pain, pregnancy, vasospastic angina

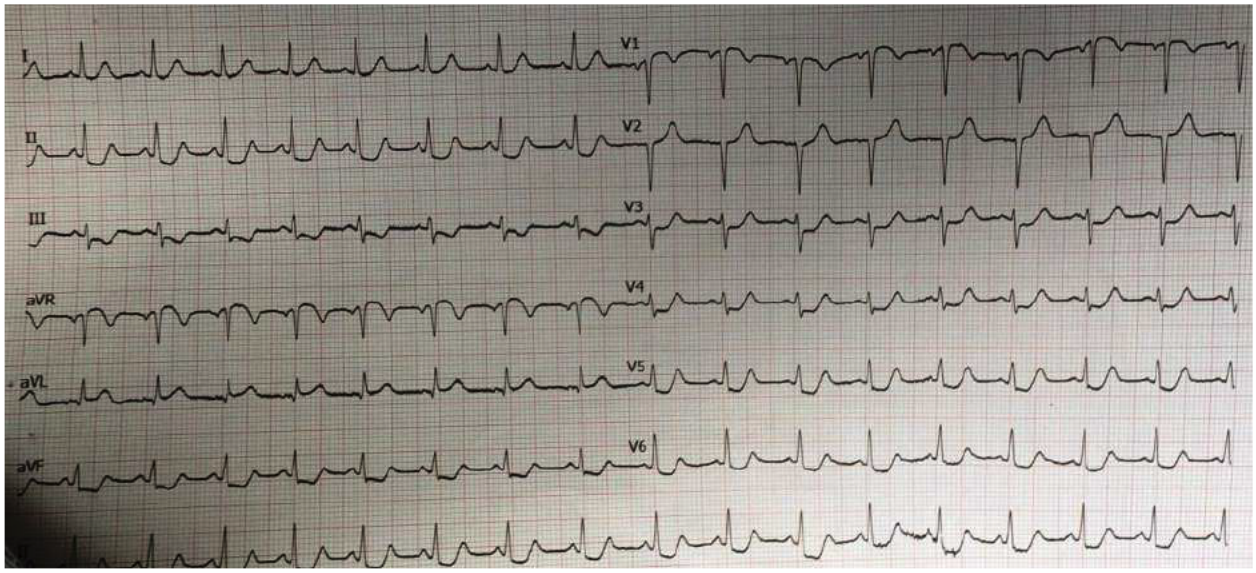
Introduction

Coronary artery disease (CAH) is the leading cause of death in the world and in our country. In Europe, cardiovascular diseases are responsible for deaths under the age of 75, up from 45% in women and 38% in men. (1) The definition of acute coronary syndrome (ACS) refers to the clinical tables that are accompanied by acute chest pain or other symptoms of myocardial ischemia caused by the degradation of blood flow of myocardia, and mostly electrocardiographic changes due to myocardial ischemia. Unstable angina pectoris (USAP), ST segment non-elevation myocardial infarction (NSTEMI), ST segment levitation myocardial infarction (STEMI), vasospasm-induced angiogenic pectoris, and cardiac death describe thriving clinical events related to thrombotic coronary artery disease. (2) EKG and cardiac biochemical markers for diagnosis are crucial in conjunction with anamnesia. Cardiac troponins (cTn-T and cTn-I) are now considered the gold standard for diagnosing acute myocardial infarction (AMI), as they are the most specific and sensitive laboratory tokens that point to myocardial cell damage. (3) EKG is an integral part of diagnostic evaluation of patients with a suspicion of ME and should be taken and interpreted immediately after clinical application. Dynamic changes in EKG waves during acute myocardial ischemia attacks often require many EKGs, especially when the EKG is not diagnosed in the first application. Initial EKGs should be taken at 15-30 min for serial recordings in non-diagnostic symptomatic patients, or 12-derivation EKG records, if possible, with continuous computer support. Acute or recent changes in the ST-T and Q waves allow the clinician to determine the time of the event, the artery associated with the infection, to calculate the amount of myocards at risk and the prognosis, and to determine the treatment strategy. More prominent ST-segment changes, or T-wave inversion, involving many derivations/regions, are associated with more advanced myocardial ischemia and worse prognosis (4)

Case

Twenty-two years old female patient applied to the emergency room with chest pain reflected in the back, which is two hours old. There are no features on your resume. The patient is 37

weeks pregnant. There's no pathology in the physical exam. Vital signs were found to be consistent with blood pressure of 123/84 mmHg, pulse 74 shot/minute respiration of 14/minute, fever of 36.2 °C, sPO2: 98.5% patient anterior EKG and lateral MI. Blood readings indicate troponin at 354 ng/l, ck-mb at 10.8 ng/dl. The patient was consulted to the cardiology department with simultaneous female diseases and maternity. She was admitted to the coronary intensive care unit for emergency angiography. Coronary angiography: Vasospasm detected in LMCA CX RCA. These cond troponin received on the same day was 83142 ng/l,30015 ng/l,19081 ng/l,13623 ng/l,4108 ng/l, 528 ng/l,298 ng/l,201 ng/l,201 ng/l,72 ng/l respectively. On the 10th day of his hospitalization, he was given a C-section, and his patient and baby were subsequently discharged with healing.



Discussion

Prinzmetal/variant or vasospastic angina is often the angina pectoris species responsible for vasospasm, which occurs during the early morning and in the relaxation of the temporary ST segment elevation during angina. Rarely acute coronary syndrome (ACS) during pregnancy. The AKS sequence associated with pregnancy was found to be 3-6 in 100,000 births. (5) During pregnancy, Prinzmetal angina is much rarer. In the compilation by Roth and Elkayam, the causes of ACS in pregnancies were found to be 40% coronary narrow, 27% coronary dissection, 8% coronary thrombus, and 2% coronary spasm. In 13% of cases, coronary arteries are found to be normal. (6) In each stage of pregnancy, the axle associated with pregnancy can be seen. However, studies have shown that most of the phenomena occur in the third trimester and the six-week post-natal period (5). Possible mechanisms that trigger the coronary spasm are the

increased vascular reactivity of angiotensin II and norepinephrine, the underlying endothelial dysfunction, the use of ergot derivatives and bromocriptine to suppress post-natal bleeding and lactation, the increase in the production of the gene and angiotensin in the underlying position (7) We wanted to emphasize that this phenomenon is vasospastic angiography, which is rare in pregnancy.

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Pub No: OP-291

Carbon monoxide poisoning is a rare cause of frontal lobe edema and midline shift: a case report

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Abstract

Introduction

Carbon monoxide (CO) poisoning (COP) is the primary cause of poisoning-related deaths. The central nervous and cardiovascular systems are most susceptible to hypoxia associated with COP, and neurological sequelae are among the most common problems to occur after COP. The most serious brain injury consists of cerebral ischemia and hypoxia, edema, nerve cell degeneration, and necrosis.

Case presentation

A 23-year-old male patient who was exposed to stove smoke was admitted to the emergency department with headache and nausea. The carboxyhemoglobin level (COHb) of the patient in blood gas analysis was 26.4%. The patient was evaluated as carbon monoxide intoxication and 100% normobaric oxygen therapy was started. The patient's headache persisted despite the decrease in carboxyhemoglobin level and intravenous analgesic treatment, so a brain computed tomography (CT) was performed. On the patient's brain CT, effacement of the gyri in the bilateral frontal lobes and a 6 mm displacement to the right in the midline (figure 1) were observed, which was interpreted as evidence of brain edema. The patient was consulted to neurosurgery and antiedema treatment (150 cc 20% mannitol intravenously) was given to the patient. Since the patient had neurological involvement, it was determined that hyperbaric oxygen (HBO2) therapy was necessary. The patient was referred to the upper center for hyperbaric oxygen therapy.

Conclusions

Cerebral edema and midline shift are a rare manifestation of COP. In patients with COP, central imaging should be performed in headaches that persist despite treatment and regression in CO levels. In these patients, the source of headache may be cerebral edema and midline shift. In this case, patients should be provided with HBO2 therapy.

Keywords: Carbon monoxide poisoning, brain edema, midline shift, emergency medicine

Introduction

Carbon monoxide (CO) is a colorless, odorless, tasteless, non-irritating but poisonous gas that is produced when carbon-based fuels and particulates burn without sufficient air (1). CO poisoning (COP) is the primary cause of poisoning-related deaths. The central nervous and cardiovascular systems are most susceptible to hypoxia associated with COP, and neurological sequelae are among the most common problems to occur after COP. There are early and late symptoms of neurological involvement. The initial imaging observations frequently encompass

diffuse hypoxic-ischemic encephalopathy, focal cortical injury, necrosis of the globus pallidus, as well as impairment to the basal ganglia, thalamus, brainstem, and cerebellum. Late imaging findings include diffuse brain atrophy and cerebral white matter demyelination (2).

In this article, we present a patient with brain edema and midline shift in the frontal lobe due to COP, which are rare in the literature.

Case presentation

A 23-year-old male patient came to the emergency deaprtment (ED) complaining of headache and nausea. The patient had a history of exposure to stove smoke. The patient's clothing emitted an odor reminiscent of soot. Upon arrival, the patient's vital signs revealed the following: 92% oxygen saturation, 130/80 mm/Hg blood pressure, 110 bpm pulse, and 23 rpm respiratory rate. The patient had a Glasgow Coma Score of 15, was cognizant, cooperative, and stable, and his neurological assessment was normal. There was nothing remarkable in the rest of his examination. The patient was given oxygen at 2-3 lt/min via nasal cannula. 1 g of paracetamol was administered to the patient intravenously. The carboxyhemoglobin level (COHb) of the patient in blood gas analysis was 26.4%. No pathology was detected in complete blood analysis, biochemistry analysis and cardiac enzyme analysis.

The patient was evaluated as carbon monoxide intoxication and 100% normobaric oxygen therapy was started. After the patient received normobaric oxygen therapy for 3 hours, the COHb level was 7% in the repeat venous blood gas analysis. The patient's headache persisted despite the decrease in carboxyhemoglobin level and intravenous analgesic treatment, so a brain computed tomography (CT) was performed. On the patient's brain CT, effacement of the gyri in the bilateral frontal lobes and a 6 mm displacement to the right in the midline (figure 1) were observed, which was interpreted as evidence of brain edema. The patient was consulted to neurosurgery and antiedema treatment (150 cc 20% mannitol intravenously) was given to the patient. Since the patient had neurological involvement, it was determined that hyperbaric oxygen (HBO2) therapy was necessary. The patient was referred to the upper center for hyperbaric oxygen therapy.

Discussion

Following carbon monoxide poisoning, patients may develop headache, confusion, dizziness, visual impairment, nausea, vomiting, weakness, psychological lability, drowsiness, drowsiness, paralysis, coma, arrhythmia and cardiac arrest.

Acute brain damage in COP is usually caused by hypoxia. Neurons normally require large amounts of oxygen and glucose, and they are the cells most vulnerable to the effects of ischemia and hypoxia in the central nervous system. The occurrence of acute COP results in the development of widespread hypoxia and ischemic encephalopathy, predominantly affecting the gray matter. The temporal lobe and hippocampus are more commonly impacted compared to the cerebral cortex (3). Prior to cerebral artery occlusion, the temporal lobe may exhibit edema or infarction, and computed tomography and magnetic resonance imaging may detect focal or general neuroanatomical abnormalities (2). Unlike our case, edema was observed in the frontal lobe.

Current treatment for COP is 100% normobaric oxygen (NBO2) or hyperbaric oxygen (HBO2) (2.5-3 atmospheres) (4). NBO2 reduces the elimination half-life of CO from 320 minutes to 74 minutes in room air (5). HBO 2 may reduce the half-life of COHb to 20 minutes (6). HBO2 should be considered in all cases of severe acute COP, including loss of consciousness, ischemic cardiac changes, neurological deficits, significant metabolic acidosis, or COHb greater than 25%. However, since there was no HBO2 in our hospital, NBO2 treatment was started and he was referred to a higher center for HBO2 treatment.

Conclusions

Cerebral edema and midline shift are a rare manifestation of COP. In patients with COP, central imaging should be performed in headaches that persist despite treatment and regression in CO levels. In these patients, the source of headache may be cerebral edema and midline shift. In this case, patients should be provided with HBO2 therapy.

Declarations of Competing Interest

None.

Funding

None.

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Figure 1. Brain edema in the frontal lobe and six mm shift to the right in the midline


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Pub No: OP-292

Comparison of classification performances of different artificial intelligence models on the analysis of heart failure disease

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Abstract

Introduction and Purpose: The aim of this study is to evaluate the classification performances of different artificial intelligence models on the open-access dataset of heart disease, which has become an important health problem in the world and in our country.

Materials and Methods: This research applies machine-learning techniques to predict heart failure based on a publicly available dataset. Two machine-learning models, namely support vector machines (SVM) and classification and regression tree (CART) algorithms, were employed to classify the cases of heart failure. The performance of the models was assessed using various performance metrics, such as accuracy, balanced accuracy, sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and F1 score.

Results: The results showed that both models achieved high performance, with SVM slightly outperforming CART. The accuracy, balanced accuracy, sensitivity, specificity, PPV, NPV, and F1 scores for SVM were 99.7%, 99.5%, 100%, 99%, 99.5%, 100%, and 99.8%, respectively. The corresponding values for CART were 99.7%, 99.8%, 99.5%, 100%, 100%, 99%, and 99.8%.

Conclusion: In summary, the open-access data set that was used for the analysis of heart failure allowed the use of two classification models that achieved high levels of accuracy according to the performance metrics. These models can assist medical professionals in diagnosing patients by categorizing their risk factors based on the data. Therefore, it is important to discuss and expand on the implications and limitations of these models, as well as the potential for further research and improvement.

Keywords: Hearth failure, classification, classification and regression tree, support vector machines.

INTRODUCTION

The heart is a vital organ that delivers oxygen and nutrients to the tissues and cells of the body through the blood (1). Oxygen and nutrients are essential for the survival and functioning of the body's organs and systems. When the heart fails to pump enough blood and oxygen to meet the body's needs, this condition is called heart failure (2). Heart failure can have various causes, such as coronary artery disease, high blood pressure, diabetes, or valve problems. Heart failure can also have different symptoms, such as shortness of breath, fatigue, swelling, or chest pain. Heart failure is a growing public health problem worldwide. According to projections, by 2030, the prevalence of heart failure in the USA will increase by 46% and reach more than 8 million people. In Turkey, there are already over 2 million people living with heart failure (3). Heart failure is a chronic and progressive disease that requires lifelong treatment and management. Heart failure can affect the quality of life and increase the risk of hospitalization and death (3). Data mining techniques are essential for analyzing health data, as the field of health has experienced a surge in data collection that requires uncovering hidden patterns and sensitive information. Data mining can help extract valuable insights from large and complex datasets, such as identifying risk factors, diagnosing diseases, improving treatments, and enhancing health care quality. However, data mining also poses challenges and ethical issues, such as ensuring data privacy, security, and validity (4). Classification, which is one of the data mining techniques, is a method used to estimate the class of data whose class is not known by making use of existing data with a defined class. The classification method consists of two stages. In the first stage, a model used for estimation is built, and in the second stage, classes are tried to be estimated by applying new data of unknown classes to this model. Classification is a predictive model and/or process of assigning classes to classes using machine learning methods (5). While the target variable is of categorical data type in classification, it is a continuous numerical data type in regression, and the numerical value of the target variable is tried to be estimated. Major classification techniques, Artificial Neural Networks, Genetic Algorithms (Genetic Algorithms), K-Nearest Neighbor (K–Nearest Neighbor), Memory Based Reasoning, Naive – Bayes, Logistic, Classification Regression and Decision Trees (CART), Support Vector Machines (SVM), Random forest (6).

Support vector machines, classification problems the most suitable plane to maximize the data margin for the solution or is a classifier that aims to separate by a hyperplane. Margin is the

closest data point belonging to two different classes defined as the distance between these points support is called vectors. In multidimensional space hyperlinks with the largest margin minimizing classification error, it is intended to determine the plane (7).

The CART algorithm is used in theory and practice to make the most appropriate and accurate estimation. In the other sense, it is to try to make the least amount of wrong classification. Another purpose of this algorithm is to make the most accurate estimation with minimum cost (8).

The aim of this research is to evaluate the performance of two machine-learning techniques, support vector machines, and CART, in classifying heart failure cases based on an open-access dataset.

MATERIAL AND METHODS

Dataset and features

The aim of this research was to explore the use of machine learning methods for predicting the survival of patients with heart failure. The data set used in this study was obtained from the Kaggle website, where it is publicly available under the name "Heart failure". The data set contains 299 records of patients with 13 features, such as age, sex, blood pressure, ejection fraction, serum creatinine, and time. Table 1 shows the description of the features and their values. The target variable was the death event, which indicates whether the patient died during the follow-up period or not.

Table 1: Variables used in the current study

Feature	Type	Information (Role)
age	Numeric	age
anemia	Categorical	A decrease in red blood cells or hemoglobin (input)
Creatinine-phosphokinase	Categorical	creatinine phosphokinase enzyme level in the blood (input)
diabetes	Categorical	Whether the individual has diabetes (1: Sick, 0: Healthy) (input)
ejection_fraction	Categorical	The amount of blood ejected from the heart with each contraction of the heart (input)
high_blood_pressure	Categorical	The patient has hypertension (input)
platelets	Categorical	platelets in the blood (input)

serum_creatinine	Categorical	Serum creatinine level in the blood (input)
serum_sodium	Categorical	The serum sodium level in the blood (input)
sex	Categorical	Gender (input)
smoking	Categorical	The patient has smoking (input)
time	Numeric	Daily follow-up time (input)
event	Categorical	inpatient follow-up death (output)

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Modeling

To explain the methodology of the research in more detail, we applied two different classification techniques, namely SVM and CART, to the data set under investigation. They divided the data set into 5 subsets using the k-fold cross-validation method and trained and tested the models on each subset. The performance of the models was evaluated based on several metrics, such as accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score. These metrics measure how well the models can correctly classify the data points into different categories.

RESULTS AND CONCLUSION

The aim of this research is to evaluate the performance of two machine-learning techniques, support vector machines, and CART, in classifying heart failure cases based on an open-access dataset. The dataset contains various clinical and demographic features of patients with heart failure, and the classification task is to predict whether they survived or not. The research will compare the accuracy, sensitivity, specificity, and F1-score etc. of the two methods, and discuss the advantages and disadvantages of each approach. The performance of the SVM model was evaluated using several metrics that were calculated from the machine learning models using the k-fold cross-validation and resampling method on the entire training dataset. These metrics include accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score values. The results are presented in Table 2, where it can be seen that the SVM model achieved a high accuracy of 99.7%, which means that it correctly classified almost all the instances in the dataset. The other metrics also show that the SVM model performed well in terms of both precision and recall, as well as balancing the classes. The sensitivity, specificity, positive predictive value, negative predictive value, and F1 score values were 99.5%, 100%, 99%, 99.5%, 100%, and 99.8%, respectively. These results indicate that

the SVM model was able to identify the true positives and true negatives with high confidence and minimize the false positives and false negatives. The F1 score value, which is a harmonic mean of precision and recall, also confirms that the SVM model achieved a high level of performance.

Table 2: The performance metrics obtained with SVM

Performance Metrics	**Testing Stage**
	Value (%)
Accuracy	99.7
Balanced Accuracy	99.5
Sensitivity	1
Specificity	99
Positive predictive value	99.5
Negative predictive value	1
F1-score	99.8

In Table 3, we can see the values of these metrics for a CART classification model applied to a certain data set. The values are very high, indicating that the model has a high performance and can accurately classify the data. The accuracy is 99.7%, meaning that only 0.3% of the predictions are wrong. The balanced accuracy is 99.8%, meaning that the model performs equally well on both positive and negative cases. The sensitivity is 99.5%, meaning that the model misses only 0.5% of the positive cases. The specificity is 100%, meaning that none of the negative cases is falsely predicted as positive. The positive predictive value is 100%, meaning that all of the positive predictions are correct. The negative predictive value is 99.8%, meaning that only 0.2% of the negative predictions are wrong. The F1 score is 99.8%, meaning that the model has a high balance between precision and recall.

Table 3: The performance metrics obtained with CART

Performance Metrics	**Testing Stage**
	Value (%)
Accuracy	99.7
Balanced Accuracy	99.8
Sensitivity	99.5
Specificity	1
Positive predictive value	1
Negative predictive value	99
F1-score	99.8

This study investigates the relationship between various factors (independent variables) and the occurrence of a certain event (dependent variable) using two machine learning models: support vector machine (SVM) and classification and regression tree (CART). The models were evaluated based on several performance metrics, such as accuracy, balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score. The results showed that both models achieved high performance in classifying the event, with accuracy values of 99.7% for SVM and 99.8% for CART. Similarly, the balanced accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and F1 score values were also high for both models, ranging from 99% to 100%. These results indicate that the independent variables have a strong predictive power for the dependent variable and that the SVM and CART models are suitable for this type of classification problem.

In summary, the open-access data set that was used for the analysis of heart failure allowed the use of two classification models that achieved high levels of accuracy according to the performance metrics. These models can assist medical professionals in diagnosing patients by categorizing their risk factors based on the data. Therefore, it is important to discuss and expand on the implications and limitations of these models, as well as the potential for further research and improvement.

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Pub No: OP-295

Contrecoup Intracranial Hemorrhages

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Introduction : Contrecoup intracranial hemorrhages are rare injury conditions. Head injuries can be grouped as focal parenchymal damage and deep penetrating injuries. (1). Contusion, laceration and bleeding may occur under the heading of focal parenchymal damage. Damages on the same side of the trauma area are called coup, and damage on the opposite side of the trauma is called contrecoup. As a result of trauma, epidural hematoma, subdural hematoma, subarachnoidal hemorrhage and intracerebral hematoma may be seen. Depending on the mechanism and severity of the trauma. The type of injury should be determined depending on the trauma factor. Depending on the localization and extent of intra-brain damage, various symptoms such as headache, dizziness, sensory loss, motor deficits, and speech impairment may be observed.

Case : A 73-year-old man was admitted to the emergency room with a head injury after falling from the same distance. The general condition was good, consciousness was clear, bilateral light reflexes were equal. Blood pressure was 145/80 mmHg, pulse 90 beats/min, spO2 100%, temperature 36.5 degrees. On physical examination, there was a 4 cm incision in the midline in the occipital region with irregular wound lips and a depth of 0.5 cm. There was tenderness in this region. The patient had no additional trauma. ECG: normal sinus rhythm. There was no abnormality in laboratory values. Cranial computed tomography (CT) was performed on the patient. An 8 mm subdural hematoma in the left frontoparietal region and subarachnoidal bleeding areas in the bilateral frontal lobe were observed. In the control cranial CT taken after the patient developed dysarthria in the 2nd hour of the emergency room follow-up, it was seen that the subdural bleeding area increased to 9 mm. The patient was consulted to the neurosurgery department and no urgent surgical intervention was considered. He was admitted to the intensive care unit for follow-up.

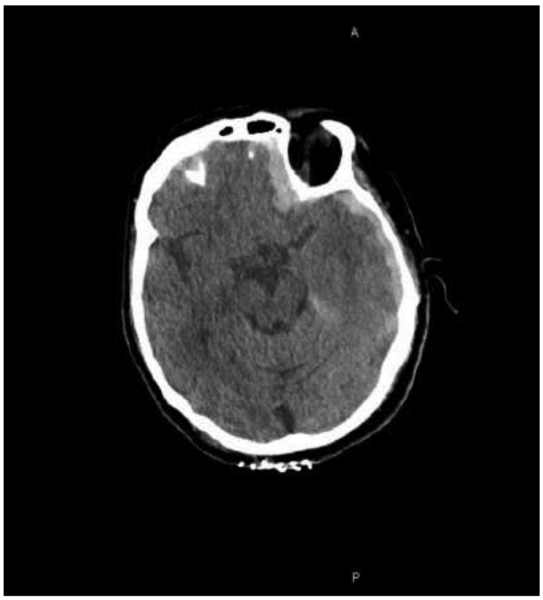

Figure 1 . Cranial non - contrast CT



Figure 2 . Cranial non - contrast CT

Discussion : Patients can apply to the emergency department with focal head traumas. The most accurate imaging method in head trauma is computed tomography(2). The treatment of intracranial hemorrhages is surgery or follow-up.

Conclusion : During imaging performed on patients, it is necessary to pay attention to the region opposite the trauma area as well as the trauma area. Contrecoup lesions in intracranial

hemorrhages, which are life-threatening injuries, should be kept in mind by emergency physician.

Keywords : Emergency department, head trauma, intracranial hemorrhage, contracoup injury

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Pub No: OP-300

Superior Mesenteric Artery Dissection

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Background
Abdominal pain is one of the symptoms that make up the majority of the causes of acute and chronic admission to the emergency department. Abdominal pain, which occurs especially due to vascular pathologies of the intestines, is one of the rare conditions that come to the minds of clinicians less frequently and that significantly increases mortality and morbidity if it is not diagnosed in the early period. Spontaneous isolated superior mesenteric artery dissection is an extremely rare condition without an underlying iatrogenic and traumatic cause.

Case Presentation
A 47-year-old male patient who presented to the emergency department with sudden abdominal pain that started four hours ago. Describing the sudden onset of pain and increasing severity, the patient had an agitated appearance. On physical examination, the abdomen was diffusely tender, and there was defense and rebound in all quadrants. Preoperative blood tests and standing direct abdominal X-ray were requested from the patient, who was evaluated as acute abdomen based on the patient's history and physical examination findings. Intravenous contrast-enhanced computed tomography imaging was performed as an advanced imaging method for the patient, whose sensitivity increased in the follow-up abdominal examination and was defensive and rebound positive. On advanced imaging, a thrombosed dissection line was detected along the long segment of the superior mesenteric artery causing partial obstruction.

Discussion
Spontaneous dissection of the isolated superior mesenteric artery is a rare condition. While risk factors such as hypertension and diabetes, which cause atherosclerosis, are less related, connective tissue disorders may be the underlying cause in this disease, which is usually more common in young men in the 4th and 5th decades, conclusive evidence about the disease is still lacking.

Conclusion
Unfortunately, the time allocated per patient is not sufficient in the intensity of the emergency services. The possibility of missing such cases, as in our case, can be minimized by appropriate imaging to be performed with the preliminary diagnosis of surgical abdomen, based on the patient's anamnesis and a well-performed physical examination.

Keywords: dissection, mesenteric, artery

SUPERİOR MESENTERİC ARTERY DİSSECTİON

INTRODUCTION

Abdominal pain is one of the symptoms that constitute the majority of the reasons for admission to the emergency department, both acute and chronic. Abdominal pain, which occurs especially due to vascular pathologies of the intestines, is one of the rare conditions that come to the minds of clinicians less frequently and that significantly increases mortality and morbidity if it is not diagnosed in the early period. (1).

Spontaneous isolated superior mesenteric artery dissection is a very rare condition without an underlying iatrogenic or traumatic cause. (2). Since early diagnosis will change the treatment method, the time it takes for the patient to apply to the emergency department and the time of diagnosis in the emergency room are very important. Here we will examine a case with spontaneous isolated superior mesenteric artery dissection and thrombosis.

CASE PRESENTATION

According to the anamnesis taken from a 47-year-old male patient who applied to the emergency department with sudden abdominal pain that started four hours ago, his current pain started suddenly and he applied to the emergency department due to its increasing severity. There was no feature in the patient's medical history other than hypertension and therefore 8 mg Benidipine hydrochloride. On physical examination, his general condition was moderate, he was conscious, cooperative, oriented, vital signs were blood pressure, arterial blood pressure 130/80 mm Hg, heart rate was 89 beats/minute, room air saturation was 98%, fever was 36.8 0C, and abdominal examination revealed tenderness and rebound in all quadrants. No pathological findings were found in other system examinations.
The patient's history and physical examination findings were evaluated as acute abdomen and symptomatic treatment was started and tests were requested. In laboratory tests, leukocytes were determined as 10.000 /mm3, CRP 9.6 mg/L, Lactate 1.6 mmol/L. In the repeated examination of the patient, as the abdominal findings increased, intravenous contrast-enhanced abdominal computed tomography was performed as an advanced imaging method, and a thrombosed dissection line was detected along the long segment of the superior mesenteric artery causing partial obstruction. Interventional radiology was consulted for endovascular stenting within the current findings; However, since the procedure was not considered, he was admitted to the general surgery clinic for follow-up and treatment. The patient was discharged with full recovery on the fourth day of hospitalization.

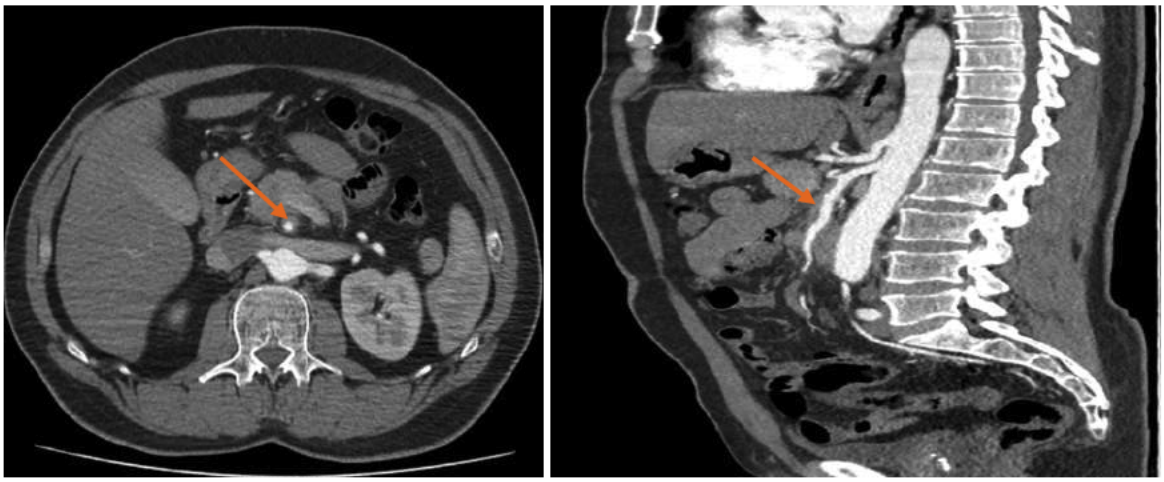

Figure 1. Flap narrowing the lumen along the long segment in the superior mesenteric artery and thrombosis around it

DISCUSSION

Spontaneous dissection of isolated superior mesenteric artery is a rare condition. (3). While connective tissue disorders may be the underlying cause of this disease, which is more common in young men in the 4th and 5th decades, definitive evidence for the disease is still lacking. (4). In this case, no additional risk factor other than hypertension was found. Although treatment varies depending on the nature of the case, it may include medical treatment such as anticoagulation or antiplatelet therapy or invasive intervention such as endovascular stenting and open surgery (5).

CONCLUSION

Due to the emergency department crowd, the time allocated per patient is not sufficient. Appropriate imaging methods used together with the patient's history and physical examination are effective in reaching the correct diagnosis.

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Pub No: OP-302

A Case Thought to be Conjunctivitis: External Ophthalmomyosis

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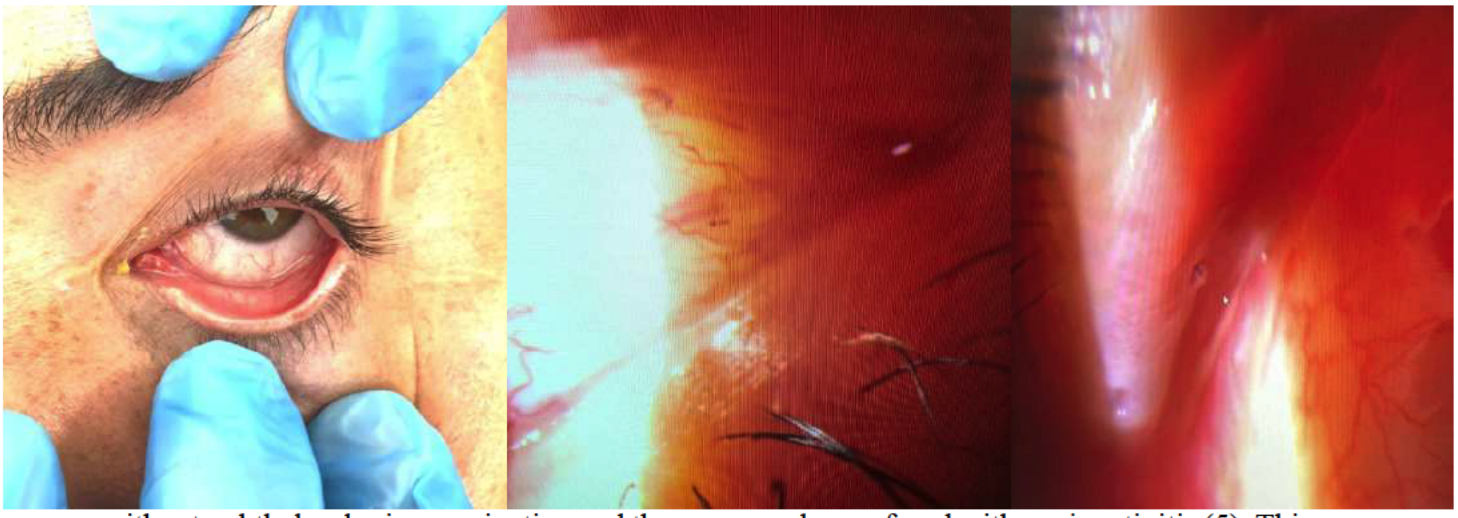
Introduction

Myiasis is Infestation of fly larvae or worms. Even if these larvae can affect the skin, eyes, nose, paranasal sinuses and urogenital tract, Ocular involvement is seen in less than 5% (1). Ophthalmomyosis can be external, orbital or internal. In external ophthalmomyosis, larvae can locate in the cornea, conjunctiva or eyelids, and the most common agent is Oestrus ovis flies. In these cases, eye redness, itching, tearing, stinging sensation and light sensitivity may develop (2,3). This clinic can easily be confused with conjunctivitis. In orbital and internal ophthalmomyosis, progression may malign and lead to blindness (4)

Case Presentation

A 33-year-old male patient presented with complaints of tearing, redness, stinging and foreign body sensation in the eye. It was learned from his anamnesis that the patient had been camping in the countryside two days ago, a prescription for conjunctivitis had been prescribed by his family physician yesterday, and his complaints had increased despite using the prescription. During the eye examination, the conjunctiva was hyperemic and the eyelids were edematous in the left eye. Vision examination was normal bilaterally. The patient was consulted with an ophthalmologist. During the microscopic examination, moving larvae were observed in the lower left eyelid (Figure 1). After application of topical anesthetic, 7 motile larvae were removed from the patient's left eye. The patient was informed about the case and discharged with topical antibiotics. The larvae were investigated by the ophthalmologist and were determined to be Oestrus Ovis larvae.



without ophthalmologic examination and the case may be confused with conjunctivitis (5). This

may lead to progression of the case to orbital or internal ophthalmomyosis and blindness. External ophthalmomyosis is an important ophthalmological emergency as the larva must be removed immediately (5). The primary aim of treatment is complete removal of the larvae.

Key words: External Ophthalmomyosis, Oestrus Ovis, Infestation.

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Pub No: OP-306

Are scoring systems superior to each other in clinical follow-up planning and mortality assessment of Covid-19 patients?

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Introduction

Covid 19 SARS-CoV-2 pneumonia, which emerged as a severe acute respiratory disease, was declared a pandemic in 2020 (1). The requirements for critical care and mortality rates varied between countries throughout the pandemic (2).

Differentiating between a mild disease that does not require hospitalization, a serious disease that requires hospitalization, and a critical disease according to the facilities of hospitals such as critical care units and mechanical ventilators required more studies in the COVID-19 pandemic (3). However, initiating intensive medical treatments at an early stage requires a new urgency for the effectiveness of scoring systems to prevent the dysfunction of other affected organ systems other than the respiratory system (4, 5).

In COVID-19 patients, different scoring scores are used to predict the course of disease severity. Although the effectiveness of the different scores planned in the present study in predicting mortality was demonstrated in different studies, their comparisons were not evaluated sufficiently so far. The purpose of the present study was to investigate the superiority of scoring systems over each other in mortality evaluation in SARS-Cov2(Covid-19) patients.

Material and Method

Study Design

The study was planned in a retrospective, observational, and single-center design. The population of this study consisted of real-time patients who applied to the emergency department between 01.04.2020 and 01.09.2020 with various symptoms and complaints with

one or more COVID-19 symptoms such as fever, cough, sputum, shortness of breath, loss of taste or smell, and sore throat. It consists of Covid-19 patients over the age of 18 whose diagnosis was confirmed by the Reverse Transcription Polymerase Chain Reaction (RT-PCR) Test. The criteria for not being included in the study were being younger than 18 years old and having missing data.

Results

A total of 1279 full data of 1404 Covid-19 patients between 01 April - 01 September 2021 were reached and 129 patients were excluded because of lack of data. In the study, the data of 1279 hospitalized patients with confirmed COVID-19 were analyzed (Table 1). Among the 1279 patients who were included in the study, 641 (50.1%) were male and the mean age of the patients was 61.6±17. A total of 119 patients died within 28 days of admission to the emergency department. The 28-day mortality rate was 9.3% for the entire study. The demographic characteristics of SARS-Cov2 patients, clinical results in the first 24 hours, comorbidities, and vital parameters at presentation are given in Table 1. Especially in patients with a mortal course, diseases including hypertension and diabetes risk factors were found to be higher than those who survived. When the characteristics, vital signs, laboratory findings, and comorbidities of the patients were evaluated, it was seen that especially age, systolic and diastolic blood pressure from vital signs, diabetes and hypertension from comorbid diseases, COPD, Chronic kidney failure, and CAD affect the mortality of Covid-19 patients. It was also found that cerebrovascular disease did not affect survival (Table I).

Table I. Clinical baseline characteristics of COVID-19 patients

Characteristics	Survivors (Mean±SD)	Patients with Mortal (Mean±SD)	P value
Age	60.3±17.5(22-82)	75.1±12.8(23-94)	<0.05
Gender			0.531
Male n(%)	575(%90.3)	62(%9.7)	

Female n(%)	580(%91.1)	57(%8.9)	
Vital Signs			
GCS	14.8±0.2	12.9±2.1	<0.05
Systolic Blood Pressure	126.3±22	116±29	<0.05
Diastolic Blood Pressure	76.2±13.1	67.3±17.3	<0.05
Pulse	98±18.2	102.8±22.8	<0.05
Temperature	37.3±3.5	36.7±0.5	<0.05
SPO2	90.8±6.8	81.3±10	<0.05
Number of days of hospitalization	9.3±8.1	15±11.1	<0.05
Mechanical ventilator support-n(%)	47(%34.6)	89(%65.4)	<0.05
NIMW support n(%)	162(%94.7)	9(%5.3)	<0.05
Presence in comorbidity	1.3±1.3	2.2±1.3	<0.05
Hypertension	454(%39.9)	69(%58.5)	<0.05
diabetes	320(%28.1)	39(%33.1)	<0.05
CODP	81(%7.1)	18(%15.3)	<0.05
CAD	110(%13.6)	16(%18)	0.26
Cerebrovascular disease	35(%4.3)	5(%12.5)	0.58
Chronic kidney disease	146(%12.8)	35(%19.3)	<0.05
Laboratory Findings			
Urea	38.2±25.2	81.9±61.3	<0.05
Creatine	20±38.6	18.5±44.2	<0.05
Albumin	33.2±4.6	29.4±4.7	<0.05
C-reactive protein (0-6 mg/L)	127±26.4	157±27.2	<0.05

Note* sign and *P* < .05 was considered statistically significant. CODP: Chronic obstructive pulmonary disease CAD: Coronary Artery Disease,GCS:Glascow Coma Score

When the scores that were evaluated in the study with mortality and spearman correlation were evaluated, the MEWS score showed a weak positive correlation, and the qSOFA, NEWS, and C-Mortality scores showed a moderate and positive correlation (Table II).

Table II. Evaluation of the correlation of scoring systems with survival

Score	Correlation coefficient (rs)	*P* value
QSofa score	0.435	<0.05
MEUS score	0.219	<0.05
NEWS score	0.341	<0.05
4C Mortality score	0.456	<0.05
As statistical analysis, Spearman rank correlation method was used. * =p<0.05 was considered significant.		

The mortality evaluations of the Covid 19 patients, who were the subject of the present study, are summarized in Table 3, including MEWS, NEWS, 4C Mortality, and qSOFA scores. In this context, when the scores between the survivors and the deceased were evaluated, statistically significant differences were detected between the groups in MEWS, NEWS, 4C Mortality, and qSOFA scores (<0.05).

Table III. Evaluation of mortality in Covid 19 patients according to scoring systems.

Characteristics	Survivors (Mean±SD)	Patients with Mortal (Mean±SD)	P value
qSOFA	0.3±0.6	1.7±0.8	<0.05*
Meus	2.4±1.3	3.7±1.7	<0.05*
News	6.2±2.8	10.4±3.7	<0.05*
4C-Mortality	8.3±4.1	15.2±3.4	<0.05*
As statistical analysis, Mann-Whitney U test was used. * =p<0.05 was considered significant.			

ROC analysis for qSOFA, MEWS and NEWS,4C Mortality score The laboratory parameters of the COVID-19 patient groups are shown in Table IV (Figure 1).

Table IV. ROC analysis results of scoring systems

Score	Cut-off value	AUC	p value	95% CI (lower bound-upper bound)	Sensitivity %	Specificity %
qSofa	2.5	0.878	0.000	0.841-0.915	21	98

MEUS	6.5	0.721	0.000	0.667-0.775	37	93
NEWS	4.5	0.836	0.007	0.792-0.881	34.6	98.2
4C Mortality	14.5	0.895	0.000	0.863-0.927	64	98.2

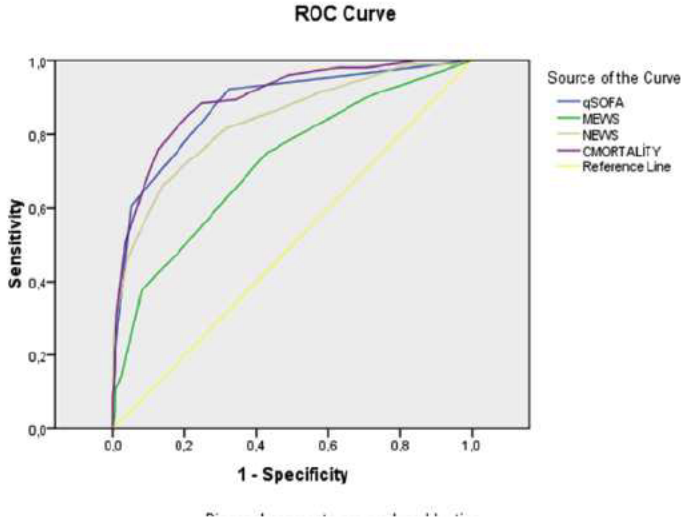

Figure 1. Roc analysis of scoring systems in predicting mortality in Covid 19 patients

Discussion

According to the results and evaluations of the present study, when the effects of vital signs and comorbidities on the mortality of Covid-19 patients were evaluated regarding the mortality of Covid-19 patients, it was found that age and systolic and diastolic blood pressure scores were especially effective among vital signs and characteristic findings, and especially diabetes, hypertension and CAD were effective among comorbidities. In the present study, the purpose was to compare the superiority of these scores to each other in the evaluation of mortality by including many scoring systems especially used in hospitals. It is obvious that MEWS, NEWS, 4C Mortality, and qSOFA scores, which were the subjects of our study, give significant results,

but it was found that qSOFA Score and 4C Mortality Score were more significant in mortality evaluation than others.

Although their superiority over each other is still a matter of debate in studies conducted on scoring systems, the calculation of MEWS, NEWS, 4C Mortality Score, and qSOFA during hospital admission can predict critical clinical outcomes in COVID-19 patients, according to the results found in the present study. Although all the scorings evaluated here were useful in predicting mortality, we think that qSOFA, NEWS, and 4C Mortality Scores were superior to MEWS. Especially, from the first admission to the hospital to the critical period, early interventions can improve clinical outcomes in COVID-19.

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Pub No: OP-308

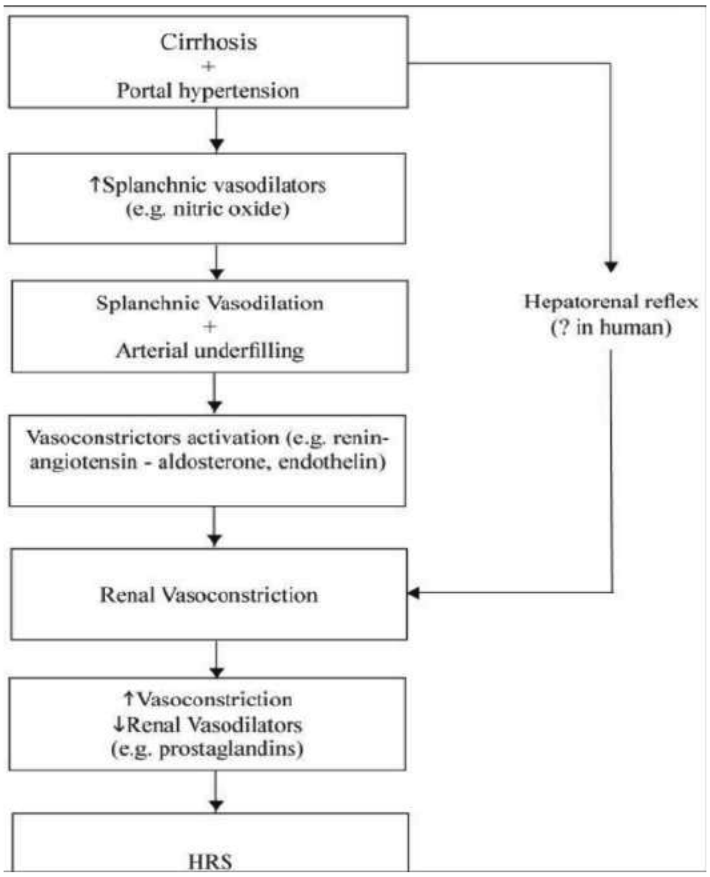
Hepatorenal Syndrome

nazim onur can[1]

[1]Erzurum şehir hastanesi acil tıp

İNTRODUCTİON: Hepatorenal syndrome (HRS) usually occurs in patients with advanced liver disease and portal hypertension. It is characterized by the coexistence of disorders in circulation and kidney functions. Blood pressure in the systemic circulation decreased due to the decrease in total systemic vascular resistance. Renal dysfunction is due to a decrease in renal blood flow.

There is significant evidence that renal failure that develops in patients with cirrhosis is caused by a decrease in systemic vascular resistance as a result of primary arterial vasodilatation in the splanchnic circulation triggered by portal hypertension associated with deterioration in circulatory function. The cause of this arterial vasodilation is mainly the increased production or activity of vasodilator factors in the splanchnic circulation, especially nitric carbon monoxide and endogenous cannabinoids.



While renal failure is rarely seen in non-ascitic cirrhosis patients, it is common in advanced cirrhosis with ascites and edema. In summary, while renal perfusion is preserved in the early stage of decompensated cirrhosis due to increased synthesis of renal vasodilator factors (mainly prostaglandins), hepatorenal syndrome develops in the late stage as a result of maximal activation of vasoconstrictor systems, decreased production of renal vasodilator factors, or both.

CASE : 53 years old patient with a previously known diagnosis of hepatitis b. He was diagnosed with liver s 3 years ago. He approved to the emergency service with complaints of abdominal swelling, nausea, and shortness of breath. At application, gcs was 14, somnole,

blood pressure 90/50, saturation: 80, fever: 36.8. In the physical examination of the patient, the abdomen appeared distended and there was bilateral pretibial edema. When the patient was questioned, it was learned that there had been a decrease in urine output for the last 3 days. Biochemical parameters of the patient whose blood gas was ph: 7.12 lactate: 12.7 potassium: 7.84 hco3: 10 had a creatinine value of 3.02, which was 0.96 2 months ago. Inr value was 2.94.

Pleural fluid measuring 2 cm on the right at its deepest point in the bilateral pleural space, and compressive atelectasis in the adjacent lung parenchyma were observed. Ground-glass density -thickening in interlobular septal structures (Pulmonary edema), which is more prominent in the perihilar region of the bilateral lung.

Liver size, intrahepatic biliary tract and branches of the venal porta are subject. Diaphragmatic contours are smooth, subdiaphragmatic areas are open. Irregularities are observed in the liver contours, and the left lobe and caudate lobe are hypertrophic (chronic parenchymal liver disease).

The gallbladder was semicontracted, and several stones, the largest of which was 15 mm in size, were observed in the lumen of the gallbladder. Spleen localization dimensions, parenchyma structure are natural. The hilum of the spleen is open.

There was no pathological appearance of the pancreatic hood, corpus and cauda.

The localizations and sizes of the kidneys are natural and their contours are regular.

Parenchyma thicknesses and pelvicalyceal systems are physiological.

The patient was admitted to the emergency intensive care unit with the diagnosis of hepatorenal syndrome.

CONCLUSİON : With this case, we aimed to remind hepatorenal syndrome, which is a late complication of patients diagnosed with chronic liver disease.

Pub No: OP-309

Hepatic Injury Following Impact to a Bicycle Handlebar.

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Abstract

In cases of abdominal trauma in children, multiple organ injuries often occur. While severe head trauma is the most common cause of mortality and morbidity in pediatric trauma, abdominal organ injury accounts for approximately 10-15% of mortality in this population.

Our case involves a 9-year-old girl who presented to the emergency department after falling while riding her bicycle and sustaining a blunt trauma to her right lower ribs. She complained of shortness of breath and had vomited twice.The patient's vital signs and laboratory findings remained stable. Abdominal computed tomography (CT) showed a Grade 2-3 laceration in segment 4 of the liver. The child was admitted to the pediatric surgery ward for monitoring and treatment.

In bicycle accidents involving children, abdominal organ injuries are the second most common injuries after head injuries. In abdominal traumas, injuries to the spleen, liver, and kidneys often present immediately after the accident, while injuries to the intestines and pancreas often have delayed manifestations and result in significant morbidity In conclusion, in children presenting to the emergency department with blunt abdominal trauma, liver injuries should be considered.Keywords: emergency department, bicycle accident, liver injury.

Introduction

In cases of abdominal trauma in children, multiple organ injuries often occur. While severe head trauma is the most common cause of mortality and morbidity in pediatric trauma, abdominal organ injury accounts for approximately 10-15% of mortality in this population. Blunt traumas account for over 80% of abdominal traumas seen in children, with traffic accidents being the most common cause. Falls from a height, bicycle accidents, burns, sports injuries, and child abuse are among other causes. Blunt traumas constitute more than 80% of abdominal traumas in children. In blunt traumas, the spleen and kidneys are most affected,

whereas the gastrointestinal system is affected in penetrating traumas[1].The incidence of abdominal injuries due to blunt abdominal trauma is higher in children compared to adults. The main reasons for this difference include thinner abdominal wall layers in children, a larger relative size of the liver and spleen within the abdominal cavity, thinner capsule of the spleen, and incomplete rib coverage of these organs, all of which increase the likelihood of injury following blunt trauma.

In this case, we present a patient, a 9-year-old girl, who presented to the emergency department with a liver laceration and hematoma following a bicycle accident in which she collided with the bicycle handlebar in the right subcostal area.

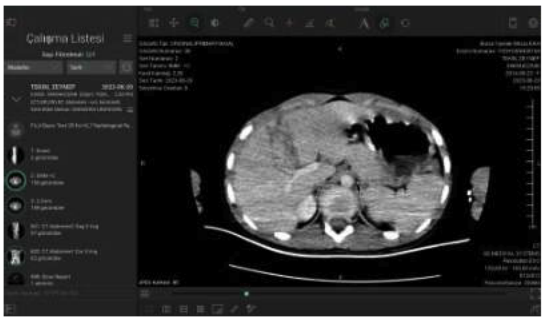
Case report

A 9-year-old female patient presented to the emergency department after falling while riding her bicycle and hitting the bicycle handlebar in the right subcostal area. She complained of shortness of breath and had vomited twice.

Her vital signs were as follows: temperature 36.2°C, blood pressure 100/60 mmHg, heart rate 88 beats per minute, oxygen saturation 99%. On physical examination, her general condition was moderate, she was conscious, oriented, and cooperative, with equal-sized and equal breath sounds in both lung fields. There was no tenderness or rebound tenderness in the right upper quadrant of the abdomen. A 2x2 cm circular bruise was observed in the right subcostal area.

Abdominal ultrasound revealed a fluid hematoma in the perisplenic and perihepatic areas, which was interpreted as a laceration. Abdominal computed tomography (CT) showed a Grade 2-3 laceration in segment 4 of the liver. The patient was admitted to the pediatric surgery service for further management.

CT: Grade 2-3 laceration in segment 4 of the liver.





Discussion

In bicycle accidents involving children, abdominal organ injuries are the second most common injuries after head injuries. In abdominal traumas, injuries to the spleen, liver, and kidneys often present immediately after the accident, while injuries to the intestines and pancreas often have delayed manifestations and result in significant morbidity[1-4].Blunt traumas caused by falls from bicycles often result in handlebar injuries, and the organs affected can vary depending on the area of impact on the abdominal wall, potentially involving the pancreas, duodenum, spleen, liver, or intestines[5,6].In cases of abdominal trauma, abdominal ultrasound should be performed as the initial imaging modality, and abdominal CT is the preferred imaging method for cases where solid organ injury is suspected and needs to be ruled out[7]. In our case, a liver laceration was detected following the impact of the bicycle handlebar. There was no decrease in hemoglobin levels during follow-up.

In conclusion, in children presenting to the emergency department with blunt abdominal trauma, liver injuries should be considered.

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Pub No: OP-313

A Retrospective Study Of The Role Of Biochemical Parameters Such As Nlr, Plr, Crp/Albumin Ratio In Predicting The Severity Of The Disease In Patients Diagnosed With Acute Pancreatitis

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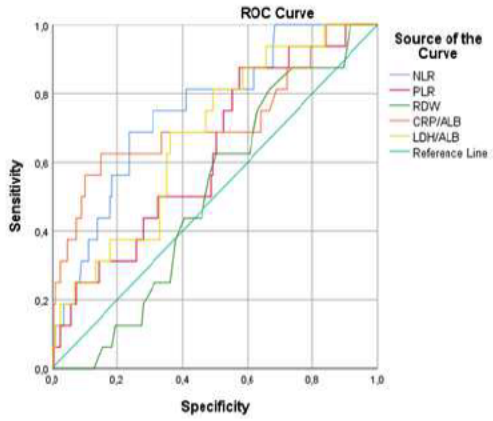
OBJECTIVES: The aim of this study was to determine the role of Neutrophil/Lymphocyte Ratio (NLR), Platelet/Lymphocyte Ratio (PLR), CRP/Albumin, LDH/Albumin and RDW markers in predicting the severity of acute pancreatitis.

METHODS: The data of 210 patients admitted to Pamukkale University Emergency Department and diagnosed with acute pancreatitis were analysed retrospectively. NLR, PLR, CRP/Albumin, LDH/Albumin and RDW values were determined for each patient and their correlation with Ranson and BISAP scores were evaluated. In addition, sensitivity, specificity and area under the curve (AUC) were determined by ROC analysis of these parameters.

RESULTS: Ranson score and NLR, PLR and LDH/ALB were found statistically significant (p=0.001, p=0.001, p=0.002). BISAP score and NLR, CRP/ALB and LDH/ALB were found to be statistically significant (p<0.001, p<0.001, p=0.01). According to the results of Ranson score ROC analysis, sensitivity was 71.4% and specificity was 68.8% at NLR cut-off ≥11.87 (AUC: 0.74, p<0.001), sensitivity 66.7% and specificity 62.4% at PLR cut-off ≥240.28 (AUC: 0.65, p=0.01), sensitivity 81% and specificity 77.2% at LDH/ALB cut-off ≥11.13 (AUC: 0.82, p<0.001). According to BISAP score ROC analysis results, sensitivity was 75% and specificity was 69.1% (AUC: 0.74, p=0.001), CRP/ALB cut-off ≥0.34, sensitivity 68.8% and specificity 65.5% (AUC: 0.71, p=0.04), LDH/ALB cut-off ≥9.68, sensitivity 68.1% and specificity 63.9% (AUC: 0.67, p=0.02).

CONCLUSİONS: According to our study, NLR and LDH/ALB are associated with both severity scores. Their use together may give an idea about the severity and prognosis of acute pancreatitis.

Keywords: Acute pancreatitis, Ranson, BISAP, NLR, LDH/ALB



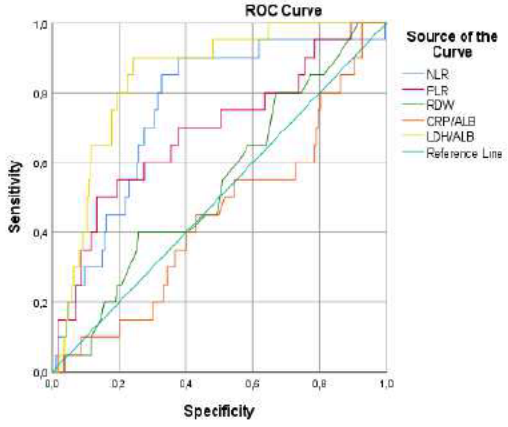


Figure 1. BISAP ROC Analysis

Figure 2. Ranson ROC Analysis

Pub No: OP-314

Compartment Syndrome

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ENTRANCE: Acute compartment syndrome(CS) is a surgial emergency. Since the risk of exposure to high-energy trauma is high, fascia structures are strong, and muscle mass is relatively higher, the risk of acute compartment syndrome is higher in the group under 35 years of age. In fact, when compared to women, men are 10 times more likely to encounter CS. Even though traumas that result in fractures, especially involving long bones, are at the top of the etiology, they may be due to minor traumas and even non-traumatic causes.

CASE: A 47-year-old male patient presented to the emergency department with pain and swelling in the finger. While repairing the car yesterday, the air piston broke, he pressed his finger on the air piston while trying to turn it off. A few hours later, swelling and pain started in his finger. Despite using painkillers, her pain gradually increased. The patient has no known disease. On examination, there was abrasion and ecchymosis on the distal 1st finger of the left hand. The finger was edematous and swollen. There was no pathology in the direct X-ray. The patient was consulted to the orthopedic clinic. When the compartment pressure was high, the patient was admitted to the orthopedic clinic. In the follow-ups, fasciatomy was opened because the compartment pressure increased.

CONCLUSİON: Compartment syndrome is a competitive surgical emergency that should be consulted as soon as it is suspected. Although it is most commonly associated with trauma, it can develop for any reason that will increase the compartment pressure. Usually the earliest symptom is pain. Pain that increases despite analgesia should be among the diagnoses that come to mind.

KEYWORDS: compartment syndrome, trauma, pressure





Pub No: OP-315

Posterior Reversible Encephalopathy Syndrome: Case Report

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Introduction: Posterior reversibleencephalopathysyndrome (PRES) is a syndromecausedbysuddenonset of hypertensionwithsymptomssuch as headache, visualdisturbance, mentaldisorder, nausea, vomitingandconvulsions. Inthisarticle, wereport a 62-year-old malepatientwithnoknowndiseaseorhistory of hypertensionwhodevelopedsuddenblindnessduetoelevatedbloodpressureandwasdiagnosed with PRES neuroradiologically.
Case: A 62-year-old malepatientwasadmittedtotheemergencydepartmentwiththecomplaint of headachethatstarted in themorningwhile he wasworkingandthenblindness. Blood pressurewas 220/110 mm/Hg, pulse rate 105/min, respiratory rate 20/min, temperature36.7 °C and ECG wassinustachycardia. Consciousnesswasconfusedand GCS was 14. On physicalexamination, fourextremitymusclestrengthwas normal, pupilreflexeswere normal, andnoabnormalfindingswereobserved on externalexamination of theeye. No urgentpathologicalfindingswereobserved on brain CT. Diffusion MR FLAIR sectionsshowedbilateralsignalenhancement in thesubcorticalareas of theoccipitalregion. Ophthalmologicalexamination of thepatient, in whomophthalmologicalconsultationwasrequested, revealednourgentpathologyrelatedtotheeye. PRES wasdiagnosedwiththecurrentclinicalandimagingfindingsand an antihypertensivetreatmentwasstartedandthepatientwashospitalised in theneurologicalward.
Discussion: PRES, which is morecommon in womenthan men, is a reversiblesyndromewhendiagnosedearly. Risk factorsincludepreeclampsia, eclampsia, renalfailureandcytotoxicagents. Althoughitspathogenesis has not beenproperlyexplained, it is thoughtto be duetoimpairedcerebralautoregulationandendothelialdysfunctionduetosuddenhypertension. Symptomsarecharacterisedbyheadache, disturbance of consciousness, visualdisturbanceandseizures. Headache is typically of suddenonset, persistent, diffuse, moderatetohighintensity. Visual impairment is seen as hemianopsia, visualneglect, auras, hallucinationsorcorticalblindness. Seizuresareusuallygeneralisedtonicclonic. Thediagnosis is madeclinicallyandwithsubcorticalwhitematteroedema in theposteriorcerebralhemisphere on brain MR scan. Inthedifferentialdiagnosis, intracranialhaemorrhages, hypertensiveencephalopathy, ischaemicstroke, transientischaemicattack, meningitis, encephalitisandmigraineshould be considered. Blood pressuremanagementandseizuremanagementshould be performed in treatment.
Conclusion: It is importanttoconsiderthediagnosis of PRES in patientspresentingwithheadache, visualdisturbance,

alteredconsciousnessandseizuresbecause it is a reversiblesyndromewithearlydiagnosisandrapidtreatment.

Keywords: Headache, Hypertension, PRES, Visual impairment

Pub No: OP-316

HAZING AND FOREIGN OBJECTS IN THE ITS HAZARD

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SUMMARY

Most of the ingested foreign bodies (80%%−90) pass spontaneously through the gastrointestinal passage. Approximately 10%−20% of foreign body ingestion cases require endoscopic removal, while less than 1% require foreign body removal or surgery to treat complications (1). In our case, a 22-year-old male patient presented with abdominal pain. The patient had bleeding once while urinating 3 days ago, but there is no such complaint at the moment. The patient does not have nausea and vomiting. An opacity with a bright reflection was detected in the abdomen (figure 1) in the standing straight abdominal X-ray. Nonsense, intra-abdominal foreign body? It was evaluated as Thereupon, the patient was questioned again, it was asked whether he had been injured by any firearm before, it was questioned whether the patient swallowed any foreign body, and the answer to both questions was taken as no. When the patient was asked if he had eaten game recently, it was learned that the patient had eaten a rabbit hunted with a firearm 1 day ago. patients' applications and anamnesis may not always be correct, so it is necessary to deepen the anamnesis of the patients, and it should be considered that different interventions may be required according to the patie

KEYWORDS: duodenum, hunting, foreign body, metal intoxicationnt's clinic.

INTRODUCTION

Most of the ingested foreign bodies (80%%–90) pass spontaneously through the gastrointestinal passage. Approximately 10%–20% of foreign body ingestion cases require endoscopic removal, while less than 1% require foreign body removal or surgery to treat complications (1).

CASE:

In our case, a 22-year-old male patient presented with abdominal pain. The patient had bleeding once while urinating 3 days ago, but there is no such complaint at the moment. The patient does not have nausea and vomiting. Gas stool outlet available. On physical examination, the patient was conscious and in good general condition. Vital parameters; pulse oximetry: 97, blood pressure: 120/80 mm/hg, pulse: 85/min fever: 36.5. Respiratory system examination was normal. There was no tenderness, defense or rebound in the abdominal examination. In the patient's laboratory parameters; liver functions, kidney functions . An opacity with a bright reflection was detected in the abdomen (figure 1) in the standing straight abdominal X-ray. Nonsense, intra-abdominal foreign body? It was evaluated as Thereupon, the patient was questioned again, it was asked whether he had been injured by any firearm before, it was questioned whether the patient swallowed any foreign body, and the answer to both questions was taken as no. When the patient was asked if he had eaten game recently, it was learned that the patient had eaten a rabbit hunted with a firearm 1 day ago. Abdominal CT was performed on the patient. In the radiology report, a dense focus of approximately 3.5 mm in diameter was observed in the duodenum lumen (foreign body?). (figure 2)



Figure 1



Figure 2

The patient was consulted with gastroenterology and emergency endoscopy was performed. Endoscopy report; "Duodenum II. A 1-2 mm diameter foreign body (fireworks) was observed in the continental mucosa, and the foreign body was removed with a snare with a net." (Figure 3). After the endoscopy, the patient was followed up by direct abdominal X-ray. The patient had no problems in his follow-ups, and his medical treatment was arranged and he was discharged with a gastroenerology polyclinic control.

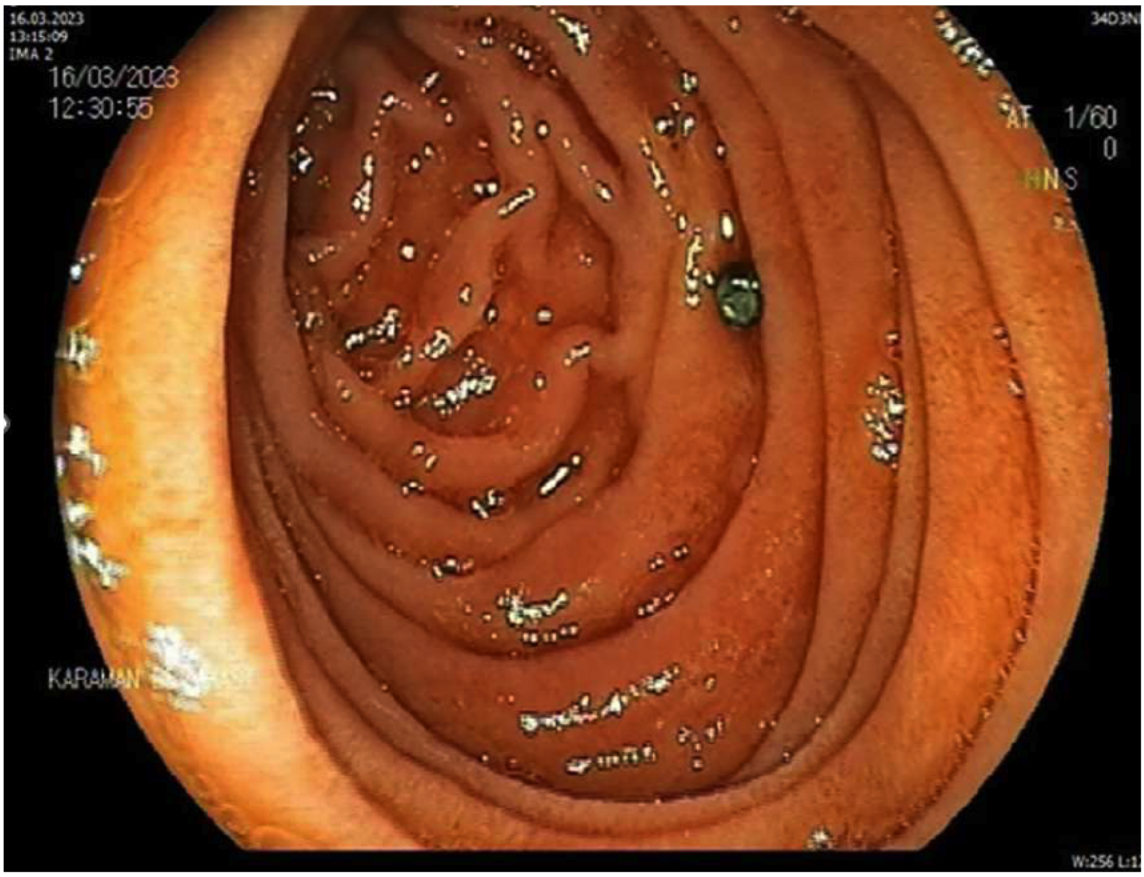

Figure 3: Endoscopy image of the foreign body in the duodenum.

RESULT AND DISCUSSION

Similar cases, albeit few, have been reported in the literature.

In a case reported in 2004, a 9-year-old boy who ate game meat was evaluated with abdominal pain, and a metal foreign body was noticed near the right sacroiliac joint on direct X-ray. Further examinations revealed that the foreign body was a bullet fragment and was attached to the distal part of the appendix. The child's blood lead level was elevated and an elective appendectomy was performed due to the potential for appendicitis and possible lead toxicity (2).

In another study, a 3-year-old child patient who found and swallowed a bullet while playing on the street in 2012 was reported. Since the blood and urine lead levels and abdominal examination were normal, there was no need for surgical intervention. In the daily standing direct abdominal X-ray, it was observed that the bullet advanced in the intestines and the bullet came out of the rectum spontaneously at 56 hours (3).

There are studies showing that 10% of the lead that enters the body through digestion enters the circulation (4). We cannot measure the blood lead level in our hospital, but due to possible lead poisoning and other complications, we intervened quickly under emergency conditions and discharged our patient who did not develop any complications afterwards, with the recommendation of control.

In summary, patients' applications and anamnesis may not always be correct, so it is necessary to deepen the patient's anamnesis. In such cases, it should be considered that different interventions may be required depending on the patient's clinic.

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Pub No: OP-319

GALBLADDER TORSİON

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Introduction: The first case of gallbladder torsion, which is not a very common clinical condition and the etiology is not fully understood, was reported by Wendel in 1898. To date, more than 300 cases have been reported in the literature. However , the recent increase in case reports suggests that the incidence is actually higher than expected . The patient may come to the emergency department with complaints of abdominal pain, fever, nausea and vomiting. The treatment of gallbladder torsion is surgery and the treatment choice is cholecystectomy. Today, most cases are diagnosed at the time of surgery. However, the clinical pattern of the disease should raise suspicion and should be kept in mind in the differential diagnosis with radiological examinations.
Case: A 53-year-old female patient applied to the emergency department with complaints of abdominal pain, nausea and vomiting. The patient has no systemic disease other than known hypertension. From the patient's admission, arterial blood pressure: 150/95 mmHg, fever: 37.6, other vitals were stable. In the physical examination of the patient, there was defense in the right upper quadrant and epigastric region. Acute cholecystitis, choledocholithiasis, and acute pancreatitis were considered in the foreground of the patient. Hemogram, biochemistry, crp, lipase analyzes, ECG, PA Teleradiography and abdominal direct graphy as radiological imaging was requested from the patient. In their blood test results, wbc: 15.57 10^3/ul 84% neutrophil dominance and crp: 5.7 bft were seen as normal. No acute pathology was detected in the patient's radiological imaging. Abdomen CT with contrast was taken. As a result of imaging, the gallbladder was 36 mm distended, the wall of the bladder was thickened asymmetrically, and wall irregularities and suspicious separation in the wall were observed. In this state, the patient was diagnosed with torsioned gallbladder and was admitted to the general surgery clinic.

Result: Although rare, torsioned gallbladder should be kept in mind in patients with hepatobiliary pathology.

Keywords: gallbladder torsion, cholecystitis, torsion

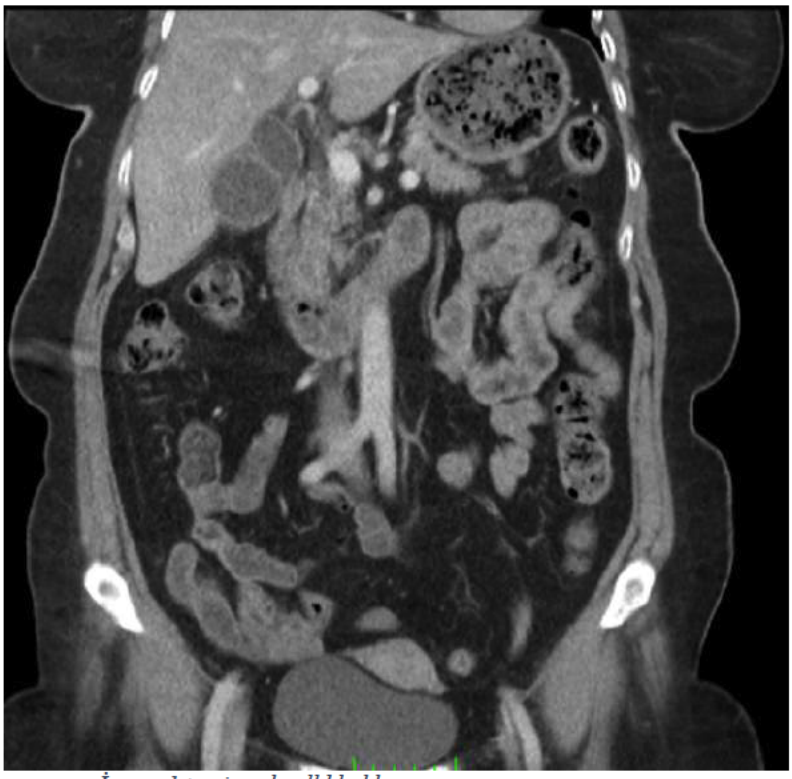

İmage-1 torsioned gall bladder

Pub No: OP-320

Diabetes detection by adaptive boosting prediction model from a machine learning perspective

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Introduction and Purpose: Diabetes is a chronic condition that affects the metabolism of glucose in the body. The AdaBoost algorithm is a machine-learning technique that combines multiple weak classifiers to form a strong one. In this study, we aim to apply the AdaBoost algorithm to a dataset of diabetes patients and evaluate its performance in classifying and detecting the disease.

Material and Methods: In the study, an open-source data set containing demographic/clinical characteristics of patients with and without Diabetes was used. The Synthetic Minority Oversampling (SMOTE) technique was used to reduce the negative effect of class imbalance problems on classification. A prediction model was developed with the AdaBoost algorithm for the detection of Diabetes. Accuracy, sensitivity, specificity, and F1-score values were calculated to evaluate the performance of the created model.

Results: The AdaBoost model was evaluated using four criteria: accuracy, sensitivity, specificity, and F1-score. These criteria measure how well the model can classify the data correctly. The results showed that the AdaBoost model performed well, with an accuracy of 0.92, a sensitivity of 0.938, a specificity of 0.904, and an F1-score of 0.918. These values indicate that the model has a high ability to distinguish between the classes and minimize errors.

Conclusion: The classification performance of the predictive AdaBoost model in diabetes detection was quite high. It is thought that the proposed model can help clinicians with pre-diagnosis and follow-up in the detection of Diabetes patients.

Keywords: Diabetes, SMOTE, machine learning, AdaBoost.

INTRODUCTION

Diabetes is a serious and chronic condition that affects the level of glucose in the blood. Glucose is a type of sugar that provides energy to the cells of the body. Insulin is a hormone that helps glucose enter the cells from the bloodstream. Either people with diabetes do not produce enough insulin, or their cells become resistant to the action of insulin, or both. As a result, glucose builds up in the blood and can cause various complications, such as nerve damage, kidney failure, heart disease, and vision loss (1).

The global prevalence of diabetes is projected to rise significantly in the next two decades, according to the International Diabetes Federation (IDF). Based on the IDF data from 2015 and onwards, there were 415 million people living with diabetes worldwide, and this number is expected to increase by 55% by 2040, reaching 642 million people (2).

Diabetes is one of the life-long diseases due to its hormonal status. It causes serious damage throughout the body, especially kidney functions and blood pressure. Early diagnosis of the disease and initiation of treatment, that is, taking timely measures, are of great importance in order to prevent and prevent other diseases that will occur along with and after. With the development of technology in recent years, machine learning methods are used especially in the field of medical diagnosis. Machine learning from data and without any human intervention. It is a widely growing field that helps to learn better from their analysis. It is popularly used, especially in the healthcare field, to analyze and detect serious and complex conditions. Classification algorithms used in machine learning give high-accuracy results. This is very important in terms of faster decision-making and helping physicians. As with all other diseases, the early diagnosis and treatment of diabetes save lives and improve the quality of life of people (3-6).

Early diagnosis and intervention are crucial for preventing or delaying these complications. However, diagnosing diabetes can be challenging, as it requires blood tests and clinical criteria that may not be available or accessible to everyone. Therefore, there is a need for developing a machine-learning prediction model that can use readily available data, such as demographic and lifestyle factors, to identify individuals at high risk of diabetes. This study aims to create such a model using a large dataset of health records from different countries and regions. We will use various machine-learning techniques, such as logistic regression, decision trees, and neural networks, to train and evaluate the model. We will also compare the performance of the

model with existing diagnostic methods and explore its potential applications in healthcare settings.

MATERIAL AND METHODS

The study used the Pima Indians diabetes dataset for women who were 21 years of age and older, from the National Institute of Diabetes and Digestive and Kidney. The dataset consists of a total of 768 records, 268 of which are diabetic and 500 of which are not diabetic, and 9 attributes (Pregnancies, Glucose, Blood Pressure, Skin Thickness, Insulin, BMI, Genetic Diabetes Predisposition, Age, and Output variable [diabetes/non diabetes] (7) **(Table I).** Analyzes were performed in the Python language.

One of the factors that determine the performance measurement of algorithms used in machine learning is the presence of an equal or close to an equal number of class label samples in the data. Different approaches and techniques are used for Data Set Balancing. In this study, Synthetic Minority Oversampling (SMOTE) technique was used to reduce the negative effect of class imbalance problems on classification (8, 9).

The AdaBoost classification algorithm was used to diagnose diabetes. One of the most important parts of machine learning is the classification process. In the classification process, the data we have is divided into two main stages, the training set and the test set. The model is made using the training set, and the model performance is done using the test set (8, 9). Accuracy, sensitivity, specificity, and F1 score values were calculated to evaluate the performance of the created model.

Table I. Variables and explanations for the dataset

Feature	**Description**	**Data type**	**Range**
Pregnancies	Number of times pregnant	Numeric	[0, 17]
Glucose	Plasma glucose concentration at 2 Hours in an oral glucose tolerance test (GTIT)	Numeric	[0, 199]
Blood Pressure	Diastolic Blood Pressure (mm Hg)	Numeric	[0, 122]
Skin Thickness	Triceps skin fold thickness (mm)	Numeric	[0, 99]
Insulin	2-Hour Serum insulin (µh/ml)	Numeric	[0, 846]
BMI	Body mass index [weight in kg/(Height in m)]	Numeric	[0, 67.1]
Genetic Diabetes Predisposition	Diabetes pedigree function	Numeric	[0.078, 2.42]

Age	Age (years)	Numeric	[21, 81]
Output	A binary value indicating non-diabetic /diabetic	Factor	[0,1]

RESULTS

According to the class labels in the data set used within the scope of the study, 268 of the 768 records in the data set belong to people with diabetes and the remaining 500 belong to people without diabetes. After the SMOTE technique, the class imbalance was eliminated and the data set was organized as 500 positive and 500 negative records. The performance measures of the AdaBoost model in the test set are given in Table II. The values of accuracy, sensitivity, specificity, and F1-score criteria obtained from the AdaBoost model were calculated as 0.92, 0.938, 0.904, and 0.918 respectively.

Table II. Performance Metrics for AdaBoost Model

Metrics	**Value**
Accuracy	0.92
Sensitivity	0.938
Specificity	0.904
F1-score	0.918

DISCUSSION

Diabetes is a widespread health issue that affects millions of people around the world. A condition occurs when the body either does not produce enough insulin or cannot use it properly. Insulin is a hormone that regulates the amount of glucose in the blood. When insulin is deficient or ineffective, the blood glucose level becomes too high and impairs the body's ability to utilize glucose as a source of energy (1, 2).

Machine learning healthcare is a rapidly growing field that applies advanced algorithms and data analysis techniques to large datasets from various sources, such as electronic health records, medical imaging, genomic sequencing, and wearable devices. By revealing the critical

patterns and associations in these datasets, machine-learning healthcare can enable more accurate and efficient diagnosis, prognosis, treatment, and prevention of diseases and disorders. Machine learning healthcare also has the potential to improve the quality and accessibility of healthcare services, reduce costs and errors, and enhance patient outcomes and satisfaction (9). This paper presents a machine learning approach for early diagnosis of Diabetes, a global health problem with increasing prevalence. Diabetes can lead to severe and fatal complications in various organs and tissues if left untreated. Early diagnosis of Diabetes risk can help prevent and reduce its negative impacts. This paper uses the PIMA dataset, a common benchmark for Diabetes diagnosis, to build a prediction model. The PIMA dataset suffers from class imbalance, which can affect the performance of the model. Therefore, the SMOTE method was applied to balance the classes before creating the prediction model.

This study aimed to develop a machine learning application that can detect and classify Diabetes based on various features. The proposed diagnostic model uses supervised learning algorithms to train and test the data. The model can provide accurate and reliable predictions of Diabetes status and type for individual patients. The model can also assist clinicians in providing personalized recommendations for patients regarding their diet, exercise, and blood glucose monitoring. Furthermore, the model can enable remote and continuous care for patients with chronic conditions, reducing the burden on the healthcare system. The proposed ML application is a novel and useful tool for the diagnosis and management of Diabetes.

CONCLUSION

To summarize, the results of this study show that the AdaBoost model applied with the methodology combined with SMOTE has an impact on the prediction of Diabetes. This approach improves the accuracy and sensitivity of the classifier, as well as reducing the false negative rate. The AdaBoost model is able to handle the class imbalance problem and learn from the minority class samples. The methodology combined with SMOTE also helps to avoid overfitting and increase the generalization ability of the model. Therefore, this technique can be useful for predicting Diabetes and other medical conditions with imbalanced data sets.

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Pub No: OP-323

A Rare Case Applicatıon To The Emergency Department: New Diagnosıs Brain Tumor

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Introduction: Brain tumors are a significant cause of human suffering and reduced quality of life. While the diagnosis can be incidental, it may also become evident clinically. Brain masses can present with various symptoms depending on their location and their effect on surrounding tissues. Symptoms such as seizures, altered consciousness, sensory and motor deficits in the extremities, among others, can be observed.

Case: A 67-year-old female patient presented with a history of two-person conflict and fatigue, which she had had for a while. General condition was good, vitals were stable. Neurological examination was normal. The patient had a known history and a history of neck hernia surgery one year ago. Non-contrast head CT and MR imaging with diffusion of the patient were planned. In the imaging, a cystic presentation with peripheral swelling and minimal slippage was observed in a mass measuring approximately 46 x 30 mm in the widest area of the right parietal lobe (Picture 1). On contrast-enhanced cranial MR, "Mass lesion in the right parietal lobe with the widest distribution, approximately 46 x 30 mm in size, surrounded by hyperintense edema, showing heterogeneous enhancement in the series after contrast. (GBM?)" (pictures 2). The patient was admitted to the neurosurgery service for further examination and treatment.

Conclusion: This case aims to highlight that these tumors, which can manifest with various symptoms of varying severity and have not been previously diagnosed, can also be detected in patients who present to the emergency department with an ambulatory status.

Keywords: Emergency department, brain tumor, glioblastoma multiforme, shift, edema

Introduction

Despite the latest advancements in medicine, cancer continues to pose a significant threat to human life. Brain tumors constitute only 1% of all cancers, yet they rank as the third leading cause of cancer-related deaths among individuals aged 15-34. Despite the introduction

of new approaches in surgery, radiotherapy, and chemotherapy over the past two decades, the prognosis for malignant gliomas remains grim(1).

Brain tumors are categorized into two main classes: benign and malignant. Malignant brain tumors are further divided into glial and metastatic types. Staging of glial tumors is done in four groups. Stages I and II are classified as "low-grade," whereas Stage III (anaplastic astrocytoma) and Stage IV (glioblastoma multiforme) are considered "high-grade." Some other tumors in this group include ependymoma, medulloblastoma, and oligodendroglioma(2).

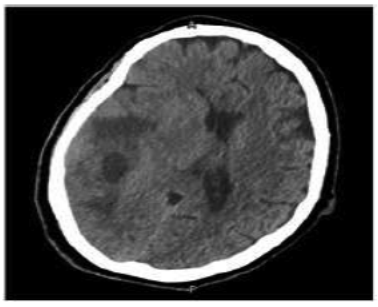
Glioblastoma multiforme (GBM) is the most common brain tumor in adults and is known to be one of the most rapidly progressing and lethal tumors. It accounts for approximately one-third of primary brain tumors. The median survival after diagnosis is typically less than one year, and even under the best circumstances, the majority of patients are lost within two years. However, 5-10% of patients may survive for up to two years. Despite its frequency, treatment options for GBM, which negatively impact both the quality and duration of life, have remained largely unchanged for many years. The optimal treatment modality typically involves maximal surgical resection followed by adjuvant radiotherapy (RT), with chemotherapy (CT) added for selected cases(3).

Case

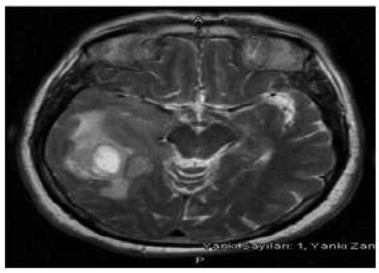
A 67-year-old female patient presented with a history of dizziness, bilateral leg numbness, and weakness for some time. The patient's general condition was good, with vital signs as follows: blood pressure 140/80 mmHg, heart rate 92 beats/min, oxygen saturation 100%, and temperature 36.2°C. Physical examination revealed normal breath sounds bilaterally, rhythmic heart sounds, a soft abdomen, and open peripheral pulses. Neurological examination demonstrated an alert and cooperative patient with full motor strength (5/5) in all four extremities, without ataxia or Romberg sign. There was no nystagmus observed in eye movements. The patient had a history of known hypertension and cervical disc herniation surgery one year ago. Laboratory values were as follows: WBC 13.8 K/µL, Hb 10.9 g/dL, Plt 400 K/µL, Glu 151 mg/dL, BUN 14 mg/dL, Cr 0.67 mg/dL, Na 136 mmol/L, K 4.9 mmol/L, ALT 15 U/L, AST 24 U/L, INR 0.93, and troponin 2.4 ng/L. The patient reported dizziness, weakness, and numbness in both legs. A non-contrast head CT and diffusion-weighted MR imaging were planned for further evaluation. Imaging showed a cystic component with surrounding edema and minimal shift in a mass measuring approximately 46 x 30 mm at its

widest point in the right parietal lobe (Images 1-2). A contrast-enhanced cranial MR was performed and interpreted as follows: "A mass lesion with heterogeneous contrast enhancement on post-contrast series, measuring approximately 46 x 30 mm at its widest point in the right parietal lobe, with a hyperintense edema area around it (GBM?)"(image 3-4-5-6). A neurosurgery consultation was requested, and the patient was admitted to the neurosurgery service for further evaluation and treatment.

Picture 1:Mass in the widest area of the right parietal lobe



Pictures 2: Mass lesion heterogeneous



Discussion

Malignant brain tumors are a significant cause of aggressive disease with the potential to create serious symptoms. These tumors can present with a wide range of symptoms, including seizures, intratumoral hemorrhage, motor-sensory deficits, hemiplegia, dysarthria, aphasia, ataxia, imbalance, and gait disturbance. Patients with diagnosed tumors are more likely to experience neurological events that lead to diagnosis. However, as in our case, patients who have been symptomatic for some time and do not exhibit physical examination findings may also be encountered. In cases with clinical suspicion, central imaging should be performed, and

if pathology is detected, the patient should be referred to the relevant department for further evaluation and management.

Conclusion

Emergency departments in our country receive thousands of patients daily for examination. It is essential to be vigilant, especially in cases of ambulatory presentation and those with symptoms of recent onset. Early intervention in patients with newly diagnosed brain tumors presenting with edema and mass effect is crucial to delay mortality and morbidity. These patients should be promptly referred to the relevant departments for further evaluation and treatment.

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Pub No: OP-325

Patients in the green zone of emergency service

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Introduction

The emergency room is an easily accessible department that is working 24/7. Emergency medical assistance is a service that is given to people who have a life-threatening situation by doctors and other medical assistants. Emergency medical services started around the 1960s. In the beginning, due to emergency medicine specialty being not existed, in the emergency room surgeons and other medical specialists were used to work together. With the aging population, there is an increase in nontraumatic cases in the emergency room and with that emergency medicine was born academically. Emergency medicine has been improved by getting recognized as a medical specialty and having an educational program to have specialists.

With the increasing importance of emergency services, when we look at the annual number of patients, it is seen that patients choose emergency services as the primary way to reach the health system. Only a certain portion of the patients admitted to the emergency department have life-threatening medical emergencies. A 'triage' system has been established in the emergency departments to determine the emergencies of the patients. Triage determines the severity of patients' trauma or illness shortly after their arrival and directs patients to be treated in appropriate areas of the emergency department. In some European countries, triage is performed by specially trained nurses. (Christ, Grossmann, Winter, Bingisser, & Platz, 2010).

Since there is a high demand for emergency services in our country, and when we direct patients to appropriate areas within the emergency department with our triage system, we see that many patients are examined and discharged with full recovery, especially in our green zones.

Material and Method

We examined the facts retrospectively for 89.261 consecutive patients in terms of age, gender, diagnosis, and arrival hours who were admitted to Kayseri City Hospital's emergency service green area between January 1 and April 30, 2023. The green area of Kayseri City Hospital

Emergency Service operates 24/7, for patient admission. Obstetric and gynecological patients and pediatric patients were excluded from the total admissions.

Results

In total, 158,411 patients were admitted to the emergency service of Kayseri City Hospital. 89.261 of all patients were examined in the green area. The ratio of the number of patients enrolled in the green zone to the number of patients admitted to emergency services was 56.34%. The mean age of the cohort was 46.2±13.8 with a standard deviation of 13.8, and 41.069 patients were male, whose age was between 1 and 99. The number of females was 48.191, in the case having a range of ages between 11 and 107. The most frequent admission hour was between 20:00 and 24:00 o'clock. During this period, 26.158 patients were examined, and this count corresponds to 29.30% of all patients. The most common diagnosis in the green zone was pain, not elsewhere classified, and this corresponded to a total count of 14.199 patients with a percentage of 15.91. It is acute respiratory tract infections that can be said about the second admission reason and the total number of patients was 14.322 (16.05%).

Discussion

Emergency services are the most preferred department that is easy to reach for patients, providing 24/7 service. Due to the large number of patients, the triage system is applied. In another study conducted among green zone and yellow zone, patients admitted to the emergency department, it was found that 56% of the patients applied to the green area. (Özdinç & Şensoy, 2022). In our study, it was observed that 56.34% of all patients who applied to the emergency department entered the green zone. In this respect, it was compatible with the literature. In the same study, it was determined that the mean age of the patients was 33 and 55.4% of the patients were male. (Özdinç & Şensoy, 2022). In our study, the mean age was 46.2, and 46% of the patients were male. While the average age was similar to other studies, in terms of gender, the number of female patients was higher in our study. In another study, when we look at the gender distribution of patients applying to the emergency department, the number of female patients is 52.4%, which is similar to our study. In the same study, the complaints of patients applying to the emergency department were examined and it was determined that the most common complaint was related to the digestive system (30%), and the second most common complaint was related to the musculoskeletal system (24%). (Beştemir & AYDIN, 2022). In our study, the most common presenting diagnosis was pain

not elsewhere classified, while the second most common diagnosis was acute respiratory tract infections. It was observed that the findings obtained in our study were similar to the findings of other studies in the literature.

Conclusion

The emergency room is at the forefront of hospitals. Service in the ER should be efficient, quick, and complete. There are so many admissions to our hospital's ER. Using the triage system, most of the patients are given green tags. The majority of green-tagged patients are in good condition and can be discharged with a prescription. Examining patients in the green zone of the ER reduces crowdedness and waiting time in the other departments.

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Pub No: OP-327

Clinical Decision Tools: How Reliable Are They in Predicting Pulmonary Embolism Risk in Behçet's Syndrome Patients - Case Report.

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Introduction:

Behçet's syndrome (BS) is a rare, multisystemic inflammatory disease that often presents with vasculitis, and its exact cause is not fully understood. While genital and aphthous ulcers, skin manifestations, and ocular findings are frequently encountered, this inflammatory disorder can affect all organs and systems. Pulmonary artery aneurysms, arterial or venous thrombosis, pulmonary emboli (PE), pneumonia, and pleurisy constitute the main pulmonary symptoms in Behçet's disease (1). Pulmonary arteries are the second most commonly affected vascular anatomical region after the aorta. Although the true prevalence of pulmonary involvement in BS is not known, some studies have shown it to be as high as 7% (2). Clinical decision tools (CDT) are commonly used during the initial evaluation of a patient suspected of having PE to calculate the pre-test probability of PE. According to these scoring systems, PE can be ruled out (3). In this case presentation, we aim to present a patient classified as low-risk according to CDT but with massive PE and discuss the effectiveness of CDTs in BS patients.

Case report:

A 41-year-old female patient presented to our emergency department with a complaint of chest pain located in the left hemithorax. The chest pain had started 3-4 hours ago. She described the pain as dull, severe, and radiating throughout the chest cage. On the initial EKG taken at the time of arrival, atrial fibrillation, widespread ST-segment depression, and ventricular extrasystoles were observed (Figure-1). On physical examination, the patient's blood pressure was measured as 101/61 mmHg, heart rate as 89 beats/min, oxygen saturation in room air as 96%, and respiratory rate as 22/min. Respiratory and cardiovascular system examinations were normal. There were no signs of deep vein thrombosis on extremity examination. Blood tests, including cardiac troponin I (cTnI), were ordered to determine the underlying potential causes

of chest pain. The patient was empirically started on 300 mg of aspirin. While being fully monitored in the emergency department, approximately 10 minutes after arrival, the patient developed bradycardia followed by cardiac asystole (Figure-2). Subsequently, cardiopulmonary resuscitation (CPR) was initiated, and the patient was intubated. Spontaneous circulation was restored after 10 minutes of chest compressions. Following CPR, the patient remained unconscious. The Glasgow Coma Scale was 6, and vital signs were recorded as follows: blood pressure: 125/76 mmHg, heart rate: 129 beats/min, oxygen saturation: 98% (while intubated). Based on the patient's history and physical examination findings, a clear diagnosis explaining the sudden cardiac arrest could not be reached. According to the medical history obtained from family members and hospital records, it was determined that the patient had been diagnosed with Behçet's Disease 5 years ago and had undergone tricuspid valve replacement 4 years ago due to tricuspid valve endocarditis. It was also learned that the patient had been regularly taking colchicine (xxx mg/day) and coumadin (0.5 mg/day) for an extended period. There was no known history of deep vein thrombosis (DVT) or pulmonary embolism (PE) in the patient's past. In the patient's laboratory tests, INR was measured as 2.62 (reference range: 0.8 - 1.2), aPTT as 49 seconds (reference range: 20 - 35), D-Dimer as 16.9 mg/L (reference range: 0 - 0.55), CK-MB as 24 µg/L (reference range: 0 - 3.61), and Troponin I as 0.13 µg/L (reference range: 0 - 0.16). Arterial blood gas analysis showed pH 6.8, pCO2 52.1 mmHg, pO2 72.9, sO2 75.1, and HCO3 7.2. Firstly, a cardiology consultation was requested to exclude acute coronary syndrome and other cardiac pathologies. Echocardiography performed by the cardiology team revealed an ejection fraction of 55%, mild dilation of the right chambers, 1/4 mitral regurgitation, and the replaced tricuspid valve. No aneurysm or intracardiac thrombus was detected in the echocardiography. Since cardiac causes did not explain the patient's current clinical condition and to rule out pulmonary embolism, a pulmonary CT angiography was performed. The CT angiography showed complete occlusive embolisms in the segment-subsegment pulmonary artery branches leading to bilateral lower lobes (Figure-3).

The patient, diagnosed with pulmonary embolism, was consulted to the chest diseases clinic. A consultation to the rheumatology clinic was also made due to Behçet's syndrome. Upon the recommendation of the rheumatology clinic, the patient was started on methylprednisolone at a dose of 1 mg/kg. The patient was transferred to the intensive care unit. While on thrombolytic

therapy (actylse 50mg/hour) in the intensive care unit, the patient experienced sudden cardiac death and was pronounced deceased.

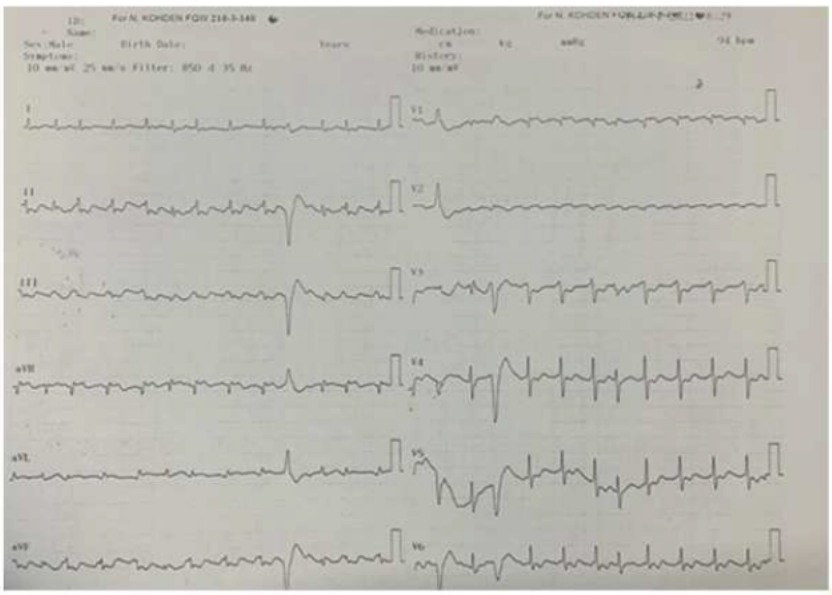

Figure-1: EKG taken upon the patient's arrival at the emergency department.

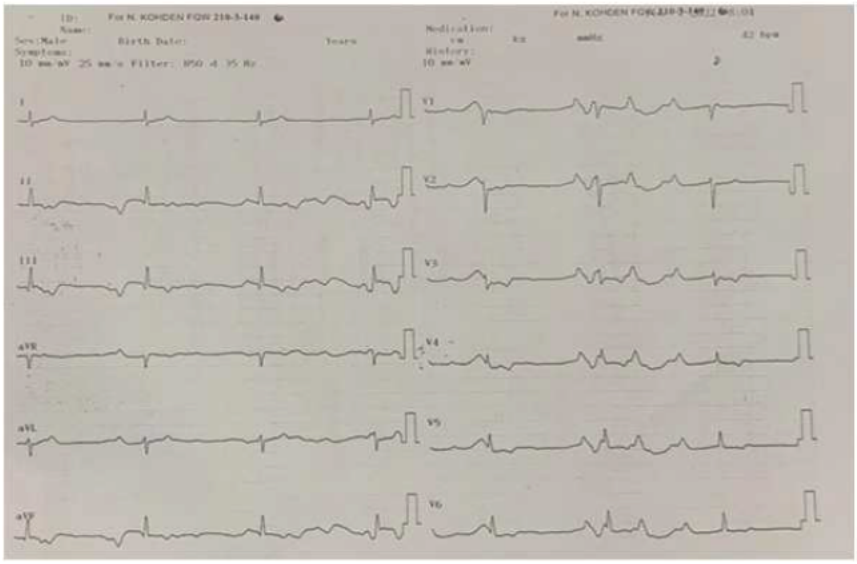

Figure-2: The EKG taken 10 minutes after the patient's arrival demonstrates bradycardia.

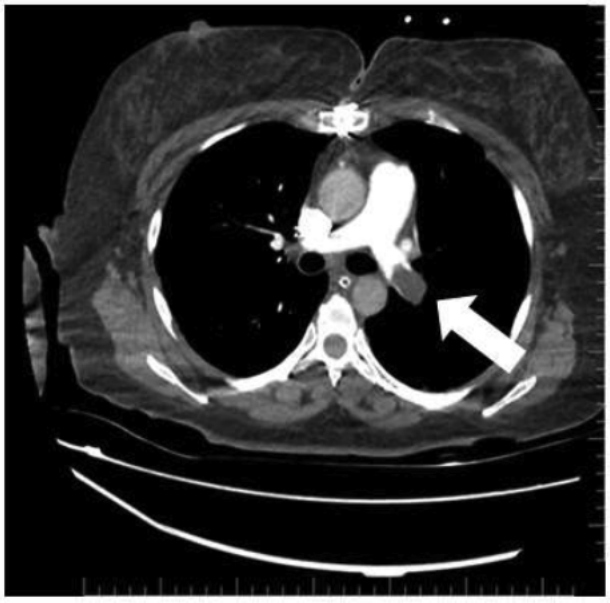

Figure-3: The CT thoracic angiography shows embolism in the left main pulmonary artery (white arrow).

Discussion:

Pulmonary involvement in BS is observed in 1-10% of cases. While PE is considered among the pulmonary manifestations that can occur in BS, it is regarded as a rare complication of the disease. It constitutes a significant cause of mortality and morbidity (4). The fundamental histopathological mechanism leading to pulmonary thrombosis in BS is vasculitic lesions caused by vascular inflammation (5). Therefore, in BS patients, PE is often not associated with the classic expectations of DVT or thrombosis, which are more common in non-BS patients (1). In cases where PE is suspected, various clinical decision tools (CDT) are employed to decide on the need for imaging or to rule out PE. The Wells score, created in 2000 primarily using objective criteria, is a scoring tool that determines a pre-test probability for PE. The scoring system calculates the potential risk for PE by considering conditions that pose a risk for PE development, PE symptoms and signs, and clinical gestalt data (3). Due to fundamental differences in the pathophysiological mechanism, the use of the Wells score in BS patients does not appear to be very reliable. Indeed, in our patient, the Wells score was calculated as 0. In this regard, the risk of PE was very low (3% risk of PE). The Wells score, in the presence of a negative D-Dimer result, predicts discharge for such a patient. Another significant factor limiting the use of the Wells score in our patient was the long-term use of anticoagulants.

Because "use of anticoagulation for more than 72 hours" is an exclusion criterion for the Wells score. Another PE clinical decision tool (CDT), the Revised Geneva score, yielded a score of 0 based on our patient's presenting signs and symptoms, and ongoing anticoagulant treatment was also an exclusion criterion for the Geneva score (6). Another common method used either alone or in conjunction with the Wells score to calculate the pre-test probability of pulmonary embolism is the Pulmonary Embolism Rule-Out Criteria (PERC) Rule (7). Ongoing anticoagulant treatment is not an exclusion criterion for PERC. Our patient's PERC score, like other CDTs, indicated a low risk for PE. In all CDTs, the D-dimer level plays a significant role in clinical decision-making. In our patient, this level was above normal. However, before the D-dimer level, all CDTs fall short in calculating the potential risk of PE in BS patients. This raises the question: should the presence of BS be an exclusion criterion in the use of all these CDTs?

Due to the pathophysiological characteristics, immunosuppressive therapies form the basis of PE treatment in BS patients. The benefit of anticoagulant use is limited in this patient group. In cases of pulmonary artery involvement resistant to immunosuppressants, alternative methods such as embolization, lobectomy, and cavectomy may be considered (1,8). Despite our patient receiving anticoagulant treatment for another underlying condition, the high INR level could not prevent the development of PE.

In the literature, previous studies have shown that cardiac thrombosis could be a cause of PE in individuals with Behçet's Disease. In contrast, in our patient, echocardiography did not reveal any thrombus formation. Additionally, there were no risk factors present, such as recent long-distance travel, surgery, active malignancy, obesity, or pregnancy, which could lead to the development of embolism. For these reasons, we believe that the underlying vasculitic lesion is the sole cause of embolism development in our patient (9).

In conclusion, PE can occur in BS patients without any risk factors. PE should always be considered in BS patients presenting with chest pain. The use of CDTs that predict the risk factor for PE in this patient group can mislead the clinician. Prophylactic methods like additional anticoagulant use, as in our patient, can create a false sense of security in excluding PE. Therefore, further research should validate the use of CDTs for PE in BS patients.

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9- Successful Treatment of Intracardiac and PulmonaRy Thrombi in Behçet's Disease with Oral Anticoagulant and Immunosuppressive Therapy Uğur Canpolat1, Hikmet Yorgun2, Ali Akdoğan2, Kudret Aytemir1

Pub No: OP-329

Comparison of maternal inflammation scores NLR, PLR, SII and SIRI in abortion imminens cases admitted to the emergency department and in normal pregnant women

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Abstract

Introduction-aim: One of the most prevalent causes of first-trimester vaginal bleeding in the emergency room is abortus imminens. The pathogenesis is related to multifactorial factors such as genetic disorders, chromosomal anomalies, endocrine and immunological causes. Inflammation is also implicated in the pathophysiology of abortion. There are also studies showing a relationship between inflammation and uterine contractions. In recent years, studies have shown that neutrophil to lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR) values, the systemic immune-inflammation index (SII), and the SIRI derived from blood cell counts are novel and comprehensive predictors of inflammation.

In this study, we aimed to compare inflammatory markers including NLR, PLR, MLR, SII and SIRI between the groups of abortus imminens and healthy pregnant women.

Materials and Methods: The research included 60 emergency clinic abortus imminens patients hospitalized between 7-12 weeks and 59 pregnant women in the control group who were followed up in the obstetrics outpatient clinic between 1.12.2022 and 1.6.2023. The research included 60 emergency clinic abortus imminens patients hospitalized between 7-12 weeks and 59 pregnant women in the control group who were followed up in the obstetrics outpatient clinic between 1.12.2022 and 1.6.2023.

Demographic, obstetric and laboratory data of all hospitalized pregnants with abortus imminens diagnosis and results of outpatient control group were obtained retrospectively from the hospital data.

Statistical analysis was done with SPSS (Statistical package for Social Sciences-SPSS Inc., version 20.0;Chicago , IL) program. Normal distribution variables were tested using Kalmogorov Smirrov.

Results-Conclusion : There was no statistically significant difference between the groups in terms of mothers age, parity, body mass index (BMI) and elective curettage numbers (p>0,05). No significant difference was observed in lymphocyte and platelet counts (p>0,05). When we compared the NLR and PLR values, we also did not see any difference (p>0,05). SII index was significantly higher in the Group 1, but no difference was observed in SIRI values (p<0,05 and p>0,05; respectively) . ROC curve, AUC, cut-off, sensitivity, and specificity were studied to differentiate abortion imminens patients' leukocyte, neutrophil, and SII parameters to help clinicians in patient follow-up.

Key words: Abortus imminens, , systemic immune-inflammation index, systemic inflammation response index

Introduction: AI is one of the most common reasons for applying to the emergency department with the complaint of vaginal bleeding in the first trimester of pregnancy(1).

Following the diagnosis of intrauterine pregnancy with USG, cases with vaginal bleeding with closed cervix are diagnosed as AI. the cause of bleeding is often associated with the decidual vessels on the materno- fetal surface(2).It has been reported that the pathogenesis is related to multifactorial factors such as genetic disorders, chromosomal anomalies, endocrine and immunological causes(3). Inflammation is also implicated in the pathophysiology of abortion. There are also studies showing a relationship between inflammation and uterine contractions(4). Studies conducted in recent years have revealed that neutrophil to lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR) values can be used as markers of the inflammatory process (5-7). Fortunately, the systemic immune-inflammation index (SII) and systemic inflammation response index (SIRI) derived from blood cell counts are novel and comprehensive predictors of inflammation that can influence the local immune status and systemic inflammation throughout the human body(8-10).Moreover, recent studies have shown that the systemic immune-inflammation index (SII) and the systemic immune response index (SIRI) are more effective in assessing the persistent inflammatory condition in the human body compared to the neutrophil-to-lymphocyte ratio (NLR) and other markers of inflammation(11,12).Hence, they possess the potential to function as important indicators of systemic inflammation, and exhibit enhanced diagnostic efficacy and stability. In addition, the convenient availability of blood samples facilitates the investigation of peripheral inflammation in many diseases.

In this study, we aimed to compare inflammatory markers including NLR, PLR, MLR, SII and SIRI between the groups of abortus imminens and healthy pregnant women.

Materials and Methods: Between 1.12.2022 and 1.6.2023, 60 abortus imminens cases admitted to the emergency clinic who were hospitalized between 7-12 weeks and 59 pregnant women of control group who were followed up in the obstetrics outpatient clinic

were participated in the study. Cases that presented with infections and inflammatory diseases , with multipl gestations , mothers under age 18 were excluded from the study to avoid confounding factors. Other exclusion criteria was the use of anti-inflammatory and corticosteroid therapy.

Demographic , obstetric information and laboratory data of all hospitalized pregnants, including complete blood count parameters from the first hemogram (Mindray BC6800) results were recorded obtained retrospectively from patient files and the hospital data. Outpatient control group blood parameters were also found from hospital data by retrospectively scanning.

Statistical analysis: G-power analysis was applied to determine the number of groups in the study. The planned sample size is expected to consist of a minimum of 59 individuals, with a power level of 85 % and an error rate of 10%. Statistical analysis was done with SPSS (Statistical package for Social Sciences-SPSS Inc., version 20.0;Chicago , IL) program. Kalmogorov Smirrov test was used for the normal distribution of variables. Descriptional statistics were used in the demographic analysis of the patients. Numerical values in the data were expressed as mean ± standard deviation and maximum minimum values. The difference between the two means in independent groups was calculated with the significance test and the Mann-Whitney -U test. Statistical significance was accepted as $p<0.05$. The cut off evaluation of the results which are statistically significant was made with the ROC(Receiver-Operating Characteristics Curve) curve.

Results **:** When evaluating of the mean age of the participants in the study, it was observed that the abortus imminens (Group 1) group had an average age of 29.1±4.5 years, whereas the control group had an average age of 29.8±5.8 years (p>0,05). There was also no statistically significant difference between the groups in terms of parity, body mass index (BMI) and

elective curettage numbers as shown in Table 1 (p>0,05). But when the previous abortion histories were compared, a significant difference was observed in the Group 1(p<0,05).

Table 1. Demographic and obstetric variables of the pregnants

Demographic Characteristics Independent Variables (IVs)	Grup 1	Grup 2	P value
Age(Mean±Standard Deviation)	29.1±4.5/yıl	29.8±5.8/ yıl	0.93
BMI(Mean±Standard Deviation)	25.8±4.4	26.6±5.9	0.34
Gravida(Mean±Standard Deviation)	2.18±1.6	2.18±1.3	0.52
Parity(Mean±Standard Deviation)	0.9±1.05	0.7±1.04	0.11
Abortion(n,%)	n:15(%29.4)	n:10(% 20)	<0.05*
GH	10.09±1.4	8.5±1.2	<0.05*

As statistical analysis, Chi-square test and Mann-Whitney U test were used. * =p<0.05 was considered significant.

In addition, leukocyte and neutrophil counts were found to be significantly higher in abortus imminens cases, but no significant difference was observed in lymphocyte and platelet counts as demonstrated in Table 2 (p>0,05 and p<0,05 ;respectively). When we compared the NLR and PLR values, we did not see any difference (p>0,05). While the SII index was significantly higher in the Group 1, we did not see any difference in SIRI values (p<0,05 and p>0,05; respectively) .

Table 2. Laboratory result comparision of the groups

Laboratory parameters	1.Group(Mean ±Standard Deviation)	2. Group (Mean±Standard Deviation)	P value
Leukocyte (4.0-10.0 × 10^9/L)	10.1±2.4	8.9±1.8	0.014*

Neutrophils (2.0-6.0× 10^9/L)	7.2±2.2	6.1±1.4	0.014*
Lymphocyte (1.1-3.2 ×109/L)	2.1±0.7	2.1±0.5	0.521
Monosit	0.65±0.8	0.63±0.8	0.508
Platelet	257.5±75.7	252.5±55.4	0.823
SII	1029.5±787.8	733.9±243.02	0.040*
SIRI	2.5±3.1	1.9±2.9	0.150
Neutrophil / Lymphocyte ratio	3±0.9	4±3.1	0.123
Monocyte/ Lymphocyte ratio	0.32±0.37	0.31±0.42	0.868
Platelet/ Lymphocyte ratio	134±75.2	124±35.4	0.978
As statistical analysis, Mann-Whitney U test was used. * =p<0.05 was considered significant. Systemic immune-inflammation index (SII) , Systemic immune response index (SIRI)			

ROC curve and AUC, cut-off, sensitivity and specificity were analyzed to differentiate the leukocyte, neutrophil and SII parameters of abortion imminens patients to guide the clinician about the patient's condition in patient follow-up (Figure 1). However, the values of these laboratory parameters in Abortus imminens patients were analyzed with the ROC curve for their cutoff points, sensitivity and specificity. AUC < 0,6 and non-statistically significant (p>0,05) parameter values were excluded.

For the SII index, the AUC, cut-off, sensitivity, and specificity were 0.619, 730.2, 67%, and 50%, respectively. Neutrophil parameter AUC, cut-off, sensitivity and specificity were 0.736, 10.5%, 56.9% and 70%, respectively. The leukocyte parameter AUC, cut-off, sensitivity and specificity were 0.643, 9.1 , 65% and 50%, respectively.

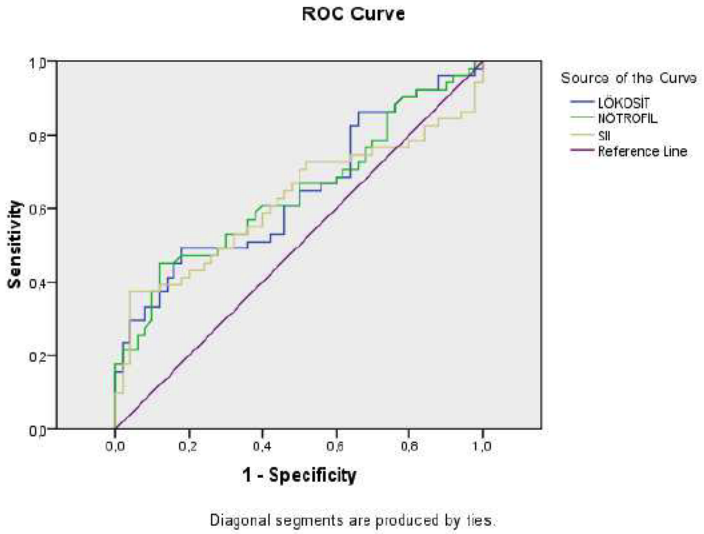

Figure1:ROC curve

Discussion: This study aimed to compare pregnant women who presented to the emergency department during the first trimester of pregnancy with complaints of vaginal bleeding and were diagnosed with abortion imminens, with those who did not receive this diagnosis. The results of this study revealed elevated leukocyte and neutrophil counts in the abortus imminens group (p<0,05). In the study of Baş et al., a positive correlation was found between NLO and spontaneous abortion (13). In an another study, 121 abortus imminens cases were followed up, 60.33% of them ended with abortion, 39.66% of them continued until the 24th gestational week. The study findings indicate that there was a statistically significant increase in neutrophil counts and a decrease in lymphocyte count among those who had abortion, as opposed to those who had a continuing pregnancy (p=0,030 and p=0,003; respectively). No difference was observed in the PLR results (p=0,071). NLR results were also found to be higher in cases that ended with abortus (p<0,001) (14). According to our investigation we found

elevated leukocyte and neutrophil counts in the AI group (p=0,014). However, there was no difference between the groups in terms of lymphocyte counts, PLR and NLR results.

In their study, Fang et al. conducted an evaluation of the impacts of SII and SIRI on the materno-fetal outcomes of cervical cerclage in a cohort of 374 pregnant women. The study examined the duration between the placement of the cerclage and the subsequent birth in the group of 268 pregnant women who had successful cerclage. Significant findings were seen in the successful cerclage group with better maternofetal outcomes, including low leukocyte counts, low neutrophil counts, as well as low SII and low SIRI values (15). The study conducted by Hurbaru et al. included the evaluation of a total of 486 pregnant women, who were divided into two groups: those who had preterm births (243 women) and those who had term deliveries (243 women). The group of pregnants who had preterm birth exhibited considerably higher levels of NLR and PLR, whereas no significant differences were seen in SII and SIRI values (16). The findings of our investigation also demonstrate that the levels of inflammatory markers seen in abortus imminens cases are consistent with the findings reported in the previously mentioned studies. Upon analyzing the Receiver Operating Characteristic (ROC) analysis of our study, it is evident that the leukocyte parameter and Systemic Immune-Inflammation Index (SII) exhibit greater significance compared to the neutrophil parameter. This is primarily due to the higher specificity observed in patients when compared to the neutrophil parameter. Additionally, the sensitivity of both the leukocyte parameter and SII index are found to be relatively similar. These findings suggest that both the leukocyte parameter and SII index show potential in predicting the likelihood of abortion in patients.

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Pub No: OP-330

A case of pneumococcal meningitis demonstrating an unusual clinical presentation

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Introduction and Purpose: Menengitis is one of the major lethal infectious diseases, early diagnosis and treatment decrease the mortality and morbidity. Pneumococcal meningitis continues to be associated with high rates of mortality and long-term neurological sequelae. Meningitis is observed around 1/100,000 in developed countries, while in Turkey, it is around 3/100,000.

This is a delayed diagnosis of pneumococcal meningitis due to the incorrect assessment of symptoms, that are present for 10 days. Its clinical presentation primarily suggests viral encephalitis, with additional symptoms such as diplopia, facial twitching, tremors, and difficulty in urination, which stand out in contrast to the typical meningitis clinical picture.

Case: A 23-year-old male patient has history of working in farms and drinking well-water one week before admission. The patient arrived at the emergency with complaints of fever, chills, nausea, and vomiting (started 1-day after exposure). The patient was discharged with oral antibiotic therapy. However, the patient's fever persisted. New symptoms emerged, including difficulty in urination, constipation, loss of appetite, imbalance, difficulty in walking, and double vision. Upon re-admission to the emergency department due to symptoms of backward head jerking, facial twitching, hand tremors, and urinary incontinence, the patient had generalized tonic-clonic seizures during the follow-up.

The patient has no significant medical history. Blood pressure:137/77;Pulse rate:64;Fever:37.8;Oxygen saturation:88. Neurological examination was normal. No indications in the blood count suggestive of a bacterial infection. Notably, central imaging showed a hypodense area in the posterior corpus callosum on brain CT, while brain MRI revealed T2 hyperintensity and diffusion restriction in the splenium of the corpus callosum. Upon the detection of Streptococcus pneumoniae in the meningitis panel, the patient was admitted to the neurology ICU and started on intravenous antibiotic therapy.

Results and Conclusion: The case is noteworthy clinically due to not strong indication of meningitis/encephalitis in initial presentation, inconsistency with physical examination findings, emerged additional neurological symptoms, and the direction towards viral encephalitis based on central imaging results. Ultimately, the diagnosis of pneumococcal meningitis through lumbar puncture is intriguing. This case emphasizes that patients can exhibit diverse clinical courses and underscores the significance of maintaining a broad perspective and not losing sight of this aspect.

Keywords: “meningitidis”, “corpus callosum”, “emergency department”, “fever”, “headache”, “tremor”

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Image 1:

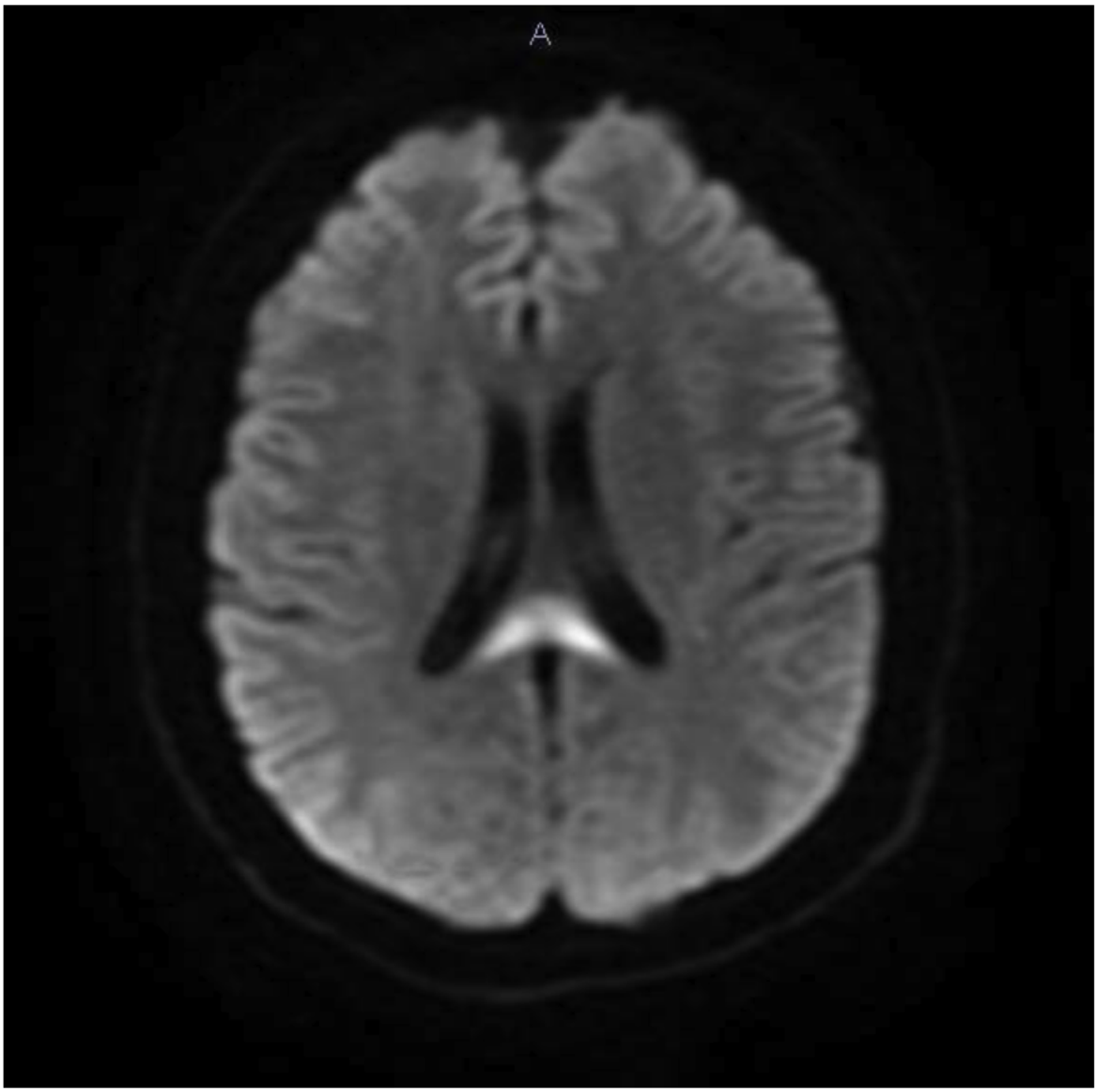
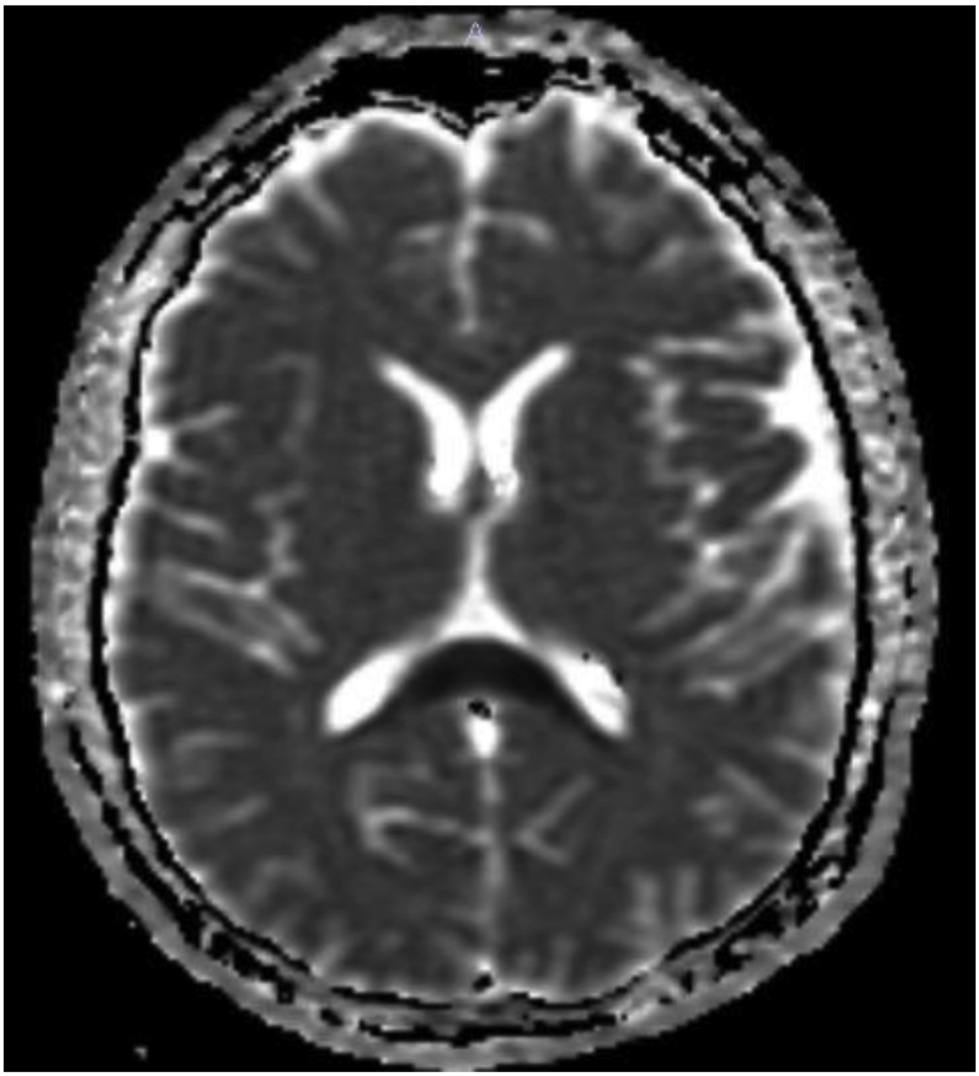


Image 2:



Pub No: OP-332

An Uncommon Cause of Chest Pain: Spontaneous Pneumomediastinum

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Introduction and Purpose: Spontaneous pneumomediastinum is a rare but generally benign condition which is seen especially in young men and often responds well to conservative treatment. With this case report, we aimed to describe spontaneous pneumomediastinum, a rare cause of chest pain.

Case: A 26-year-old male patient was admitted to the emergency department (ED) with the complaint of stabbing chest pain radiating from the back to the chest that started about 4 hours ago from ED admission. The patient's medical history revealed that he had only diagnosed with type 3 spinal muscular atrophy (SMA). The patient, who used a wheelchair, had no trauma in his history. On admission he had no fever, had normal hemodynamic parameters and showed no signs of respiratory distress. The electrocardiogram was in sinus rhythm with a rate of 100/min. Blood pressure was 122/84 mmHg and oxygen saturation was 97% in room air. Labaratory tests (complete blood count, renal function tests and electrolytes) and arterial blood gas analysis were unremarkable but cardiac enzyme values were higher than their cut-off values. Since there was no significant increase in cardiac enzyme values and no cardiac wall motion abnormalities were detected in bed side echocardiogram, acute coronary syndome was excluded. Thoracic imaging was performed in terms of other differential diagnoses of chest pain. A slight line of air surrounding the cardiac silhouette was seen in postero-anterior chest X-ray and chest CT was performed that revealed pneumomediastinum. There was no signs of pneumothorax, tracheobronchial tree disruption or esophageal rupture. The patient was hospitalised and treated by inhaleted bronchodilators, antibiotics and analgesics. After clinical and radiological improvement; the patient was discharged on the third day of hospitalization and was recommended of outpatient follow-up.

Results and Conclusion: Spontaneous pneumomediastinum should be kept in mind in the differential diagnosis of chest pain, especially in young male patients. In addition, in patients presenting to the emergency department with chest pain, thoracic imaging should be performed.

Pub No: OP-337

EVALUATION OF COMPUTERIZED TOMOGRAPHY OF PATIENTS WITH THORACIC INJURY ATTENDING THE EMERGENCY DEPARTMENT USING ARTIFICIAL INTELLIGENCY

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Introduction and Purpose: Hemopneumothorax is the pathology having serious morbidity and mortality. True medical diagnosis of these in emergency services and other health units at the right time is closely associated with patients' mortality. The aim of this study is to indicate how to save time and labor force whilst diagnosing the patients with thorax hemorrhage. In this study, the tomograms with/out hemopneumothorax are tried to be interpreted with artificial intelligence programmes. That tomograms are interpreted with artificial intelligence programmes will help both decreasing the work load of radiologist and saving time while interpreting the tomogram and minimize human errors.

Materials and Methods: In this study; tomograms having been scanned and recorded in the system at Turgut Özal health center in between 2012-2022 have been evaluated retrospectively regardles of exclusion criteria such as; age, sex. Tomograms have been reached at the center of emission-computed tomography(SECTRA) in the hospital, and so as to affirm, avaliable tomography reports of the patients in the system, which had been written by radiologist were predicated on. Besides, radiologist's opinion was received for the tomograms the report of which had not been written yet.

Results and Conclusion: In this study, 213 arbitrary thorax tomograms were chosen, ostracizing the ones with intense mobile artefact. At the same time, selected tomograms were categorized according to the hemothorax, contusion and pneumothorax. 67 normal BTT, 44 hemothorax BTT, 35 contusion hemorrhage BTT, 67 pneumothorax BTT were included in this study. With the existing data, the ability of artificial intelligence to detect thorax hemorrhage in thorax tomography has been determined positively, and we expect it to be used in practice in the near future. Existing programs will help the responsible physician make rapid and correct diagnosis, minimize the margin of error, and reduce the workload of the radiologist. These results are strongly supported by the data obtained in this study. Near feture , we will see so much ability of artificial intelligence because of like this study.

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Pub No: OP-339

Cytoxic Lesions of The Corpus Callosum In A Patient With Respiratory System Infection

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Background
While headache, dizziness, nausea and vomiting may be the common symptoms of many pathologies at the beginning, such symptoms that do not relieve despite treatment and persist for hours or days may be the harbinger of central pathologies. Cytotoxic lesions of the corpus callosum (CLOCCS) have a wide etiology including infection, trauma, drug-related, malignancy, metabolic disorders, toxins, and subracnoid hemorrhage.

Case Presentation
A 38-year-old female patient was admitted to our emergency department with complaints of persistent headache, dizziness and vomiting for two days. When the patient's anamnesis was detailed, she had complaints of sore throat, occasional cough and runny nose for 1 week. In her physical examination, there was no additional examination finding except right ataxia. While the complaints did not regress and the patient had right ataxia in the neurological examination, no features were found in the cranial computed tomography in the central imaging, but diffuse restriction in the corpus callosum splenium was observed in the cerebral diffusion magnetic resonance imaging. With the preliminary diagnosis of CLOCCs, he was hospitalized by the neurology clinic and anticoagulant treatment was started. After the service follow-ups, the patient was discharged with recovery.

Discussion
Cytotoxic lesions of the corpus callosum are an extremely rare clinical and radiological syndrome associated with many infectious etiologies.
In the physiopathogenesis of CLOCCS, an inflammatory process involving cytokines such as IL-6 triggers glutamate accumulation in the extracellular space, resulting in cytotoxic edema, especially in astrocytes.
In our case, there were symptoms affecting the respiratory system such as sore throat, cough and nasal discharge for a while, and the clinical process was associated with this picture.

Conclusion
Dizziness, headache, nausea and vomiting complaints usually regress with symptomatic treatment in the emergency department, depending on the underlying etiology. If these complaints persist, it should be kept in mind that there may be symptoms related to central pathologies.

INTRODUCTION

While headache, dizziness, nausea and vomiting may initially be common symptoms of many pathologies, such symptoms not being relieved despite treatment and persisting for hours or days may be a sign of central pathologies. Central imaging may be required in patients with persistent headache, dizziness and vomiting who do not respond to symptomatic treatment followed in the emergency departments.

Cytotoxic lesions of the corpus callosum (CLOCS) have a wide range of etiologies, including infection, trauma, drug-related, malignancy, metabolic disorders, toxins and subracnoid hemorrhage. (1). In this verbal report, CLOCCs detected in a patient who presented to the emergency department with complaints of persistent headache, dizziness and vomiting in the 3rd post-partum month will be discussed.

CASE PRESENTATION

A 38-year-old female patient was admitted to our emergency department with complaints of persistent headache, dizziness and vomiting for two days. There is a history of cesarean section three months ago. She has a history of using antihypertensives due to gestational hypertension and Low Molecular Weight Heparin due to the risk of miscarriage. There is no active drug use. In the anamnesis taken from the patient, it was learned that she had complaints of sore throat, intermittent cough and runny nose for a week. Emergency department admission vitals were arterial blood pressure 120/70 mm Hg, pulse 72 beats/minute, room air saturation 97%, and temperature 36.6 0C. In her physical examination, no additional findings were found other than ataxia to the right. In laboratory examinations, leukocytes were found to be 4700/mm3, CRP as 69.6. While the central imaging of the patient, whose complaints did not regress and who had right ataxia on neurological examination, showed no abnormality in cranial computed tomography, diffuse restriction in the corpus callosum splenium was observed in cerebral diffusion magnetic resonance imaging. With the preliminary diagnosis of CLOCCs, he was hospitalized by the neurology clinic and anticoagulant treatment was started. After the service follow-ups, the patient was discharged with recovery.

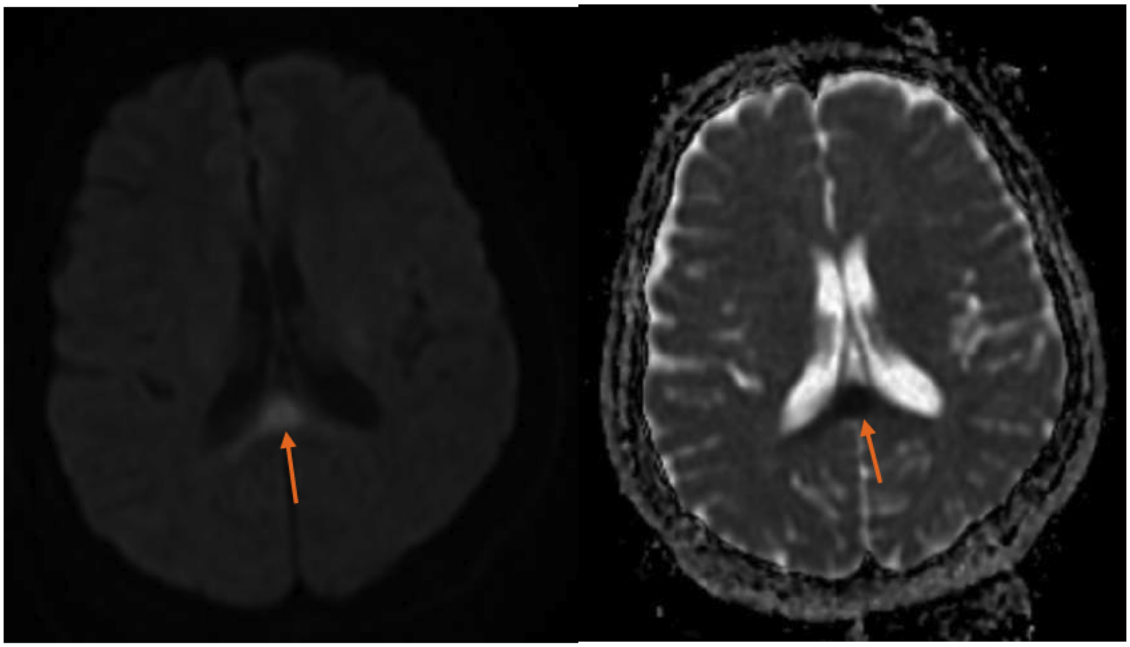

Figure 1. Diffuse restriction area in the corpus callosum on diffusion MRI imaging and its counterpart in the ADC sequence

DISCUSSION

Cytotoxic lesions of the corpus callosum are an extremely rare clinical and radiological syndrome associated with many infectious etiologies.(2). The physiopathogenesis of CLOCCs involves an inflammatory process involving cytokines such as IL-6 triggering glutamate accumulation in the extracellular space, resulting in cytotoxic edema, especially in astrocytes. (3). The corpus callosum, and especially the splenium, is more affected than other parts of the brain because it contains high amounts of glutamate receptors and cytokines (4). In our case, there had been symptoms affecting the respiratory tract such as sore throat, cough and runny nose for a while, and the clinical process was attributed to respiratory tract infection.

CONCLUSION

Complaints of dizziness, headache, nausea and vomiting usually regress with symptomatic treatment in the emergency department, depending on the underlying etiology. If these complaints persist, it should be kept in mind that there may be symptoms related to central pathologies. Early diagnosis of central pathologies and initiation of treatment will significantly reduce mortality and morbidity.

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Pub No: OP-340

Association between indices of inflammation and mortality in patients with severe COVID-19

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Introduction and Purpose: Coronavirus disease (COVID-19) is known to be associated with an increased inflammatory response. Therefore, inflammatory indices can be used to predict prognosis in COVID-19 patients. In our study, the relationship of systemic inflammation index (SII), systemic inflammation response index (SIRI), aggregate index of systemic inflammation (AISI) and prognostic nutrition index (PNI) with prognosis in patients with severe COVID-19 was investigated.

Materials and Methods:A retrospective analysis was conducted on 788 patients diagnosed with severe COVID-19 in the emergency department between 01/06/2019 and 01/06/2022. SII=[(platelet×neutrophil)/lymphocyte],SIRI =[(neutrophil×monocyte)/lymphocyte],AISI=[(neutrophil×platelet×monocyte/lymphocyte)] and PNI=[(10×serum albumin[g/dL])+(0.005×lymphocyte/μL)]. SII, SIRI, AISI, and PNI levels were compared statistically between patient groups, including survivors and non-survivors as well as those receiving and not receiving mechanic ventilation (MV) support. Additionally, ROC analysis was conducted to assess the impact of these indices on mortality prediction, and sensitivity and specificity were calculated.

Results: SII, SIRI, and AISI levels were notably elevated in critically ill patients who received MV support and died, as compared to those who did not receive MV support and lived. Conversely, PNI levels were comparatively lower in the former group ($p<0.001$ for all) (Table 1,2). According to ROC analysis,the PNI had the highest predictive value when the cut-off value exceeded 309, with a sensitivity of 86.76%, specificity of 87.43%, and AUC of 0.937. But the AISI had the lowest predictive value when the cut-off value is less than 2368.8, with a sensitivity of 81.05 %, specificity of 45.43 %, and AUC of 0.680 ($p<0.001$ for all) (Table 3).

Discussion: It is known that acute respiratory distress syndrome (ARDS), multi-organ dysfunction (MODS) and death due to COVID-19 are associated with increased inflammatory response (1). Research has shown that haematological parameters are important in the triage and management of COVID-19. Complete blood count (CBC) components or their ratios can be used as early markers of systemic inflammation (2,3).

Inflammation indices, namely SII, SIRI and AISI, can be derived from CBC parameters. CBC parameters are commonly used in clinical practice and present as simple and cost-effective tests. These indices can be helpful in monitoring response to treatment and predicting prognosis, especially in patients with severe COVID-19 in intensive care units (ICU) (1). In two recent studies, SII, SIRI and AISI were found to be higher in patients with COVID-19 who died compared to those who lived (4,5). In addition, Fois AG et al. mentioned that SII levels in particular may reflect pulmonary damage caused by COVID-19 (4). In our study, consistent with these two studies, SII, SIRI and AISI were found to be significantly higher in patients with severe COVID-19 who died and needed MV compared to those who lived and did not need MV.In addition, SII, SIRI were found to have high mortality prediction power according to ROC analysis results.

Malnutrition and immune dysfunction are considered risk factors for infection caused by COVID-19.Studies have shown that the Prognostic Nutrition Index (PNI), which reflects the immune-nutritional status of patients, is an indicator of severity and mortality in patients with inflammatory diseases, cardiovascular disease and COVID-19 (6,7,8) Nalbant A et al found that the PNI was lower in patients with severe COVID-19 who were admitted to the ICU than in patients who were not.In addition, the sensitivity and specificity of the PNI in predicting disease severity were found to be 73.4% and 70.8%, respectively, when the cut-off value of the PNI was ≤36.7 (9). In our study, PNI values were found to be lower in patients with severe COVID-19 who died and received MV support compared to non-severe patients. Additionally, among all parameters, PNI had the highest AUC value in predicting mortality (AUC: 0.937, $p<0.001$).

Conclusion: SII, SIRI, AISI and PNI levels calculated on admission are inexpensive, easily accessible and reliable inflammatory indices associated with mortality in patients with severe COVID-19.

Keywords: SII, SIRI, AISI, PNI, mortality

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Table 1. Comparison of surviving and non-surviving patient groups

Parameters	Unit	Survivors (n=438)	Non-survivors (n=350)	P value
Age	*year*	66.71 ± 15.66	72.2 ± 13.23	**<0.001**
Gender				
Male		226 (%53.8)	194 (%46.2)	0.284
Female		212 (%57.6)	156 (%42.4)	
WBC	*10^3/mL*	8.4 (6.2 – 11.21)	12 (8.16 – 16)	**<0.001**
Neutrophil	*10^3/mL*	6.95 (4.71 – 9.23)	10.9 (6.9 – 15)	**<0.001**
Monocyte		0.5 (0.25 – 0.77)	0.6 (0.3 – 1)	**0.002**
Lymphocyte	*10^3/mL*	0.8 (0.5 – 1.14)	0.6 (0.3 – 0.8)	**<0.001**
Platelet		205 (153 – 275)	195 (145 – 261)	0.011
Albumin		38.25 (34.2 – 45)	26 (25 – 28.7)	**<0.001**
SII		1796.41 (933.75 – 3410.427)	3598.2 (2057.9 – 6673.3)	**<0.001**
SIRI		3.6 (1.59 – 8.21)	10.78 (4.13 – 26.13)	**<0.001**
AISI		736.5 (312 – 1950)	1969.6 (703.5 – 5175)	**<0.001**
PNI		382.51 (342 – 450.01)	260 (248 – 287)	**<0.001**
MV support				
Yes		109 (%25.6)	316 (%74.4)	**<0.001**
No		329 (%90.6)	34 (%9.4)	
Length of hospital stay	*day*	11 (8 – 18)	10 (6 – 17)	0.052

WBC: white blood cells, SII:systemic inflammation index, SIRI:systemic inflammation response index, AISI: aggregate index of systemic inflammation, PNI: prognostic nutrition index, MV: mechanical ventilation

Table 2. Comparison of mechanical ventilation requirements and parameters

Parameters	receiving MV support (n=427)	Not receiving MV support (n=361)	p value
WBC	11.5 (7.79 – 15.4)	8 (6.13 – 11)	**<0.001**
Neutrophil	9.7 (6.61 – 14)	6.6 (4.7 – 9.08)	**<0.001**
Monocyte	0.6 (0.3 – 1)	0.5 (0.27 – 0.77)	**<0.001**
Lymphocyte	0.6 (0.4 – 0.8)	0.8 (0.5 – 1.16)	**<0.001**
Platelet	200 (149.75 – 272)	200 (152.25 – 266.75)	0.367
Albumin	27.3 (25 – 32.4)	38 (34 – 45)	**<0.001**
SII	3401.1 (1915.6 – 6348.3)	1727.14 (922.5 – 3210)	**<0.001**
SIRI	9.2 (3.67 – 23.2)	3.44 (1.56 – 7.8)	**<0.001**
AISI	1717.5 (617.6 – 4837.8)	688 (286.95 – 1737)	**<0.001**
PNI	273 (250 – 324)	380.02 (340 – 450.01)	**<0.001**

WBC: white blood cells, SII:systemic inflammation index, SIRI:systemic inflammation response index, AISI: aggregate index of systemic inflammation, PNI: prognostic nutrition index, MV: mechanical ventilation

Table 3. ROC analysis of mortality prediction parameters

	AUC (%95 CI)	Cut-off	p	Sensitivity (%)	Specificity (%)
WBC	0.692	≤10	**<0.001**	69.63	62.57
Neutrophil	0.709	≤9	**<0.001**	74.2	60.29
Monocyte	0.565	≤0.93	**0.002**	87.44	28.86
Lymphocyte	0.672	>0.76	**<0.001**	52.97	73.14
Platelet	0.553	>174	**0.011**	67.12	44
Albumin	0.936	>30.9	**<0.001**	86.76	87.43
SII	0.697	≤2475	**<0.001**	64.84	69.43
SIRI	0.716	≤10.27	**<0.001**	81.74	51.71
AISI	0.680	≤2368.8	**<0.001**	81.05	45.43
PNI	0.937	>309	**<0.001**	86.76	87.43

WBC: white blood cells, SII:systemic inflammation index, SIRI:systemic inflammation response index, AISI: aggregate index of systemic inflammation, PNI: prognostic nutrition index, ROC: receiver operating characteristic, AUC: area under the curve

Pub No: OP-341

Spontaneous intracerebral hematoma, which is common in the elderly and surgical indication

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GİRİŞ

Spontan intraserebral hematom (SISH) travma dışı ve inmelerin yaklaşık olarak %10-15'ini meydana getiren kanamalardır(1). SISH görülme sıklığı yaklaşık 25/100.000 kişi olup, 12 aylık mortalitesi yaklaşık %40-60 olup bunun da çoğu ilk 1 ay içinde meydana gelmektedir(2, 3). En sık bazal ganglionlarda görülmekte olup, sıklığı yaşla birlikte artar ve kontrol altında olmayan arteriyel hipertansiyon (HT) ile ilişkilidir(4). Prognozunda; yaş, Glaskow koma skoru (GKS), eşlik eden hastalıklar ve lokalizasyonu gibi birçok faktör yer almaktadır(5).

MATERYAL-METOD

Çalışmamız son 5 yıl içerisinde acil servise başvuran ve SISH tanısı almış 21'i erkek, 6'sı kadın toplam 27 erişkin hasta ile gerçekleştirildi. Hastaların yaş, cinsiyet, sistemik hastalıkları gibi demografik verilerinin yanında ilk başvuru anındaki GKS ve nörolojik muayene bulguları değerlendirildi. Hastaları GKS'ye göre 3 gruba ayırdık; GKS 5-8, GKS 9-12 and GKS 13-15(6). İlk başvuru anında hastaların tamamına bilgisayarlı beyin tomografisi (BBT) çekildi. Kanamanın lokalizasyonu derin (talamik, putaminal, bazal ganglionlar) ve lobar(frontal, pariyetal, temporal, oksipital) olmak üzere 2 şekilde sınıflandırıldı.

SONUÇLAR

Retrosepektif olarak yapılan çalışmamızda 21'i erkek, 6'sı kadın olmak üzere tümü supratentoryal yerleşimli 27 hasta değerlendirildi. Bu hastaların ortalama yaşı 62,87 (19-92) idi. Hastaların tamamının başvuru sonrası cerrahi amaçlı beyin cerrahisi yoğun bakıma yatışı yapıldı. Hematomun en sık yerleşim yeri %69,8 ile derin yerleşimliydi. Ortalama yatış süresi 22.53 gündü. Hastaların nitel değişken değerleri tablo 1'de, nicel değişkenleri ise tablo 2'de sunulmaktadır.

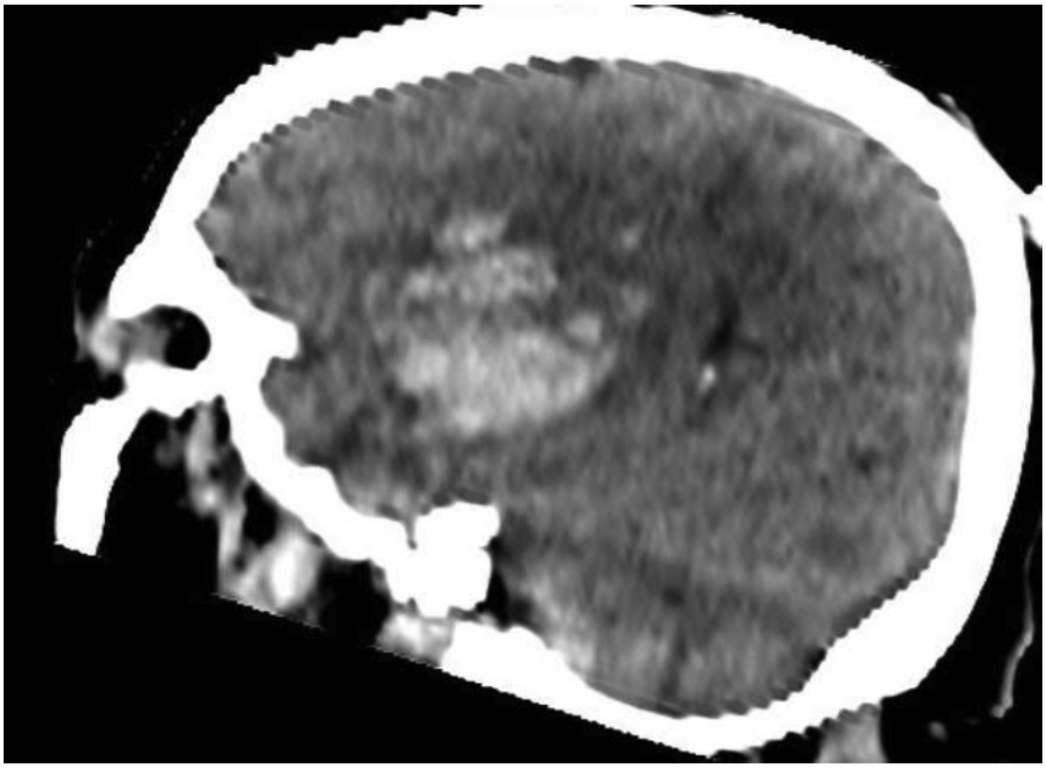
Tablo 1. Nitel değişkenler dağılımı

Değişkenler		n	%
GKS	3-8	37	69,8
	9-12	16	30,2
Cinsiyet	Kadın	6	22,3
	Erkek	21	77,7
Lokalizasyon	Lobar	8	29.7
	Deep	19	70.3
Kanama tarafı	Sağ	13	49
	Sol	14	51
Ventriküle açılma	Yok	5	18,5
	Var	22	81,5
Hastanın çıkış tipi	Taburcu	11	40,7
	Ex	16	59,3
DM	Yok	15	55
	Var	11	45
Astım	Yok	25	92,5
	Var	2	7,5
Koroner arter hastalığı	Yok	18	66,6
	Var	9	33,4
HT	Yok	11	40,7
	Var	16	59,3

Tablo 2. Nicel değişkenler dağılımı

Değişkenler	Mean		Minimum	Maximum
Yaş (yıl)	62,87		19,00	92,00
Yoğun bakım yatış (gün)	22,53		1,00	174,00
GKS	6,85		3,00	12,00

Başvuran hastalar içerisinde GKS 13-15 aralığında hiçbir hasta yoktu. Hastaların 16'sı ex olurken (%59.3) bu hastaların 16'sı GKS 3-8 olan gruptu. GKS ex olan grupta 5,41±1,68 olup, sağ kalan gruba göre daha düşüktü.



Resim 1. Bilgisayarlı beyin tomografisi (BBT), sagittal kesit derin yerleşimli hematom

TARTIŞMA

SISH beyin ve sinir cerrahisini ilgilendiren ve acil servis pratiğinde özellikle ileri yaş grubunda sık karşılaşılan ve cerrahi endikasyonun oluştuğu hastalarda erken cerrahi uygulanması gereken durumlardandır. Cerrahiye karar vermede yaş, başvuru anındaki bilinç düzeyi, hematom hacmi gibi birçok parametre rol oynamaktadır. Cerrahideki amaç, artmış kafa içi basıncını düşürmektir. Sakatlık ve ölüm sebeplerinden olan hemorajik serebrovasküler hastalıklar, önlenebilir ve tedavi edilebilir bir risk faktörü olan HT ilişkilidir. Hastalarımızın da 16'sında (%59,3) HT mevcuttu.

SISH hastaları baş ağrısı ile derin koma yelpazesindeki bir klinik evrede başvurabilirler. Ancak çalışmamızdaki hastaların tamamı bilinç bozukluğu ile başvurmuştu. GKS, SISH hastalarında prognozu öngörmede kullanılan bir parametredir. Yüksek GKS'li hastalarda prognoz daha iyidir. Mortalite oranı çalışmamızda %59,3 idi.

Literatür incelendiğinde SISH'ların en çok yerleşim yerinin %50-60 oranında bazal gangliyonlar olduğu bildirilmektedir(7). Çalışmamızda hematomların en sık yerleştiği bölge 19 (%70,3) hasta ile derin bölge idi.

SISH'lar bazen ventriküle açılabilir. Bunun sonucunda da beyin omurilik sıvısı (BOS) geçiş yollarında tıkanma oluşabilir. Bu durumda prognozun kötü yönde etkileyen hidrosefali gelişebilir. Literatürde SISH hastalarında %40 oranında hematomun ventriküle açıldığı bildirilmektedir(8). Çalışmamızdaki hastaların da 22'sinde (%81.5) hematom ventriküle açılmıştı.

SISH hastaları geniş bir şikayet aralığında acil servise başvurabilmektedir. Genellikle de bilinç kaybı yaşadığı için başkaları tarafından hastaneye getirilmektedir. Bu şekilde bir klinik başvurusu olan hastada etiyolojinde SISH unutulmamalıdır. Bu sebeple bilinç bulanıklığı veya kaybı ile acil servise başvuran hastalarda vakit kaybetmeden BBT çekilmeli, varsa kanamanın erken müdahale edilmesiyle hastalığın daha iyi seyretmesine katkı sağlayabileceği unutulmamalıdır.

REFERANSLAR

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Pub No: OP-343

Neuroleptic Malignant Syndrome (NMS)

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Backround

NMS is a rare, life-threatening and unpredictable (idiosyncratic) complication that occurs with the use of drugs that affect the central dopaminergic system (most commonly antipsychotics). Due to the rarity of this syndrome and difficulties in its differential diagnosis, this case will be described.

Case Presentation

A 55-year-old female patient with a known diagnosis of bipolar disorder was brought to the emergency department with complaints of irregular medication use, impaired consciousness, inability to speak, and body spasms that had been present for two days. The patient is receiving lithium 900 mg/day, olanzapine 20 mg/day, duloxetine 30 mg/day, chlorpromazine 100 mg/day, and quetiapine 200 mg/day. She was admitted to the intensive care unit with a prediagnosis of NMS. She was intubated on the third day of his hospitalization. In the examination, no extrapyramidal symptoms such as cogwheel sign and tongue fasciculation were detected, GCS: 15, oriented-cooperative patient was transported to the service on the 21st day in the intensive care unit.

Discussion

According to the diagnostic criteria established by the American Psychiatric Association (DSM-IV), tremor, altered consciousness, high variable blood pressure, tachycardia, leukocytosis, elevated serum creatinine in our case suggested the diagnosis of NMS and were evaluated as the inability to explain the current situation with the presence of another disease. Mortality rate is high in Neuroleptic Malignant Syndrome. The most accurate approach to reduce mortality is the effective application of intensive care therapy in the presence of abnormal autonomic dysfunction, respiratory distress due to rigidity and hemodynamic instability.

Conclusion

NMS is a rare but life-threatening syndrome due to its high mortality. Keeping the diagnosis of NMS in mind and questioning the use of neuroleptic/antipsychotic drugs persistently in the anamnesis are very important in preventing the mortal course of the disease.

Keywords: Neuroleptic malignant syndrome, emergency, fever, rigidity.

NEUROLEPTIC MALIGN SYNDROME

SUMMARY

Neuroleptic Malignant Syndrome (NMS) can be seen at any time during antipsychotic treatment, and usually develops within the first 24–72 hours after starting antipsychotic treatment or increasing the dose. It can be seen within the first 24 hours in 16% of the cases, within the first week in 66%, and within the first 30 days in almost all cases, and the use of long-acting antipsychotics can prolong this period. Although its incidence may vary in various publications, it is 0.02-3.20%, while its mortality rate is as high as 55%. (1, 3, 7, 11). With early diagnosis and the right approach, death can be prevented even in serious cases.

Various diagnostic criteria have been developed, but there is no diagnostic test on which full consensus has been reached. It is a condition that requires urgent treatment and should be followed under intensive care conditions. Delay in treatment may result in mortality. Due to the rarity of this syndrome and the difficulties in its differential diagnosis, this case will be discussed.

INTRODUCTION

NMS is a rare, life-threatening and unpredictable (idiosyncratic) serious complication that occurs with the use of drugs that affect the central dopaminergic system (most commonly antipsychotics).

It presents clinically with high fever and muscular rigidity. Body temperature remains between 38.5–42°C. Fever is in the form of a sudden rising pattern and daily fluctuations, peaks and chills are not observed. Muscular rigidity is in the form of a widespread increase in muscle tone or lead pipe rigidity. It can vary from mild increase in tone to opisthotonus.

Focal increases in muscle tone can also manifest as blepharospasm, ocular crisis or trismus. As a result of increased muscular tone, pathological reflexes, tremor, bradykinesia, chorea, dystonia, nystagmus, dysphagia, dysarthria or aphonia may also accompany the picture. Changes in mental status manifest themselves with fluctuations ranging from coma to confusion, disorientation, psychomotor agitation and delirium. Other autonomic symptoms include physical examination findings such as tachycardia, tachypnea, blood pressure changes, pallor, urinary retention, sialorrhea and diaphoresis.

CASE REPORT

The 55-year-old female patient, who was brought to the emergency room with irregular medication use and complaints of impaired consciousness, inability to speak and body convulsions that had been present for two days, has known diagnoses of bipolar disorder and hypertension. The patient is receiving treatment with lithium 900 mg/day, olanzapine 20 mg/day, duloxetine 30 mg/day, chlorpromazine 100 mg/day, quetiapine 200 mg/day.

In physical examination; blood pressure arterial (TA): 141/82 mmHg, pulse: 118 beats/min, saturation 96% with nasal cannula oxygen support, respiratory rate: 15/min, axillary temperature 36.3°C. In his neurological examination, general condition was found to be fair, consciousness was confused, Glasgow Coma Scale (GCS): 12, pupils were isochoric, direct and indirect light reflexes were positive bilaterally. Horizontal nystagmus and disoriented speech are present. Lung sounds were heard equally and naturally bilaterally. The patient was observed to have diuresis and pyuria using a Foley catheter.

In laboratory examinations, serum creatinine: 2.95 mg/dl, urea: 82mg/dl, Glomerular filtration rate (GFR): 19ml/min/1.73 m2, alkaline phosphatase: 205 U/L, Sodium: 130 mmol/L, Calcium: 12.17mg/ dl was measured as leukocyte: 12380, C-Reactive Protein (CRP): 2.50mg/dl, lactate: 2.4mmol/L, Lithium: 2.68 mEq/L. No pathological value was detected in other parameters.

The patient was consulted to infectious diseases, neurology and psychiatry branches with a preliminary diagnosis of NMS. Empirical ceftriaxone 1x2 g was started. Urine and double arm blood cultures were planned in case the patient had pyuria in the complete urinalysis and had a fever. A CSF sample was performed from the patient via lumbar puncture. A consultation response was received from the neurologist, who stated that the general condition of the patient, who had no acute pathology in his central imaging, might be due to the toxicity of the drugs he used.

The patient was admitted to the intensive care unit with a prediagnosis of NMS. On the second day of hospitalization, he was taken to hemodialysis due to acute renal failure, and in the control neurological examination, the nystagmus was evaluated to have decreased. He was intubated on the third day of his hospitalization when his unconsciousness increased. With the recommendation of the psychiatrist, quetiapine was started due to increased restlessness and insomnia. The patient was extubated on the 12th day of hospitalization. The oriented-cooperative patient, with no extrapyramidal symptoms such as cogwheel sign or fasciculation of the tongue, was transferred to the ward on the 21st day of the intensive care unit.

DISCUSSION

Neuroleptic Malignant Syndrome is a syndrome that occurs with the balance of central neurotransmitters and is usually seen in young adults. Dose changes in antipsychotic treatment and sudden discontinuation of medications are among the most important etiological factors and can be seen in 0.5-1% of antipsychotic users. Factors that may predispose to Neuroleptic Malignant Syndrome; dehydration, malnutrition, fatigue, parenteral neuroleptic administration, high dose neuroleptic use, advanced age, male gender, neuropsychiatric disorders, traumatic brain injury, agitation, organic brain damage, pre-existing brain anomalies affecting dopamine activity or receptor functions, iron deficiency, infections. (HIV) and concurrent use of lithium, anticholinergic agents and some antidepressants. Janati et al. In 2012, a case was published in which NMS developed after the use of amitriptyline (tricyclic antidepressant) and carbamazepine (anticonvulsant). (3,8,9,10) In our case, lithium, antipsychotic drug, carbamazepine use, iron deficiency anemia and irregular drug use were considered as etiological factors. .

Diagnostic criteria of Neuroleptic Malignant Syndrome are given in Table 1. In our case, the use of antipsychotic medication, which is one of the mandatory criteria in the Nierenberg NMS diagnostic criteria, and the recent use of a dopaminergic agonist and its discontinuation by the patient are the major criteria; We evaluated the criteria as change in consciousness, muscular rigidity, autonomic dysfunction and minor criteria such as respiratory distress, tachycardia, leukocytosis and tremor.

According to the diagnostic criteria (DSM-IV) established by the American Psychiatric Association, the tremors, change of consciousness, highly variable blood pressure, tachycardia,

leukocytosis, and elevated serum creatine in our case suggested the diagnosis of NMS and were evaluated as the current situation not being explained by the presence of another disease.

Table 1. Commonly used NIMS diagnostic criteria

Nierenberg NMS tanı kriterleri	DSM-IV NMS tanı kriterleri
Zorunlu kriterler	A kriterinin her ikisinin ve B kriterlerinden en az 2 maddenin varlığında tanı koyulabilir.
1. Son zamanlarda antipsikotik tedavi kullanımı	**A kriterleri**
2. Son zamanlarda diğer dopaminerjik ajan kullanımı	1. Kas rijiditesi
3. Son zamanlarda dopaminerjik bir agonistin kesilmesi	2. Yüksek ateş
Major kriterler	**B kriterleri**
1. Hipertermi (vücut ısısı diğer sebepler olmaksızın >38°C)	1. Terleme
2. Müsküler kurşun boru rijiditesi	2. Disfaji
3. Serum kreatin fosfokinaz düzeyinde yükselme (normalden 3 kat fazla)	3. Titreme
4. Otonomik disregülasyon (iki veya daha fazlası; terleme, taşikardi, yükselmiş veya düşmüş kan basıncı)	4. İnkontinans
5. Bilinç durumunda değişiklik	5. Bilinç değişikliği
Minor kriterler	6. Mutizm
1. Otonomik disfonksiyonun diğer bulguları (inkontinans, aritmi veya henüz major kriterler altında yer almayan özelliklerden bir tanesi),	7. Taşikardi
2. Solunum sıkıntısı (takipne, dispne, hipoksemi, veya solunum yetmezliği)	8. Yüksek veya değişken kan basıncı
3. Lökositoz (Beyaz küre sayısı>12000)	9. Lökositoz
4. Ektrapiramidal bulgular (tremor, dişli çark belirtisi, distoni, korei-form hareketler)	10. Kas hasarını gösteren laboratuar bulguları (örn. CPK yüksekliği)
	C kriteri
	Bu durum bir başka tıbbi hastalığın varlığıyla daha iyi açıklanamaz.
	D kriteri
	Bu durum bir başka mental bozukluk ile daha iyi açıklanamaz.

A differential diagnosis of NMS should be made with malignant hyperthermia, intracranial mass, central anticholinergic syndrome, intoxication, central nervous system infections, drug-induced hyperthermia, and even streptococcal pharyngitis (2,3,4,5,6). In our case, the fact that there was no history of anesthetic drug or neuromuscular blocker use, no anticholinergic drug use, normal pharynx examinations, no growth in nasal culture, and normal brain tomography facilitated the differential diagnosis. In our case, central nervous system infection was excluded by the analysis of the cerebrospinal fluid taken by lumbar puncture. The most effective drug in the treatment of Neuroleptic Malignant Syndrome is dantrolene and it significantly reduces mortality. In addition to treatments such as bromocriptine, amantadine, levadopa, electroconvulsive therapy (ECT) and nifedipine, neuromuscular blockers (especially neuromuscular blockers) are used to solve the developing rigidity. Cisatracurium) can be used. The benefit of other recommended medications, such as calcium channel blockers and benzodiazepines, still needs to be debated. ECT application is also among the treatment recommendations for resistant cases. Since there was no rigidity in

our case, these combinations were not used. The mortality rate in Neuroleptic Malignant Syndrome is high. The best approach to reduce mortality is the effective application of intensive care treatment in the presence of abnormal autonomic dysfunction, respiratory distress due to rigidity, and hemodynamic instability. Our case was also followed up in intensive care.

CONCLUSION

Before diagnosing Neuroleptic Malignant Syndrome, a differential diagnosis must be made and predisposing causes must be treated and excluded. It is very important for neurology, emergency medicine and infectious disease specialists to keep the diagnosis of NMS in mind, especially in patients presenting with fever and confusion, and to persistently question the use of neuroleptic/antipsychotic drugs in the anamnesis to prevent the mortal outcome of the disease. As a result, NMS is a rare but life-threatening syndrome due to its high mortality.

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12. **Pub No**: OP-346

13. Mucormycosis is a mortal enemy

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16. **Introduction and Purpose:** Mucormycosis infections are a condition with acute onset and high mortality, especially in immunosuppressive patients. We herein present a case of mucormycosis.

17. **Case:** A 65-year-old woman admitted to emergency department (ED) with the complaints of ptosis of left eyelid for 3 days. It was mentioned that she was diagnosed with covid-19 one month ago. She was hospitalised for 4 days due to persistent cough and ongoing pcr positivity despite treatment and received piperacillin-tazobactam and 40 mg methylprednisolone treatment for 5 days. The patient had a history of ischaemic stroke, liver cirrhosis and diabetes mellitus. It was learned that her glucose levels were irregular and she had been treated with 32 mg methylprednisolone after discharge. Physical examination revealed ptosis of the left eyelid, total limitation of left eyeball movements and mydriasis. The patient was tachypneic (24/min) but other vital signs were normal. Blood tests showed leukocytosis (19.13 K/uL), thrombocytopenia (42 K/uL), hyperglycaemia (264 mg/dL), hypernatraemia (125 mmol/L), high C-reactive protein (32 mg/L), hyperbilirubinaemia (12.3 mg/dL). Head and orbita CT imaging revealed prepitosis and inflammatory appearances around left preseptal region, left orbita and left maxillary sinüs. In the nasal endoscopy, necrosis and hyphal structures were observed in the lateral wall of the left nasal passage and conchae. Fungal sinusitis was considered. Orbital MRI showed signal intensity increases in the left nasal dorsum, lateral and superior walls of left orbita and left optic nerve which were compatible with infectious and inflammatory processes. The patient was hospitalised with the diagnosis of rinoorbital mucormycosis and amphotericin-b 5 mg/kg was started. The patient was operated for debridement on the next day of admission. After the operation, fever, severe hypotension, decreased urine output and metabolic acidosis developed in intubated patient. Methicillin-resistant staphylococcus aerus and Enteroccus faecium were

identified in blood and catheter cultures. Although haemodialysis, antibiotics and inotropic drugs were applied, the patient died on the 6th day of hospitalisation due to septic shock and multiple organ failure.

18. **Results and Conclusion:** Rhinoorbital mycormucosis is a high mortality infection that usually occurs in diabetic, corticosteroid using or immunosuppressive individuals. Debridement, antifungal treatment and treatment of other co-morbid conditions are important.

Pub No: OP-347

Non-ketotic hyperglycemic hemichorea in an elderly male

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Abstract:

Background: Non-ketotic hyperglycemic hemichorea is a rare complication of diabetes mellitus seen in the emergency department. It is most commonly reported in elderly females, predominantly of Asian race, with poorly controlled diabetes mellitus. Patients present with a triad of non-ketotic hyperglycemia, hemichorea, and contralateral basal ganglia abnormality on imaging. Its exact pathophysiology is still not known. However, it has a very good prognosis with early diagnosis and treatment.

Case report: We report a case of hemichorea involving the right upper and lower limbs due to non-ketotic hyperglycemia. The patient's symptoms resolved after normalization of blood glucose.

Why should an emergency physician be aware of this? Non-ketotic hyperglycemic hemichorea should be included in the differential of a patient presenting with chorea and high blood glucose levels. It has an excellent prognosis with both symptoms and imaging abnormalities typically resolving completely with restoration of normoglycemia.

Keywords: Non-ketotic hyperglycemic hemichorea; non-ketotic hyperglycemia; chorea; diabetic striatopathy; chorea, hyperglycemia, basal ganglia (C-H-BG) syndrome; hemichorea-hemibalismus syndrome; hyperglycemic chorea; chorea in the emergency room; chorea in the emergency department

Introduction:

Chorea is a hyperkinetic movement disorder characterized by involuntary, rapid, and irregular contractions due to various inherited and acquired causes.[1] Non-ketotic hyperglycemic hemichorea is a rare acquired cause of chorea. It is most commonly seen in elderly Asian females and is characterized by a triad of unilateral involuntary choreiform movements, non-ketotic hyperglycemia, and contralateral hyperdensity and hyperintensity of basal ganglia on computed tomography (CT) and T1-weighted magnetic resonance imaging (MRI) sequence, respectively. This condition is reversible with control of the blood glucose, and it has a very good prognosis.[2]

Case report:

A 61-year-old Asian male with uncontrolled diabetes mellitus due to medication noncompliance presented to our emergency department with a history of involuntary choreiform movements involving his right upper and lower limbs for three days and altered mental status for one day. There was no history of fever, neck stiffness, head trauma, poisoning, or a family history of movement disorder. He was not taking neuroleptic medications that could cause chorea. By the time of his presentation to our emergency department, he was unresponsive with agonal respirations, a thready pulse, and an unmeasurable blood pressure. He was intubated and mechanically ventilated. Point-of-care blood glucose read "HI" and the laboratory value was >500mg/dl, the upper limit of the test. His urine ketones were negative by dipstick method. The calculated serum osmolality was 328 mOsm/L. His blood pressure improved with fluid resuscitation, and insulin infusion was started. Non-contrast computed tomography (CT) brain revealed hyperdensity in the left striatum (caudate

nucleus and putamen) with sparing of the internal capsule and no hemorrhage (figure 1). After ruling out ischemic/hemorrhagic stroke and hyponatremia, a diagnosis of non-ketotic hyperglycemic hemichorea was made. The patient's sensorium improved with blood glucose control in the next 24 to 36 hours, and the chorea also resolved.

Discussion

Chorea is a hyperkinetic movement disorder characterized by involuntary, rapid, and irregular contractions. Causes of acute chorea in the emergency department include vascular, metabolic, autoimmune, demyelination, infectious, and toxic causes. The most common cause of acute chorea is ischemic or hemorrhagic stroke involving the basal ganglia. The second most common cause of acquired chorea is metabolic, with non-ketotic hyperglycemia being the primary etiology in this group, while others being acute intermittent porphyria, hypo/hypernatremia, hypocalcemia, hyperthyroidism, hypoparathyroidism or hepatic/renal failure.[3]

Non-ketotic hyperglycemic hemichorea, also known as diabetic striatopathy, hemichorea-hemibalismus syndrome, or chorea, hyperglycemia, basal ganglia (C-H-BG) syndrome, is most commonly seen in elderly females, typically in the Asian population.[4] Almost 91% of the patients were Asian in a meta-analysis by Oh et al.[4] One hypothesis is that postmenopausal decrease in estrogen levels causes nigrostriatal dopamine receptors to become hypersensitive making elderly females more prone to this complication. However, our patient was a male, and the meta-analysis by Oh et al. concluded that men were affected much more frequently than previously reported, with a female: male ratio being 2:1.[4] Chorea and ballismus usually involves unilateral limbs, contrary to what is expected from a metabolic cause of chorea.[4–6] In a few cases, involvement of bilateral limbs

and involuntary movements involving the facial muscles, jaw, and tongue have been reported. Our patient had hemichorea involving the right upper and lower limbs. The exact pathophysiology is not known, but the proposed theories include hyperviscosity leading to local tissue hypoperfusion, depletion of GABA, petechial hemorrhage, acute dysfunction secondary to hyperglycemic or hyperosmolar insult, and accumulation of manganese-containing gemistocytes in the basal ganglia, which typically appear as T1 hyperintense lesions.[7–11] The mean serum glucose level in this condition was 481.5 mg/dl according to the meta-analysis by Oh et al.[4]

As the name diabetic striatopathy suggests, the imaging abnormalities involve the "striatum" (caudate nucleus and putamen) of the basal ganglia contralateral to the hemichorea. Non-contrast CT brain and MRI reveal striatal hyperdensity and T1 hyperintensity, respectively. The findings on the CT brain performed in our patient were consistent with this. The unilateral basal ganglia abnormality seen in diabetic striatopathy excludes other causes, including Wilson's disease, Fahr's disease, hepatic encephalopathy, osmotic demyelination syndrome, and carbon monoxide poisoning.[12] However, bilateral striatal abnormalities may rarely be present in patients with diabetic striatopathy presenting with bilateral chorea.[4] One case of non-ketotic hyperglycemic hemichorea with normal CT and MRI imaging has been reported by Chang et al. and may represent a new subtype.[5]

The primary treatment involves normalization of blood glucose. During treatment, it is imperative to monitor the patient's mental status and serum osmolality to identify cerebral edema, which can occur as a complication. The same strategies adopted to prevent cerebral edema in hyperosmolar hyperglycemic state (HHS) can be used while treating a patient with non-ketotic hyperglycemic hemichorea. In our patient, with control of blood glucose by insulin infusion, his sensorium improved, and the choreiform movements also resolved as expected for the syndrome. However, in

some cases, choreiform movements can persist for a longer period despite correction of hyperglycemia.[13,14] In such cases, neuroleptics, antipsychotics, and anticonvulsants may be helpful.[4,13] The prognosis of this condition is excellent, with both symptoms and imaging abnormalities usually resolving with restoration of normoglycemia. Hence, although uncommon, non-ketotic hyperglycemic hemichorea should be considered in the differential diagnosis of any diabetic patient presenting to the emergency department with hemichorea. This will help start early treatment and preclude extensive workup for other causes of hemichorea. Oh et al. reported a 13.2% recurrence rate of chorea on follow-up, with hyperglycemia being the cause.[4] This emphasises the significance of close monitoring and strict blood glucose control even after discharge to prevent chorea recurrence.

Why Should an Emergency Physician Be Aware of This?

Non-ketotic hyperglycemic hemichorea should be included in the differential of a patient presenting with chorea and high blood glucose levels. It is characterized by a triad of non-ketotic hyperglycemia, hemichorea, and contralateral basal ganglia imaging abnormality. The predisposing factors include female gender, advanced age, Asian ethnicity, and poor glucose control. It has an excellent prognosis with both symptoms and imaging abnormalities typically resolving completely with restoration of normoglycemia.

Summary:

The most common cause of acute chorea in the emergency department include acute ischemic or hemorrhagic stroke involving the basal ganglia. The second most common cause of acquired chorea is non-ketotic hyperglycemic hemichorea, which should be considered in the differential diagnosis of any diabetic patient presenting to the emergency department with hemichorea. Non-ketotic hyperglycemic hemichorea is typically seen in elderly Asian females, though

cases in males have lately been reported as well. It is characterized by a triad of non-ketotic hyperglycemia, hemichorea, and contralateral basal ganglia imaging abnormality. The condition is reversible on restoration of normoglycemia with an excellent prognosis.

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Figure legend:

Figure 1: Non-contrast CT brain of our patient demonstrating left striatal hyperdensity (yellow arrow)

Pub No: OP-349

A Case Report: Approach to Leptospirosis/Hantavirus in The Emergency Department

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ABSTRACT

Introduction: Leptospirosis is a zoonotic infection caused by spirochetes, which has started to appear in emergency departments in recent years due to the increasing trend of keeping pets in our country and the increasingly evident climate changes. Transmission occurs through water contaminated with rodent urine. Liver and kidney dysfunction should be considered in the differential diagnosis in febrile patients who present to the emergency department with non-specific complaints. While clinical suspicion, anamnesis and laboratory approach lead to diagnosis; Delayed diagnosis and treatment can result in multiple organ failure leading to death.
Case: A 59-year-old male patient was admitted to our emergency department as an outpatient after he was found to have elevated liver function tests at the health institution where he applied due to nonspecific complaints. Following the physical examination and laboratory tests, the patient was admitted to the infectious diseases clinic for follow-up and treatment with the preliminary diagnosis of leptospirosis.
Conclusion: Leptospirosis is a zoonotic infectious disease transmitted by rodents. Leptospirosis should be considered in cases of acute febrile illness with suspicious clinical findings in people with a history of exposure to fluids contaminated with animal urine or infected animal tissues, usually in endemic areas. Patients may experience complaints such as bleeding symptoms, rashes, deterioration in liver and kidney tests, and respiratory distress accompanied by fever. In this case, the anamnesis should be deepened and leptospirosis should be brought to mind. Isolation and treatment should be started quickly to increase the chances of survival of patients and prevent infection.

INTRODUCTION

Leptospirosis is a common and potentially fatal zoonosis that is endemic in many tropical regions, causing major epidemics after heavy rainfall and floods. The source of infection appears to be direct or indirect exposure to infected reservoir animals, which carry the pathogen in their renal tubules and shed leptospirosis in their urine. Although many wild and domestic animals serve as reservoir hosts, the brown rat (Rattus norvegicus) is the most important source of human transmission. Inadequate sanitation and poor housing conditions and exposure to mice pose risks for leptospirosis. Data from prospective surveillance studies indicate that most human leptospirosis infections are mild or asymptomatic. Mortality increases with age. High levels of bacteremia are associated with poor clinical outcomes. Patients with severe leptospirosis experience a cytokine storm characterized by high levels of IL-6, TNF-alpha, and IL-10. Here, the multidisciplinary approach and the processes leading to diagnosis are discussed in a patient who applied to our emergency department as an outpatient after being found to have elevated liver function tests at the health institution he applied to due to nonspecific complaints.

CASE NOTE

A fifty-nine-year-old male patient was admitted as an outpatient due to elevated liver function tests at the health institution where he applied due to abdominal pain. In the patient's anamnesis, there was widespread body pain, chills and abdominal pain that started four days ago, and no special features were found in his family and personal history. On physical examination, his general condition is fair, he is conscious, cooperatively oriented, vital signs are TA: 90/70 mmHg, SpO2: 98%, temperature 38.7 0C, pulse: 94/min, SS: 20/min. The scleras were icteric, there was tenderness in the lower right and middle quadrants of the abdomen, and no pathological findings were found in other system examinations. Laboratory tests are lymphocyte 380 K/mm3, urea 60 mg/dL, creatinine 1.63 mg/dL, total bilirubin 3.07 mg/dL, direct bilirubin 1.44 mg/dL, ALT 72 IU/L, AST 75 IU/L, GGT 209 IU/L and CRP 169.2 mg/L. In the abdominal ultrasonography performed bedside in the emergency room, the craniocaudal length of the liver was 170 mm (hepatomegaly), parenchymal echo grade 1 increased (hepatosteatosis), 2 hypoechoic nodular appearances were observed in liver segment 6, the largest of which was 18 * 14 mm in size, the spleen was measured 140 mm (splenomegaly) and the spleen An echo-echoic appearance was observed with a 17 mm diameter spleen adjacent to the hilus (accessory spleen). During the patient's follow-up in the emergency department, hydration was started at 150 ml/hour and evaluated by the Infectious Diseases Clinic. As a result of the current clinical picture and laboratory tests, he was hospitalized with the preliminary diagnosis of Leptospirosis and a Micro Agglutination Test (MAT) was requested for definitive diagnosis.

DISCUSSION

Leptospirosis may present as a nonspecific, acute febrile illness typically characterized by fever, myalgia, headache, and arthralgia and may be confused with other conditions that can cause viral hemorrhagic fever (VHA). The clinical picture causes a wide range of conditions, from asymptomatic to Weil's disease with hepatitis, pneumonia, jaundice, acute renal failure, bleeding diathesis, and aseptic meningitis. Multiple organ failure may develop due to hematogenous spread of the agent. The most commonly affected organ is the kidney, and it is initially characterized by a nonoliguric hypokalemic form of renal failure. Nonoliguric renal failure should be supported with fluids and electrolytes. When oliguric renal failure occurs, immediate initiation of dialysis can be lifesaving. Elevated bilirubin levels are due to hepatocellular damage and disruption of intercellular connections between hepatocytes. Hemorrhagic complications are common, the most common being thrombocytopenia and lymphopenia. Clotting disorders may develop. The incidence of pulmonary involvement in leptospirosis is reported to be 20-70%. Hemorrhagic pneumonia occurs in severe pulmonary leptospirosis, and in advanced cases, Acute Respiratory Distress Syndrome (ARDS) or diffuse alveolar hemorrhage develops. In this case, mortality is over 50%.

Leptospirosis should be suspected if acute febrile illness with suspicious clinical findings is detected in individuals with a history of exposure to fluids contaminated with animal urine or infected animal tissues. Diagnosis of leptospirosis is difficult and often other infections with similar clinical presentation must be excluded. Differential diagnoses include malaria, bacterial diseases, rickettsial diseases, viral infections such as Dengue fever and influenza. CRP (C-reactive protein) and PCT (procalcitonin) are markers recommended especially to distinguish leptospirosis and febrile viral infections. While CRP is reported to be more sensitive, PCT is useful in determining severity. Leptospirosis is diagnosed by serological tests using ELISA. Additionally, molecular techniques such as PCR can rapidly detect the presence of leptospiral DNA in blood, CSF, or urine with high sensitivity and specificity, especially in the early stage of acute infection. PCR is therefore an invaluable diagnostic tool in addition to serological tests.

Lymphopenia is common in the laboratory during the course of the disease, and thrombocytopenia or pancytopenia indicates that the disease is in an advanced stage. In addition, kidney and liver function tests, coagulation parameters and arterial blood gas are other tests that should be requested in the follow-up of patients. PA chest radiography can also be guiding in terms of radiological pulmonary involvement.

Early diagnosis and treatment are important for patients suspected of having viral hemorrhagic fever to both increase their chances of survival and prevent nosocomial infections. Patients with suspicious symptoms or travel history should be isolated and all personnel caring for persons under investigation should wear appropriate personal protective equipment and contact isolation should be ensured. Although research on treatment is still ongoing, the cornerstone of current treatment is supportive fluid resuscitation, vasopressor support if necessary, broad-spectrum antibiotics, and transfusion of blood and blood products if necessary.

CONCLUSION

Leptospirosis is a zoonotic infectious disease transmitted by rodents. Although usually limited to endemic areas, given increased human migration and greater globalization, these diseases are no longer geographically limited. Leptospirosis should be considered in cases of acute febrile illness with suspicious clinical findings in individuals with a history of exposure to fluids contaminated with animal urine or infected animal tissues. Patients' anamnesis should be detailed and VHAs should also be kept in mind in clinically suspected patients. Bleeding and rash findings during physical examination should be carefully examined and recorded. Ecchymoses and petechiae may be notable in bleeding patients. During lung examinations of patients, one should be sensitive about pathological lung sounds. Abdominal pain, hepatomegaly and splenomegaly may be important findings during abdominal examination.

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Pub No: OP-351

THE ROLE OF INFLAMMATORY PARAMETERS IN PREDICTING COMPLICATIONS IN ACUTE APPENDICITIS CASES

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Aim: To assess the complications associated with acute appendicitis (AA) and to

evaluate how specific routine patient parameters influence disease severity.

Materials and Methods: A retrospective study was carried out on patients diagnosed with AA who presented to the emergency department (ED) between January 1, 2019, and December 31, 2020. Data collected included demographic details, blood test results utilized in the ED.

Results: Of the 223 patients studied, 63.7% were male with a mean age of 37.5 ± 16.8 years. Patients with complicated appendicitis (CA) showed significantly elevated hematological parameters such as neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), C-reactive protein (CRP), systemic immune inflammation index (SII), white blood cell count (WBC), and neutrophil levels. Conversely, decreased lymphocyte/C-reactive protein ratio (LCRP) and lymphocyte levels were noted. In the context of diagnosing CA, the LCRP ratio demonstrated a sensitivity of 78.9% and specificity of 89.7% at a cut-off of ⩽0.1 (95% CI 0.711- 0.847, Area Under the Curve (AUC): 0.782; p<0.01). The NLR ratio exhibited a sensitivity of 64.9% and a specificity of 77.1% with a cut-off value of ⩾8.2 (95% CI 0.585-0.743, AUC: 0.664; p<0.05).

Conclusion: Our study determined that inflammatory markers such as LCRP, SII, NLR, and PLR serve as significant indicators for distinguishing between Complicated appendicitis (CA) and its Non-Complicated appendicitis (NCA).

Keywords: Acute appendicitis, Emergency department, Complicated appendicitis, Lymphocyte/C-reactive protein ratio, Non-Complicated appendicitis, Neutrophil-to- lymphocyte ratio

1

1. INTRODUCTION

Approximately 5% to 10% of patients presenting to the Emergency Department (ED) report abdominal pain (1). Given the frequent occurrence of this problem and its varied etiologies, there is a growing interest in imaging and laboratory methods to aid differential diagnosis (2). AA stands out as the predominant abdominal surgical condition encountered globally. Its prevalence is approximately 8.6% in males and 6.9% in females (3). The significance of early diagnosis in AA cannot be overstated. The risk of perforation, for instance, ranges from 16% to 36% within the initial 36 hours of abdominal pain onset, and sees an additional increase of 5% every subsequent 12 hours (4). This is concerning, especially since perforation stands as the most common complication of AA, contributing substantially to increased mortality and morbidity (5). Thus, timely intervention and early diagnosis in patients susceptible to complications are paramount. Notably, the challenge persists in identifying a universally acknowledged gold standard for diagnosing AA.

The aim of this study is to determine the discriminatory power of laboratory values in distinguishing between CA and NCA by comparing them with pathology reports.

2. MATERIALS AND METHODS

2.1. Study Design and Setting

This study was conducted as a single-centered, retrospective cross-sectional research at Mug˘la Training and Research Hospital ED. The study was started to be conducted after obtaining approval from the Mug˘la Sıtkı Koc¸man University Medical and Health Sciences Ethics Committee on November 30, 2021, with the decision number 7. Patients who were diagnosed with AA in the hospital's ED and underwent surgery in the General Surgery Department between January 1, 2019, and December 31, 2020, were studied. Medical records of these patients were accessed through the institution's information management system (KARMED®), and a study was conducted.

2

2.2. Definitions and Clinical Scoring Tools

"Acute appendicitis" refers to the inflammation of the appendix, which is a blind- ended pouch located in the lower right abdomen. When patients present with abdominal pain in the ED, a diagnosis of appendicitis is established through the patient's history, physical examination, laboratory tests, clinical scoring tools, and imaging methods.

Patients in the study were categorized into two groups: those with complicated appendicitis (CA) and those with non-complicated appendicitis (NCA). The identification of CA was based on surgical and pathological findings, with the aim to ascertain the prevalence of CA. Specifically, surgical and/or pathological reports that described conditions as gangrenous/necrotizing, abscessed, or perforated were classified under CA. All other diagnostic outcomes were categorized as NCA.

2.3. Patient Selection

We retrieved a list of patients evaluated for AA using diagnosis codes K35, K35.0, K35.1, K35.9, K36, and K37 from the hospital's information technologies department and conducted a retrospective review of their medical records, including laboratory results, surgical notes, and pathology reports. As depicted in Figure 1, our study primarily encompassed patients who were aged 18 years and above, had been diagnosed with AA in the ED, and had surgery performed by the general surgery team. However, certain groups were excluded to maintain the study's integrity. These included patients under 18 years, those with incomplete data or a recent hospitalization history within the last 14 days, pregnant individuals, immunosuppressed patients, those diagnosed with hematological or liver diseases, individuals with known kidney failure, and those who underwent an appendectomy for reasons other than AA. These exclusions were necessary as these factors could potentially influence inflammatory markers. When all patients who applied within a 2-year period and were not excluded were calculated with the Mann-Whitney U test using G Power analysis; Considering the study effect size as 0.5, the error level as

3

0.05, and the power as 95%, it was determined that studying a total of 184 patients was sufficient.

Screened

for eligibility

ICD-10 codes K35, K35.0, K35.1, K35.9, K36, and K37

(n=328)

All ED visits with initial ED diagnosis of codes K35, K35.0, K35.1, K35.9, K36, and K37

(n=328)

Excluded **(n=105)**
not meeting inclusion criteria

10 patients reported as having a normal appendix

2 patients with hematological diseas

5 patients due to pregnancy

2 patients for whom imaging results could not be obtained

3 patients for whom pathology results could not be obtained

80 patients with missing data their files

3 patients who underwent appendectomy for another reason during surgery

Patients aged 18 and older

Patients diagnosed with AA in the ED and operated on by the general surgery team

Non-Complicated Appendicitis n=166(74%)



Included

patients with acute appendicitis

(n=223)

Analyzed patients with acute appendictis

(n=223)



Complicated Appendicitis n=57(26%)

Figure 1. Number of Included/Excluded Patients and Criteria in the Study

4

2.4. Study Protocol and Follow-Up

Upon arrival at the ED, patients are first assessed by emergency medicine specialists and their assistants. This comprehensive evaluation includes gathering the patient's medical history (anamnesis), performing a physical examination, conducting laboratory tests, utilizing clinical scoring, and interpreting imaging results. If these combined findings suggest a preliminary diagnosis of AA, a consultation with the general surgery department is initiated. Subsequent evaluations may result in the patient being admitted for further treatment. All relevant data from these evaluations are meticulously documented in the patient's medical records and subsequently stored in the hospital's dedicated information system. For this study, we accessed the data of those diagnosed with AA in the ED through the hospital's information system and the detailed patient records compiled during their admission.

2.5. Data Collection

Patient records were retrieved via archival research, utilizing the hospital's information management system for laboratory result extraction. For every patient satisfying the study's inclusion criteria, a dedicated form was

developed. This form encapsulated various parameters: demographic details (age and gender), laboratory results (including CRP, WBC, Platelet [PLT], Neutrophil [NEU], Lymphocyte [LYM], Neutrophil-to-Lymphocyte ratio [NLR], Platelet-to-Lymphocyte ratio [PLR], Systemic Immune-Inflammation Index [SII], and Lymphocyte to CRP ratio [LCRP]), pathological and surgical CA diagnosis status. These data were subsequently subjected to comparative analysis.

2.6. Laboratory Methods

Blood samples were obtained from patients presenting to the ED and were meticulously recorded. The routine blood collections in the ED were conducted utilizing tubes containing sodium citrate to ensure the prevention of blood coagulation and facilitate accurate analysis. Subsequent analyses were performed at room temperature utilizing Sysmex and Cobas 6000 analyzers within the biochemistry laboratory, selected for their precision and reliability in conducting hematological assessments.

5

2.7. Statistical Analysis

The analysis of the data was conducted using the SPSS for Windows 22 program. Whether the continuous variables conformed to a normal distribution was assessed using the Kolmogorov-Smirnov test. Descriptive statistics were reported as mean ± standard deviation for continuous and discrete numerical variables, while for categorical variables, the number of cases and percentage (%) were provided. For parameters showing a normal distribution, Student t-test was employed for comparisons, while the Mann–Whitney U test was used for comparisons between two different groups for parameters that did not display a normal distribution. Sensitivity, specificity, and the positive predictive value (PPV) were evaluated for parameters used in distinguishing between the groups. Receiver Operating Characteristic (ROC) analysis was performed to determine the appropriate cutoff value along with specificity and sensitivity values. Results obtained with $p<0.05$ were considered statistically significant.

3. RESULTS

Between January 1, 2019, and December 31, 2020, a total of 328 patients were diagnosed with AA at the Mug˘la Training and Research Hospital's ED and subsequently underwent surgery in the hospital's General Surgery Department.

Following the application of the exclusion criteria (as detailed in Figure 1), the study focused on a final sample of 223 patients.

The study incorporated patients with a mean age of 37.5 ± 16.8 years, ranging from the youngest at 18 to the oldest at 90 years. Of these patients, 63.7% (142 individuals) were male. Central tendency and variability in laboratory results were noted as follows: a median WBC count of 12.61, mean neutrophil count of 9.83, median NLR of 7.25, median PLR of 172.31, median LCRP of 0.40, and median SII of 1816.99. Tables 1 provide an in-depth view of the patients' laboratory results.

As shown in Table 1, when patients were divided into two groups as AA and CA, it was determined that AA cases had statistically significantly higher NLR, PLR,

6

CRP, SII, WBC count, and neutrophil level, while they had lower LCRP and lymphocyte count in terms of hematological parameters.

Table 1. Comparison of Hemogram and CRP Values in the Differentiation of Complicated Appendicitis

	Complicated Appendicitis (n= 57)	Non-complicated appendicitis (n= 166)	Total (n=223)	*P* Value
WBC(10^3/µg) PLT (10^3/µg) NEU (10^3/µg)				
NLR **PLR CRP(mg/L) LCRP** **SII**				
Age				
	13,35 (6,90-24,96)	239 (147,00-365,00)	10,99 ±3,63	
	8,20 (1,94-29,75)	203,17 (78,42-715,60)	51,78 (3,73-599,00)	0,07(0,00-0,48)
	2316,05(488,75-10828,33)			
	41,00 (19,00-90,00)			
	12,18 (3,30-20,02)	242,5 (101,00-611,00)	9,43 ±3,65	
	5,18 (0,67-40,39)	161,72 (50,11-780,65)	9,90 (0,60-303,92)	0,51(0,00-4,72)
	1645,63(158,03-9773,68)			
	30,00 (18,00-85,00)			

12,61(3,30-24,96)

252,35(101,00-611,00) **9,83±3,70**

7,25(0,67-40,39) 172,31(50,11-780,65) 47,40(0,60-599,00) 0,40(0,00-4,72) 1816,99(158,03-

10828,33)

37,54 (18-90)

0.045

0.693

0.006

<0.001 0.010 <0.001 <0.001 <0.001

<0.001

LYM (10^3/µg)	1,36 (0,41-3,41)	1,80 (0,31-4,44)	**1,79(0,31-4,44)**	**0.002**

Note: Data showing parametric distribution is presented as Mean ± Standard Deviation, while data that does not show parametric distribution is presented as Median (minimum-maximum). *WBC: White Blood Cell, PLT: Platelet, NLR: Neutrophil / Lymphocyte Ratio, PLR: Platelet / Lymphocyte Ratio, CRP: C-Reactive Protein, LCRP: Lymphocyte / C-Reactive Protein Ratio, SII: Systemic Immune Inflammation Index

According to the data presented in Table 1, when patients were divided into two groups as CA and NCA, it was determined that CA cases are statistically significantly older.

As seen at the table 2 it was concluded that there is no statistically significant difference between CA cases and NCA cases in terms of gender ratio.

7

Table 2. Comparison of Gender in the Differentiation of Complicated Appendicitis.

Complicated Appendicitis (n: 57)

Gender **Male n(%)** 41 (71,9) **Female n(%)** 16 (28,1)

Non Complicated Appendicitis (n: 166)

***P* Value** 101 (60,8) 0,180

65 (39,2)

In Table 3, when the cutoff values for diagnostic tests to determine whether cases are CA or not are provided, LCRP is ⩽0.1 the sensitivity of 78.9%, the specificity is 89.7%, and the accuracy rate is 87%. When NLR is ⩾8.2, these rates are 64.9%, 77.1%, and 73.9%, respectively.

Table 3. Diagnostic Effectiveness of Parameters in the Differentiation of Complicated Appendicitis

LCRP ⩽0,1

Positive Negative SII ⩾2300

Positive Negative NLR ⩾8,2

Positive

Negative PLR ⩾182

Positive Negative

Complication No Sensitivity Present Complication

45 17 78,9%

12 149

Complication No Sensitivity Present Complication

23 36 40,3%

34 130
Complication No Sensitivity

Present Complication
37 38 64,9%

20 128
Complication No Sensitivity

Present Complication
24 45 42,1%

33 121

Specificity Accuracy PPV NPV 89,7% 87,0% 72,5% 92,5%

Specificity Accuracy PPV NPV 78,3% 68,6% 38,9% 79,2%

Specificity Accuracy PPV NPV 77,1% 73,9% 49,3% 86,4%

Specificity Accuracy PPV NPV 72,8% 65,0% 34,7% 78,5%

*LCRP: Lymphocyte / C-Reactive Protein Ratio, SII: Systemic Immune Inflammation Index, NLR: Neutrophil / Lymphocyte Ratio, PLR: Platelet / Lymphocyte Ratio

In ROC curve analysis, the closer the area under the curve (AUC) of a tested parameter is to 1, the more important the marker is in predicting the complication. In this study, for predicting complications, the AUC of LCRP was 0.782 (95% CI, 0.711-0.847, p: 0.00), the AUC value of CRP was 0.765 (95% CI 0.697-0.833; p:

8

0.00), the AUC value of NLR was 0.664 (95% CI, 0.585-0.743, p: 0.01), the AUC value of SII was 0.644 (95% CI, 0.565-0.723; p: 0.00).

4. DISCUSSION

The aim of this study is to identify parameters that could be useful in distinguishing between CA and NCA in patients diagnosed with AA in the ED who undergo surgery. According to the results obtained from the study, in distinguishing between CA and NCA in patients diagnosed with AA in the ED, WBC, NLR, PLR, LCRP, and SII were statistically significant. The specificity of LCRP was 90%, the specificity of SII was 78%, the specificity of NLR was 77%, and the specificity of PLR was 73%.

When the literature is reviewed, it is observed that CA cases are more commonly encountered in the pediatric, elderly, and male patient groups (6; 7). Similarly, in the study, it was found that most CA cases were male and that the average age was significantly higher compared to the NCA group, which is consistent with the literature. This situation is thought to be related to the delayed diagnosis due to the atypical presentation and less pronounced clinical symptoms in the elderly patient group, which may lead to more frequent complications.

There are numerous studies that have demonstrated the relationship between hematologic parameters in patients with AA and underlying inflammatory or infectious processes (7; 8). The elevation of WBC counts in AA cases has thoroughly studied. While an increase in WBC count is commonly encountered in the diagnosis of AA, it has low diagnostic value when used alone. Additionally, other inflammatory conditions may also lead to elevated WBC counts in differential diagnosis (9). In cases without complications such as perforation and periappendicular abscess, the WBC count typically ranges between 10,000 and 18,000 (10). Left shift, often accompanied by leukocytosis, is present in approximately 80-90% of cases. In NCA cases, the WBC count is not expected to be above 18,000 (11). Yang et al. (8) have noted that the increase in leukocytes and the percentage of neutrophils are related to the degree of appendix inflammation. In a study conducted in 2018 with 576 patients, it was found that the WBC value is a useful parameter for distinguishing between CA and NCA patient groups (7).

9

Similarly, in this study, it was found that there was a statistically significant difference in the averages of WBC and neutrophil values in the distinguishing between CA and NCA.

Kahramanca et al. (12) reported that NLR is a valuable parameter for both diagnosing AA and distinguishing between CA and NCA. In a meta-analysis that examined the role of NLR in the differentiation of AA, CA, and NCA in 8914 patients, a threshold value of 8.8 yielded 76.9% sensitivity and an AUC of 0.91 with 100% specificity for CA (13). In this study as well, the mean NLR of CA patients was significantly higher than that of the NCA group. NLR with a cutoff value of 8.2 was found to have 64.9% sensitivity and 77.1% specificity. The increase in WBC and neutrophil values and the decrease in lymphocyte values were found to be significant. It is suggested that evaluating NLR would be more useful in distinguishing between CA and NCA rather than considering only WBC or neutrophil values.

The PLR value, calculated by dividing the platelet count by the lymphocyte count, is reported to be a potential important marker in determining the diagnosis of CA (14). In a study covering 334 pediatric patients diagnosed with AA and undergoing surgery, the group of patients with a higher PLR ratio was found to have a higher likelihood of developing complications, and PLR was found to have a sensitivity of 42% and a specificity of 86% (15). In this study as well, for a PLR value ⩾182, the sensitivity was 42.1% and the specificity was 72.8%. The mean PLR in CA cases was found to be significantly higher than in NCA cases.

CRP, first described in 1930, was later recognized as an acute-phase protein that serves as an early indicator of inflammatory processes (16). Fujiwara et al. (17) in their research conducted in 2021 found that high serum CRP levels were significantly associated with CA. In this study as well, a statistically significant difference in CRP, a valuable acute-phase reactant, was obtained between the CA and NCA groups.

The LCRP value, obtained by dividing the lymphocyte count by the CRP value, and SII are considered parameters that increase in many inflammatory and infectious disease processes and play a role in determining disease severity and

10

predicting mortality (18). Acar et al. (19), in their study on patients diagnosed with community-acquired pneumonia, found a threshold of 4 for LCRP to predict 28-day mortality, with a sensitivity of 89% and specificity of 73%. They also determined a threshold of >3551 for the SII parameter, which yielded 63.8% sensitivity and 68.1% specificity in predicting mortality and considered them valuable markers in assessing disease severity. In this study, in CA cases,

when the cutoff value for LCRP was set at 0.1, it resulted in 78.9% sensitivity and 89.7% specificity. When a cutoff of 2300 or higher was used for SII, it resulted in 40.3% sensitivity and 78.3% specificity in distinguishing between CA and NCA cases. Decreased LCRP and increased SII were found meaningful. There is no known study in the literature that has examined this aspect of the topic. Therefore, further research to support the findings would be beneficial.

Limitations:

The study was designed retrospectively, and it has some limitations. Since it's a single-center study, further research is needed to apply the results to the general population. Information about the time interval between patients being diagnosed with AA and their presentation to the ED and subsequent surgery is not available. During this elapsed time, the possibility of complications should be considered. Therefore, it cannot be predicted at which stage of inflammation the detection occurred.

5. CONCLUSION

Many factors influence the differentiation between CA and NCA. Inflammatory markers are important parameters in distinguishing between CA and NCA. This study has shown that values such as LCRP, SII, NLR, and PLR may be useful markers in differentiating CA from NCA.

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11

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13

Pub No: OP-353

4 DİSEASE 1 RESULT

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Although patients >55 years of age who apply to the emergency department often experience different diagnoses than the clinic, the most common reasons for these applications are cerebrovascular disease, chronic renal failure, myocardial infarction, chronic obstructive pulmonary disease (CVD, CRF, MI, and COPD) (1). Satar et al. in his study, it was determined that 59.35% of elderly patients were hospitalized and 70.4% of these hospitalized patients were admitted to intensive care. (1). The data in this study suggest that other system examinations are also important in elderly patients in addition to the clinic, as the most important reasons for frequent hospitalizations are disease combinations such as lack of care, the presence of comorbidities, and other reasons.

In the case we are trying to present, more than one disease (Subarachnoid hemorrhage, MI, CVD) was detected together. Though each of the diseases has vital clinical importance, it is rare for them to occur together. In this case, we tried to show how important it is for emergency room doctors to consider the importance of systematic examination and the coexistence of additional diseases and the path to be followed in patient treatment.

CASE REPORT

An 86-year-old male patient , who appeared to be in good health at 22:00 in the evening at the nursing home , was found to be unconscious in his bed around 06:00 in the morning _ the patient , who answered the questions meaninglessly , was brought to our hospital's emergency department via 112. Of your resume ; He had Alzheimer 's heart failure oath hypertension (HT). the patient does not use any medication regularly . the patient's arrival Glasgow Coma Score (GCS): 12. At the at the same time, the patient's right side was hemiparesis . Decreased in the lower basal areas when listening to breath sounds in the lungs . Cardiac sounds were arrhythmic . Of advent vitals blood pressure : 152/106 pulse:120 respiratory rate:16 fever:36.5 saturation:96 blood In the electrocardiography (ECG) of the patient with sugar : 180, AF and anterior ST elevation was observed (Figure 1). In blood tests The troponin value was >25 (0.0-0.3). The patient's right hemiparesis Brain computer tomography (CT) and diffusion MRI images were taken. Brain CT showed subarachnoid hemorrhage in the left parietal region (Figure 2). In diffusion MRI, patchy acute infarct areas were observed in the posterior fossa, left cerebellar hemisphere, bilateral occipital lobes and parietal lobes (Figure 3-6). Decompensated HF was detected in the thorax CT image taken due to decreased breath sounds (Figure 7). The patient was admitted to the resuscitation intensive care unit with the preliminary diagnosis of SAH+CVD+MI+Decompensated HF. The patient died on the 2nd day after hospitalization .

FIGURE 1.

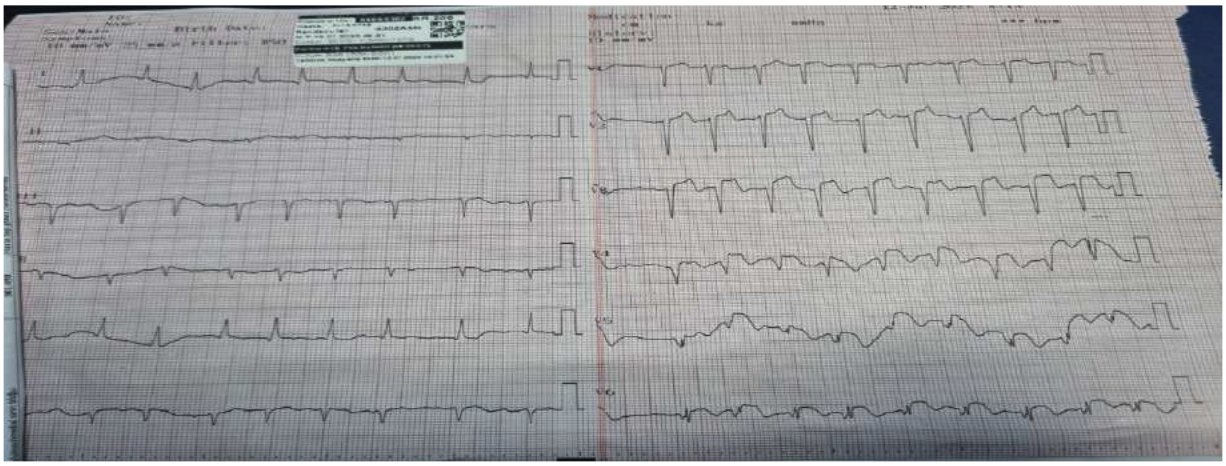


FIGURE 2.

FIGURE 3.

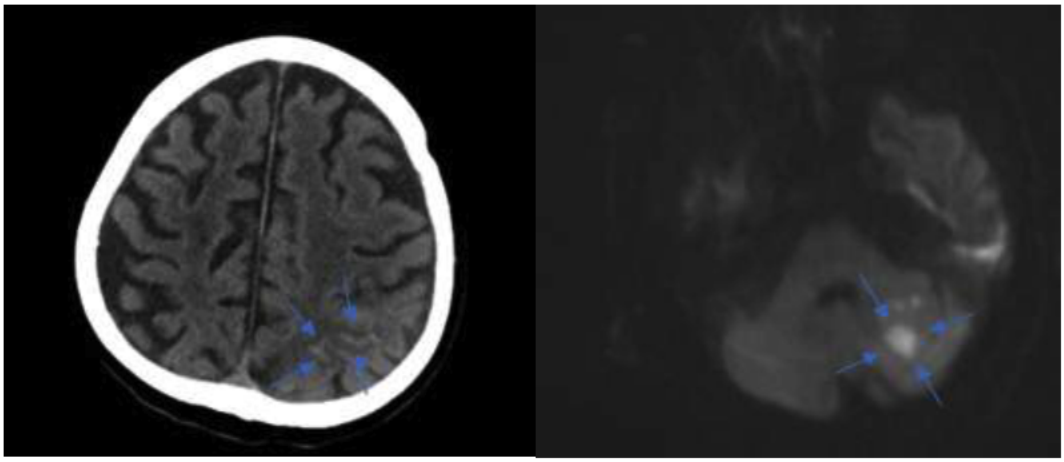


FIGURE 4.

FIGURE 5.

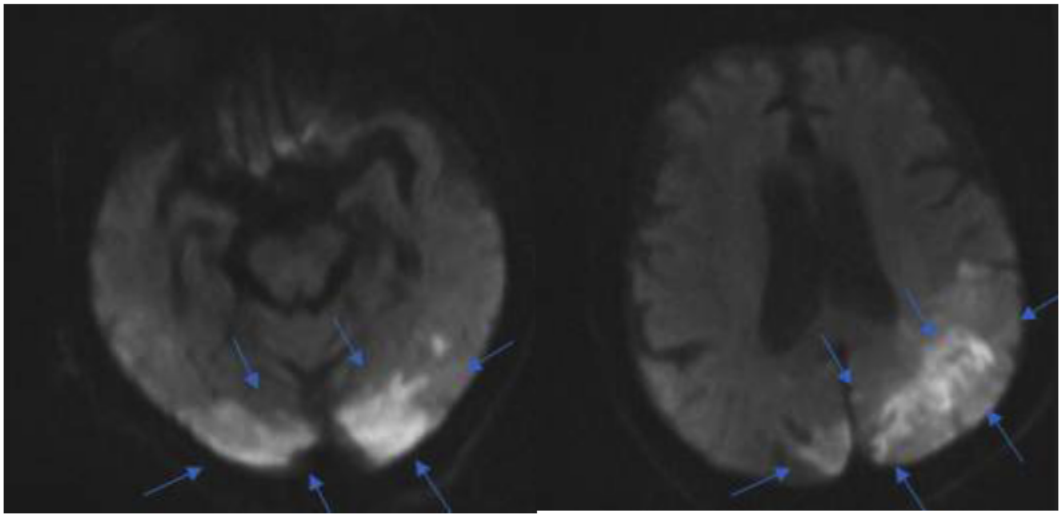


FIGURE 6.

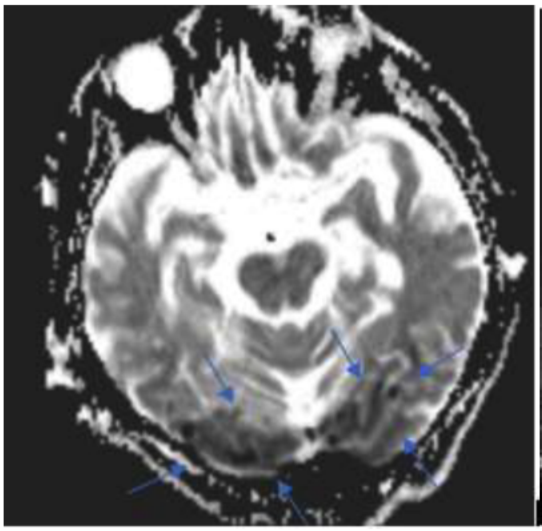
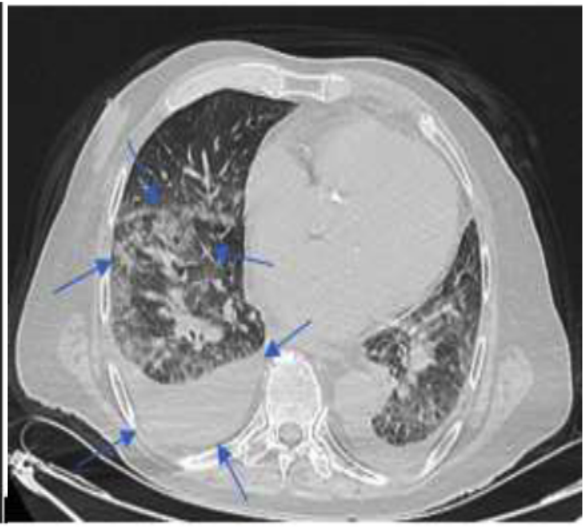


FIGURE 7.



DISCUSSION

SAH, CVD, MI are vital diseases. It affects the patient's life or quality of life with early diagnosis and intervention. Elevated troponin is a marker that indicates acute MI and can be elevated in many events such as sepsis, pulmonary embolism, trauma and acute brain injury. For this reason, the patient should be evaluated not only with troponin but also with anamnesis, examination and ECG. In acute brain injury, a sympathetic and parasympathetic imbalance occurs. It is assumed that troponin increases as a result of myocytolysis caused by this imbalance. Elevated troponin levels were observed in 27-34% of patients with CVD (2). At the same time, SAH, CVD, and subdural bleeding may occur not only in patients with elevated troponin levels but also in patients with ST elevation on the ECG. Although its pathophysiology is unclear, it is thought that catecholamine synthesis may affect cardiac contractility and necrosis (3). From this perspective, it is necessary to evaluate neurologically in patients with elevated troponin or ST elevation. In another study, they attributed the increase in troponin levels in patients with SAH to the increase in catecholamines and explained this situation with a condition called neurogenic heart syndrome or neurogenic stunned heart syndrome. This situation may occur not only in SAH but also in conditions such as CVD, Guillian Barre Syndrome, status epilepticus and emotional stress (4). As seen in these studies, in patients with CVD or SAH with acute brain injury, cardiac damage may occur due to catecholamine increase and ST-elevation MI may appear. These patients also need to be evaluated neurologically. At the same time, another study found that the mortality rate was 3.6 times higher in patients with SAH with elevated troponin levels, 16.3 times higher in patients with CVD, and 2.3 times higher in patients with intracranial hemorrhage (5). The increase in mortality in brain damage caused by high troponin levels has made the diagnosis and treatment of the disease more

important. Iltımur et al. In one of his studies, a 63-year-old male patient was admitted to the hospital with low GCS. The patient, who has ST-elevation reciprocal depressions on the ECG, signs of inferior MI, and elevated troponin and CK-MB, is taken for angiography. Angiography is normal despite ST elevation and reciprocal depression. Subsequent brain CT reveals SAH+Subdural hematoma+Subgaleal hematoma. The patient is monitored in the intensive care unit by the neurosurgeon, and his blood troponin and CK-MB levels return to normal in the following days. It has been observed that ST elevations and depressions in the ECG return to normal over time (6). Studies have shown that cardiac enzymes may increase and ECG changes may occur due to acute brain injury. **Neurological evaluation is especially important in patients with low trop positivity or ST elevation GCS.** In our case, ST elevation and trop positivity in the patient with low GCS can be given as examples of this. However, it is not known whether the underlying primary cause is CVD or SAH. In one of the studies, it was suggested that ischemic CVD may also occur in a patient with SAH due to cerebral vasospasm with the same pathophysiology (4). Since our patient had no signs of trauma, had known hypertension, and was not taking medication, it was thought that he may have hypertensive SAH and may progress with CVD and MI due to catecholamine discharge. The fact that the patient died on the 2nd day after admission to intensive care supports the view that high troponin increases mortality in patients with brain damage.

CONCLUSION

Patients with poor general condition, ECG changes and elevated troponin should also be evaluated neurologically. There may be central causes underlying the clinic of these patients. Appropriate diagnosis and treatment are important for the survival and quality of life of these patients. It should be kept in mind that high troponin levels may increase mortality in these patients . SAH, CVD and MI can occur in the same patient. It is essential to resolve the underlying cause with correct diagnosis. A multidisciplinary approach should be taken for these patients.

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Pub No: OP-354

Investigating the Relationship Between Mean Platelet Volume (MPV) and Coronary Artery Disease (CAD)

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Background: Platelets assume a pivotal role in the pathogenesis and progression of cardiovascular diseases. The assessment of platelet activation levels can be achieved through platelet indices, with mean platelet volume (MPV) being one such key marker.

Aim: Our primary objective was to conduct a comprehensive evaluation of the correlation between mean platelet volume (MPV) and the clinical manifestations associated with coronary artery disease (CAD).

Methods: We embarked on an investigative study encompassing 111 patients to delve into the intricate relationship between coronary artery disease (CAD) and mean platelet volume (MPV). We also examined troponin values and determined which arteries were stented. As part of our study, we established a control group and continue to compile data.

Results: We are continuing our research to better understand the relationship between CAD and MPV values. According to the data we obtained, a significant distinction in MPV values failed to manifest between patients showcasing normal MPV values and those who underwent angiography, subsequently receiving stent placements.

Conclusions: Our results indicate that there might be no discernible connection between MPV and the clinical characteristics, presentation, or severity of CAD. The outcomes of our study contribute to the existing disparities in prior research within this field. Therefore, it is imperative to conduct prospective trials with extended observation periods and more extensive participant groups to definitively establish the role of platelet indices in CAD.

Pub No: OP-355

Cyanosis of the upper half of the body: vcs syndrome in a patient with colon cancer

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Introduction and purpose: The main vein that carries the dirty blood returning to the heart from the body's level above the heart, that is from the head, neck and arms, is called vena cava superior. Vena Cava Superior Syndrome is caused by the occlusion of this main vein. The most important cause of vena cava superior syndrome is malignant metastatic cancers. In this case study, we would like to emphasize that symptoms causing dispnea and cyanosis observed in metastatic colon cancer may indicate vcss and therefore should be considered in managing the patient.

Materials and methods: In this study, the history of this patient who was brought to the emergency room with cyanosis in the upper half of the body with the complaints of dyspnea was questioned. The patient underwent a physical examination. Blood gas and other blood tests were requested from the patient. According to the evaluations obtained, the vcss diagnosis was made through advanced imaging (ct) of the patient.

Results and conclusion: The respiratory rate of the patient was 33/min. The upper half of the body was cyanotic from T12 level. The patient had exertional dyspnea, accessory respiratory muscle use and tachypnea. Breath sounds were natural, there were no additional sounds in the heart. She had respiratory alkalosis in her blood gas. Hemogram, biochemistry, cardiac enzymes, coagulation tests were conducted. Considering vena cava superior syndrome (vcss) secondary to metastatic tumor compression and/or tumor-induced coagulopathy, neck and thorax CT (in venous phase) was requested. The CT resulted as follows: "2.5 cm thrombus in vcs, narrowing the lumen more than 50 percent." The patient was consulted to interventional radiology and stent placement was deemed appropriate.
As a result, it is necessary to consider vcss in cancer patients who come to the emergency room with cyanotic upper parts of the body. Vcss is a common complication in these patients.

Keywords: colon cancer, vcss, upper body cyanosis

Pub No: OP-356

Dvt Developıng After Backache: A Case Report

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SUMMARY
Deep vein thrombosis is a condition that can cause life-threatening situations such as pulmonary embolism. The patient may present with findings such as pain, diameter difference and redness in the lower extremity. Immobility predisposes to deep vein thrombosis. In this case, the detection of DVT in a patient who reduced his movements due to low backache is described.
Keywords: deep vein thrombosis, immobility, backache.
ABSTRACT
Deep vein thrombosis occurs when one or more of the components of the Virshow triad: stasis, hypercoagulability and endothelial damage occur. The annual incidence varies between 5-20 patients per 10,000 people (1). Thrombosis in the deep venous system of the extremities causes symptoms such as pain, diameter difference and redness in the extremities in the acute phase of the disease. The causes of venous thrombosis can be divided into two groups; hereditary and acquired(2). Immobility facilitates the development of DVT. Treatment includes anticoagulant, thrombolysis and thrombectomy. (3)
In this article, we describe a case of ours who remained immobile for 2 days after lower back pain, had swelling and redness in the leg, and was diagnosed with DVT.
CASE REPORT
A 45-year-old male patient was admitted to the emergency room with a complaint of pain and swelling in his left leg. The patient has been complaining of back pain for 1 week. He has had little voluntary movement for the last 2 days. Pain and swelling in the left leg started for 2 days. He has a history of cervical disc herniation in his medical history. There is no disease in the family history that predisposes to thrombosis. There is no history of thrombosis. On physical examination, there was an increase in diameter in the left leg compared to the right leg, there was an increase in temperature, and Homans positivity was detected in the left lower extremity. Peripheral pulses are palpable. In the neurological examination, there is no motor sensory deficit: +/+ gks: 15. Four limb motor power 5/5. There is no urinary or fecal incontinence. No drop feet. There is no pathological reflex. Abdominal examination is comfortable. No defense, no rebound detected. Laboratory tests show no abnormalities in biochemistry and hemogram. Ddimer 4240 crp 19 was detected. Doppler USG was performed on the patient with the preliminary diagnosis of DVT. Doppler USG revealed widespread thrombosis, compatible with acute DVT, which filled the lumen of the left femoral vein, popliteal vein and vena saphena magna and did not allow flow and compression.
The patient was consulted to cardiovascular surgery upon detection of DVT. The patient was admitted for the purpose of planning thrombectomy.

DİSCUSSİON

Immobility can cause thrombosis and DVT even in people who are not prone to clotting. In patients with lumbar hernia, starting a prophylactic dose of LMWH may be considered to protect against DVT due to immobilization.

CONCLUSION

It should be kept in mind that patients are prone to DVT in cases that cause immobilization, such as lumbar hernia. Patients should be advised not to remain sedentary.

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Pub No: OP-357

A Rare Cause Of Abdominal Pain In Postmenopausal Women: Ovarian Torsion

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Ovarian torsion is a rare condition that occurs during the postmenopausal period and is associated with a risk of misdiagnosis and high mortality. Its primary symptom is abdominal pain, which may be accompanied by nausea and vomiting. Early diagnosis and treatment are crucial in cases of suspected ovarian torsion. In this case, our goal is to raise awareness of the possibility of ovarian torsion in a postmenopausal patient presenting with abdominal pain and nausea.

Keywords: Ovarian torsion, postmenopausal period, acute abdomen

INTRODUCTION

Ovarian torsion is one of the most common gynecological emergencies that require surgical intervention (1,2). While it is predominantly diagnosed during adolescence and the reproductive years, it can also, albeit rarely, occur during the postmenopausal period (1,3). The clinical presentation often manifests as abdominal and pelvic pain, typically characterized by sudden, severe, and unilateral pain. Nausea and vomiting may accompany these symptoms in approximately 70% of cases (1). Differential diagnosis includes gynecological pathologies such as ectopic pregnancy, ovarian cyst rupture, pelvic inflammatory disease, or fibroid degeneration, as well as non-gynecological conditions like acute appendicitis, gastrointestinal obstruction or perforation, and renal colic (4). Laboratory tests, coloured Doppler ultrasonography (US), computed tomography (CT), magnetic resonance imaging (MRI), and other imaging techniques are helpful diagnostic tools. The definitive diagnosis is established through direct observation of torsioned ovaries or adnexa during laparoscopy or laparotomy. Early diagnosis and surgical intervention are of paramount importance, especially during the fertility period, to preserve ovarian tissue.

CASE REPORT

A 60-year-old multiparous woman presented to our emergency department with right-sided groin pain that had been present for several days and intensified four hours before her visit. She had a known history of diabetes mellitus and hypertension and was regularly taking antihypertensive medication. She had no history of smoking or alcohol use and had not undergone any previous abdominal surgeries. On physical examination, the patient was in good general condition with a Glasgow Coma Scale (GCS) score of 15. Tenderness was noted in the right lower quadrant of the abdomen, but there was no guarding or rebound tenderness. Bowel sounds were normal. Laboratory values for the patient were as follows: WBC (white blood cell count): 5.31 x 10^3/µL, Hgb (hemoglobin): 12 g/dL, Hct (hematocrit): 33.7%, PLT (platelet count): 321 x 10^3/µL, CRP (C-reactive protein): 28.6 mg/L.

Contrast-enhanced pelvic CT imaging revealed torsion of the right ovary, with no findings indicative of appendicitis. Consultation with the Department of Obstetrics and Gynecology was sought. Transvaginal ultrasound performed by the gynecologist did not detect blood flow in the right ovary. Consequently, the patient was promptly taken to emergency surgery. During exploration, right adnexal torsion and rupture were observed, leading to bilateral salpingo-oophorectomy. After five days of hospitalization and monitoring, the patient was discharged in a fully recovered condition.

CONCLUSION

Adnexal torsion is rarely considered in postmenopausal women presenting with acute abdominal pain. Due to the lack of specific clinical, laboratory, and physical examination findings, the diagnosis is often challenging (5). Early diagnosis and intervention in torsion cases are crucial for preserving organ function (6).

There is limited published data on adnexal torsion in postmenopausal women. In this case report, we aimed to highlight the possibility of ovarian torsion and rupture in a 60-year-old postmenopausal woman presenting to the emergency department with a complaint as broad as abdominal pain, which has a wide range of etiologies.

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Pub No: OP-358

A rare cause of acute post-renal failure: rectal prolapse

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Rectal prolapse is a rare condition characterized by protrusion of the rectum from the anus. Common complications of rectal prolapse include fecal incontinence, infection, bleeding, and rectal incarceration. Acute renal injury is defined as a spontaneous deficit in kidney functions leading to urea retention and electrolyte imbalance. Acute renal failure can be classified in terms of prerenal and postrenal conditions. While prerenal conditions are the most common, postrenal conditions can be seen in 5% of cases. It was demonstrated in this case study that a long-standing, neglected rectal prolapse caused acute renal failure secondary to obstructive uropathy. Rectal prolapse can involve many complications, and acute renal failure complications, such as bleeding, abscess, strangulation, and perforation can be added to the reported complications. For certain, rectal prolapse is a disease that should not be ignored, and all cases should undergo careful urological evaluation.

Introduction

Rectal prolapse is a rare condition characterized by a progressive mass protrusion of the rectum from the anus. The protrusion first appears with straining and defecation before it then progresses to the degree where it can no longer be put back into place. The incidence rate is approximately 0.5% [1]. Rectal prolapse can occur in all ages but most commonly affects older women in the seventh to eighth decade of their life. Females are more commonly affected by rectal prolapse than males, with the female to male ratio approximately 9:1 [1].

Common causes of rectal prolapse include rectal denervation, perineal nerve injury, kinking of the redundant loop of the sigmoid colon, loss of rectal compliance, and altered colonic motility, while the common risk factors in the development of the condition include advanced age, female gender, obstetric history, hormonal status, and long-term increased intra-abdominal pressure. Meanwhile, the common complications include fecal incontinence, infection, bleeding, and rectal incarceration.

Acute renal injury is defined as a spontaneous deficit in kidney functions leading to urea retention and electrolyte imbalance. Etiologies of acute kidney injury (AKI) based on pathophysiologic mechanisms can be divided into three broad categories: prerenal, intrinsic renal, and postrenal causes. Acute renal failure can be classified in terms of prerenal and postrenal conditions, with the former the most common cause, while postrenal conditions can be seen in 5% of all cases. Meanwhile, the most common causes of postrenal AKI are benign prostatic hypertrophy, prostate cancer, ureteric calculi, external compression (retroperitoneal fibrosis), neurogenic bladder, obstructed urinary catheter, and urethral strictures [2]. Herein, we report a case of rectal prolapsus complicated by a postrenal increase in the serum creatinine level. Overall, the type of definitive treatment depends upon the underlying cause.

Case study

A 69-year-old male patient was admitted to the emergency department with a sudden, painful, irreducible rectal prolapse. The patient complained of decreased urination for two days. His temperature was 36.5°C, while his blood pressure was 112/55 mmHg, his pulse was 74/min, his respiratory rate was 18/min, and his oxygen saturation was 96%. On examination, he was conscious, oriented, and cooperative. The physical examination revealed abdominal sensitivity with palpation and dullness with a downward opening. The rectal examination was irreducible,

edematous, and without signs of ischemia or rectal necrosis prolapse, measuring 5–7 centimeter in width. Manual reduction with an injectable analgesic was attempted but was unsuccessful. Meanwhile, since the glob vesical was considered, a urinary catheter was inserted into the bladder throughout the urethra.

Following the procedure, a 4,000-cc urine output was achieved. An examination of the patient, who did not have a history of drug intake, revealed a blood urea nitrogen (BUN) level of 71 mg/dL, a creatinine level of 3.71 mg/dL, a potassium level of 5.24 mEq/L, a hemoglobin level of 10.7 g/dL, and a sodium level of 125 mmol/L. The complete urinalysis and hemogram results were normal. In the urinary system ultrasound examination, bilateral grade 2 hydronephrosis and a prostate measuring 4 × 4 × 5 cm and a volume of 24 mL were detected. Rectal prolapse was observed in the non-contrast abdominal tomography of the whole abdomen. There was no stone appearance in the urinary system (Fig.1).

The BUN and creatinine values decreased in the follow-up period after the urethral catheter insertion. A rectal prolapse operation via general surgery was planned and the condition was addressed by preventing the prolapse of the rectum via surgical treatment. The patient, who had an uneventful postoperative period, was discharged on the third day with a good recovery, with the BUN and creatinine values within the normal range at discharge.

Discussion

Prolapse of the pelvic organs rarely causes hydronephrosis and renal dysfunction. Uterine and enterocele complications or a rectocele may cause urethral compression, resulting in hydronephrosis and renal dysfunction [2]. It was demonstrated in this case study that a long-standing neglected rectal prolapse could cause acute renal failure secondary to obstructive uropathy. However, it was observed that acute renal failure can be improved with appropriate

medical and surgical treatment. A case of postrenal acute renal failure induced by rectal prolapse has not previously been reported in the literature, and more research should be conducted in relation to this area. Rectal prolapse can involve numerous complications, and acute renal failure complications, such as bleeding, abscess, strangulation, and perforation, can be added to the reported complications [3]. For certain, rectal prolapse is a disease that should not be ignored, and all cases should undergo careful urological evaluation.

Key points

- Rectal prolapse is a rare condition characterized by protrusion of the rectum from the anus.
- Acute renal injury is defined as a spontaneous deficit in kidney functions, leading to urea retention and electrolyte imbalance.
- It was demonstrated in this case study that a long-standing neglected rectal prolapse could cause acute renal failure secondary to obstructive uropathy.
- No cases of postrenal acute renal failure induced by rectal prolapse have previously been reported in the literature.
- Rectal prolapse is a disease that should not be ignored, and all cases should undergo careful urological evaluation.

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Figure

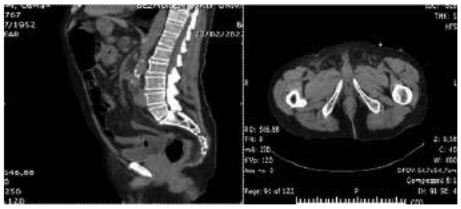

Fig.1 Rectal prolapse on tomography

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Pub No: OP-359

The Effect Of The Use Of New Generation Oral Anticoagulant On In-Hospital Adverse Events In Patients With Gastrointestinal Bleeding

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Aim: In this study, we aimed to examine the effects of patients using NOAC drugs, the frequency of which is increasing, on in-hospital adverse events such as length of hospital stay, clinical progression, blood transfusion and mortality compared to patients who do not use drugs and patients who use antiplatelet, anticoagulant and other chronic drugs.

Materials and Methods: Patients over 18 years of age with upper GI bleeding who applied to the emergency department between 11.09.2018 and 11.09.2019 were included in the study. A total of 358 patients were screened, 222 of them were included in the study.Those with chronic drug use were classified as anticoagulants (warfarin, LMWH), antiplatelet agents (acetylsalicylic acid, clopidrogel, ticagrelor), NOAC (dabigatran, rivaroxaban, apixaban, edoxaban) according to the type of drug they used. Demographic data (age, gender, etc.) of the patients and presenting complaint, type of bleeding, drugs used, comorbidities, rectal examination findings, vital signs (blood pressure, pulse, fever, respiratory rate), consciousness status, laboratory results, WBC (White Blood Cell), hemoglobin (Hgb), hematocrit (Htc), MCV (Mean Corpuscular Volume), platelet, INR (International Normalized Ratio), BUN (Blood Urea Nitrogen), creatinine (Cre), urea, PT (Prothrombin Time), PTT (Partial Thromboplastin Time), need for transfusion, length of hospital stay, endoscopy result and findings and how the patient was terminated were recorded in the form we prepared.

Results: 246 of 358 retrospectively screened patients were evaluated as upper GI bleeding. Of the patients participating in the study, 135 (60.8%) were female and 87 (39.2%) were male. The mean age was 62.61 ± 18.62. More than half of the admitted patients (54.1%) were over 65 years old. We analyzed drug use in 5 groups. Of the study participants, 76 (34.2%) were using drugs, 52 (23.4%) of the remaining 146 patients were using NOAC, 27 (12.1%) were low molecular weight heparim (LMWH) or coumadin, 17 (%7) were antiaggregant, the remaining 50 (%) 22.5), the patient was using any medication other than these. There was no significant difference in in-hospital adverse events, number of blood transfusions and length of hospital stay

between non-medicated patients and each drug group. (p = 0.387) In addition, although both Htc/Hgb and Bun/Cre rates did not make a significant difference on the length of hospital stay, they were found to be significant in demonstrating in-hospital adverse events.

Conclusion: In our retrospective study conducted with 222 patients, patients using new generation oral anticoagulants compared to patients who do not use drugs or use other antiaggregants, anticoagulants; There was no significant difference in in- hospital adverse event, length of hospital stay and need for blood transfusion.

Keywords: Gastrointestinal bleeding, new generation oral anticoagulants, blood transfusion, in-hospital adverse event

Pub No: OP-360

THE IMPORTANCE OF ANAMNESIS IN ATYPICAL PULMONARY EMBOLI CASES

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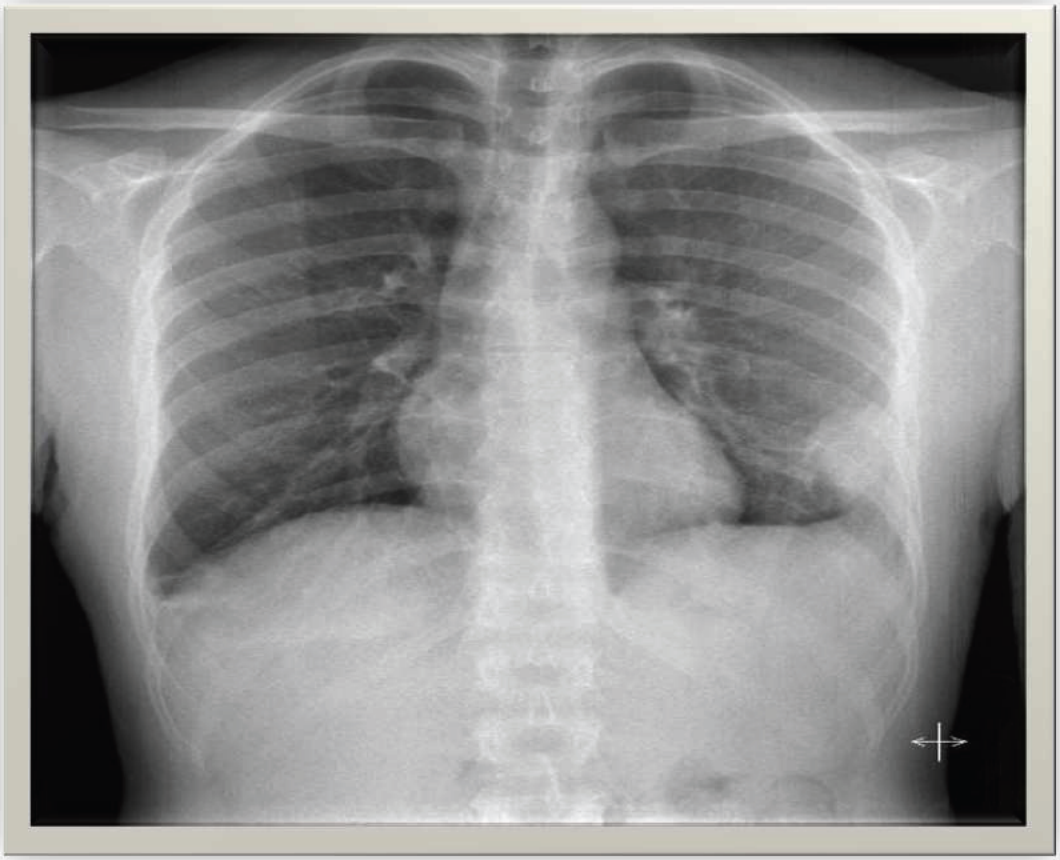
[1]TURGUT ÖZAL UNİVERSİTY MALATYA/TÜRKİYE

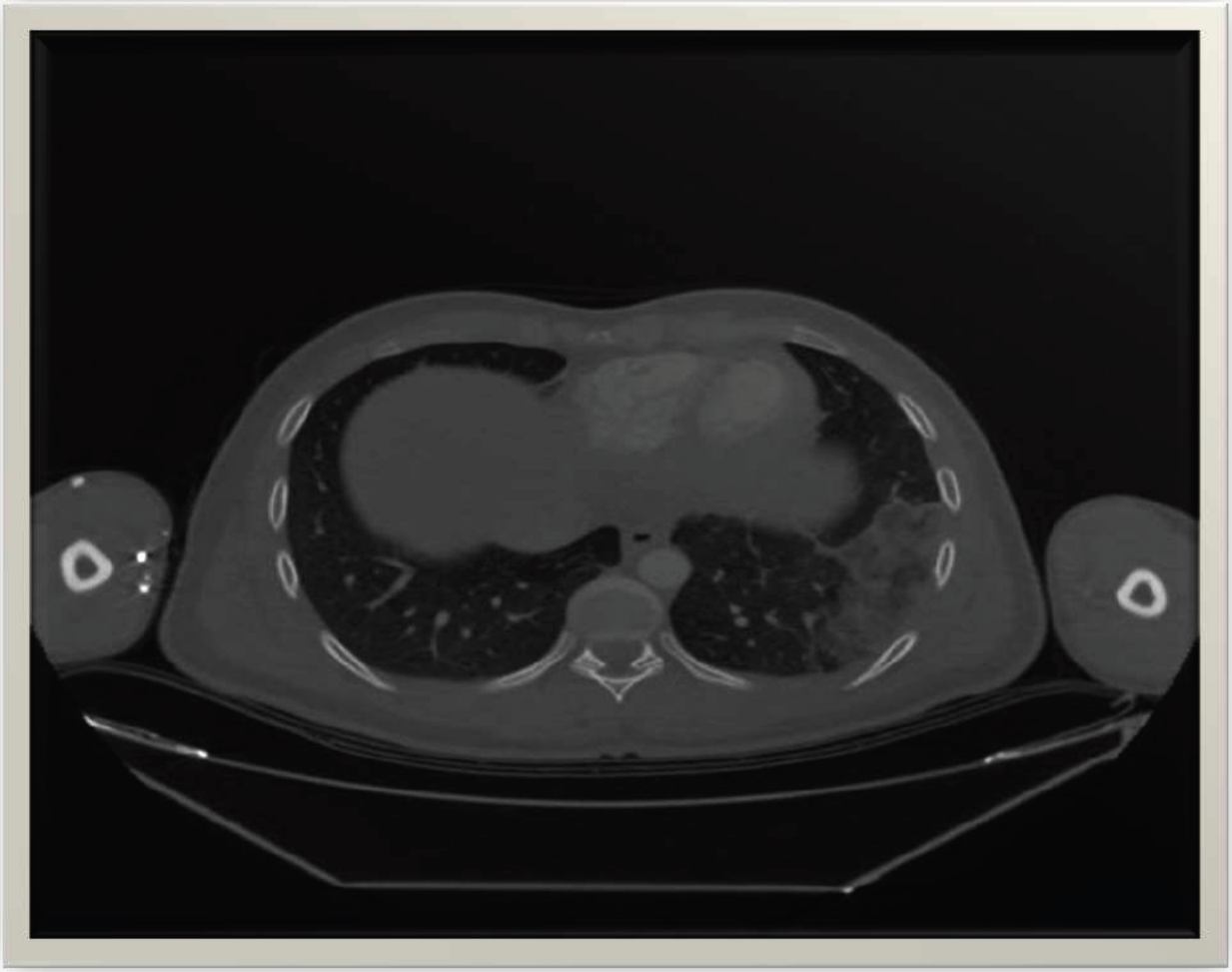
Pulmonary embolism is a very common cardiovascular emergency and carries a serious potential for death. Since 10% of pulmonary embolism cases result in death within the first hour, early diagnosis of embolism is very important in patients presenting to the emergency department with atypical findings. Dyspnea and pleuritic chest and back pain are generally observed in the pulmonary embolism clinic. Risk factors include obesity, hypertension, smoking, diabetes and high cholesterol.
In this presentation, we tried to present a case of pulmonary embolism that we detected in addition to seizure-like spasms and back pain, which are among the complaints we frequently encounter in our emergency department.

CASE REPORT
24-year-old male patient applied to the emergency department with complaints of back pain and stiffness in the whole body, which started 1 week ago. The patient, who applied to an external center with the complaint of pain in the right leg that started 10 days ago and decreased over time, stated that the complaint of back pain and cramps in the whole body started on the third day following the pain in the right leg.
The patient, who had no previous history of the disease, reported that he could not achieve results despite applying to different centers more than ten times with the same complaints. In the detailed anamnesis, it was learned that the father had a history of PE 10 years ago, the brother had DVT after splinting due to lower extremity fracture 2 years ago, and the cousin had DVT 5 years ago. ECG is in normal sinus rhythm, arterial blood pressure is 130/90 mmHg, pulse is 95, saturation is 95. The temperature was 36.7 °C
The neurological examination was normal, and there was tenderness in the posterior distal part of the left hemithorax. No pathological sound was heard during pulmonary auscultation. In the blood gas checked for pulmonary pathologies, Ph was 7.33, Po2 was 16 mmHg, HCO3 was 22.8 mmol/L, PaCO2 was 52.7 mmHg.
The patient, whose troponin value was measured in terms of cardiac pathologies, was consulted to cardiology and echocardiography was performed by the cardiologist.



No cardiac pathology was considered in the patient with an ejection fraction of 65. The patient, who applied to the neurology outpatient clinic on the day of admission to the emergency room, was consulted again to neurology with the results of brain CT and EEG, and no neurological pathology was considered.

In the PA AC X-ray taken for pulmonary pathologies, a triangle-shaped infiltrated area was seen in the lower left zone. (Hampton hump)



SUBACUTE DVT was observed in the right lower extremity in the repeat Doppler USG of the patient, whose lower extremity Doppler USG was evaluated as normal in his previous admissions.

The patient, who showed embolism and an area of congestion due to embolism in the thorax CT angiography taken for pulmonary embolism, was consulted to chest diseases and was hospitalized for the purpose of thrombophilia etiology and treatment.



The patient, whose etiology was determined to be Protein S deficiency, was discharged after 2 weeks of inpatient treatment.

DİSCUSSİON

Pulmonary embolism usually occurs when the clot formed in the deep veins of the lower extremities, depending on risk factors, is carried to the pulmonary veins via venous vessels.

In pulmonary embolism, which is classified as massive, submassive and nonmassive, it is difficult to recognize submassive and nonmassive emboli with atypical findings, especially in young patients in the low and medium risk group.

In this case, since the DG and Doppler USG obtained due to right lower extremity pain were evaluated as normal, orthopedic diseases were prioritized and guidance was given accordingly.

Although DVT is generally considered based on pulmonary embolism and was overlooked on imaging in our case, it should be kept in mind that PE can occur without DVT.

Psychiatric and neurological diseases were prioritized due to the spasms and recurrent applications that occurred in response to severe pain due to congestion in the embolism area.

The scoring we use most in the clinical diagnosis of pulmonary embolism is the WELLS Canada rule.

In our case, despite the low WELLS score, PE was considered due to the lower extremity pain that occurred before the complaint in the detailed anamnesis and the history of thrombophilia in family members.

DVT and PE embolism due to hereditary defects should be kept in mind in young patients with low WELLS scores. It has been observed in this case that pulmonary embolism is not connected to known clinics but may occur in different clinics. The importance of anamnesis for emergency room doctors has been proven once again with this case.

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OP-361

A Case of 'CADASIL' Diagnosed in the Emergency Department

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İntroduction

The term CADASIL is an acronym consisting of the initials of the words cerebral autosomal dominant arteriopathy, subcortical infarcts and leukoencephalopathy, and was first suggested to the literature by Elizabeth Tournier-Lasserve (1).

Case

Our patient is a 54-year-old woman. She applied to the emergency department of our hospital with complaints of headache, dizziness and loss of strength in her left arm. In the physical examination of the patient, pathologically, 1/5 loss of strength in the left upper extremity and an earlier fall in the left lower extremity were observed with the Mingazzini test. The patient's laboratory findings were within normal values. There was no acute change in the patient's cranial tomography. Since the patient's diffusion MRI showed areas compatible with sub cortical infarction, he was admitted to the neurology service with the preliminary diagnosis of CADASIL. In the neurology service, vasculitis markers, homocysteine, sediment, Brucella and Lyme serologies were requested for differential diagnosis. No abnormality was detected in the 24-hour ECG recording and echo. No significant plaque or stenosis was observed in the patient's carotid-vertebral artery Doppler ultrasound. Again, the EEG was evaluated as normal. The Genetics department was consulted regarding the patient's NOTCH 3 mutation.

Discussion

Our patient's family history of maternal stroke and migraine is compatible with CADASIL, an autosomal dominantly inherited disease. Although it is not proven by what mechanism the NOTCH3 gene, which has been proven to be faulty in CADASIL disease, affects the brain vessels, it is thought that the NOTCH3 gene is responsible for the production of osmophilic granular material around the cerebral vascular smooth muscle (7).

Conclusion

CADASIL should be kept in mind in patients who come to the emergency department with headache and ischemic stroke, and a detailed anamnesis should be taken, including family history. Neurology consultation should be requested in appropriate cases.

Key Words: CADASIL, migraine, ischemic cerebrovascular disease, emergency service

İntroduction

The term CADASİL is an abbreviation consisting of the initials of the words cerebral autosomal dominant arteriopathy, subcortical infarcts and leukoencephalopathy, and was first suggested to the literature by Elizabeth Tournier-Lasserve. This disease was previously referred to in the literature as hereditary multi-infarct dementia or rapidly progressing Binswanger disease (1). The researcher with the same name reported in 1993 that the disease gene was encoded in the long arm of chromosome 19 (2). Three years later, Joutel and his colleagues showed that mutations in the 'notch3' gene were responsible for the disease. (3)

In its clinical course, neurological findings such as recurrent strokes, migraine or migraine-like headaches, epilepsy, progressive cognitive disorders, and mood problems may be observed. In some cases, pseudo-bulbar paralysis, incontinence, frontal and subcortical dementia may be observed. This disease, which is inherited as an autosomal dominant disorder, may have a different clinical course from person to person depending on the affected neuron region. The most common ages are the 4th and 5th decades (4). Although the incidence of the disease is reported to be 20-40 per 1 million, it is thought to be a common form of hereditary small vessel diseases but is often overlooked. In fact, it is thought that sporadic hemiplegic migraine cases may be the initial symptom of CADASIL (5).

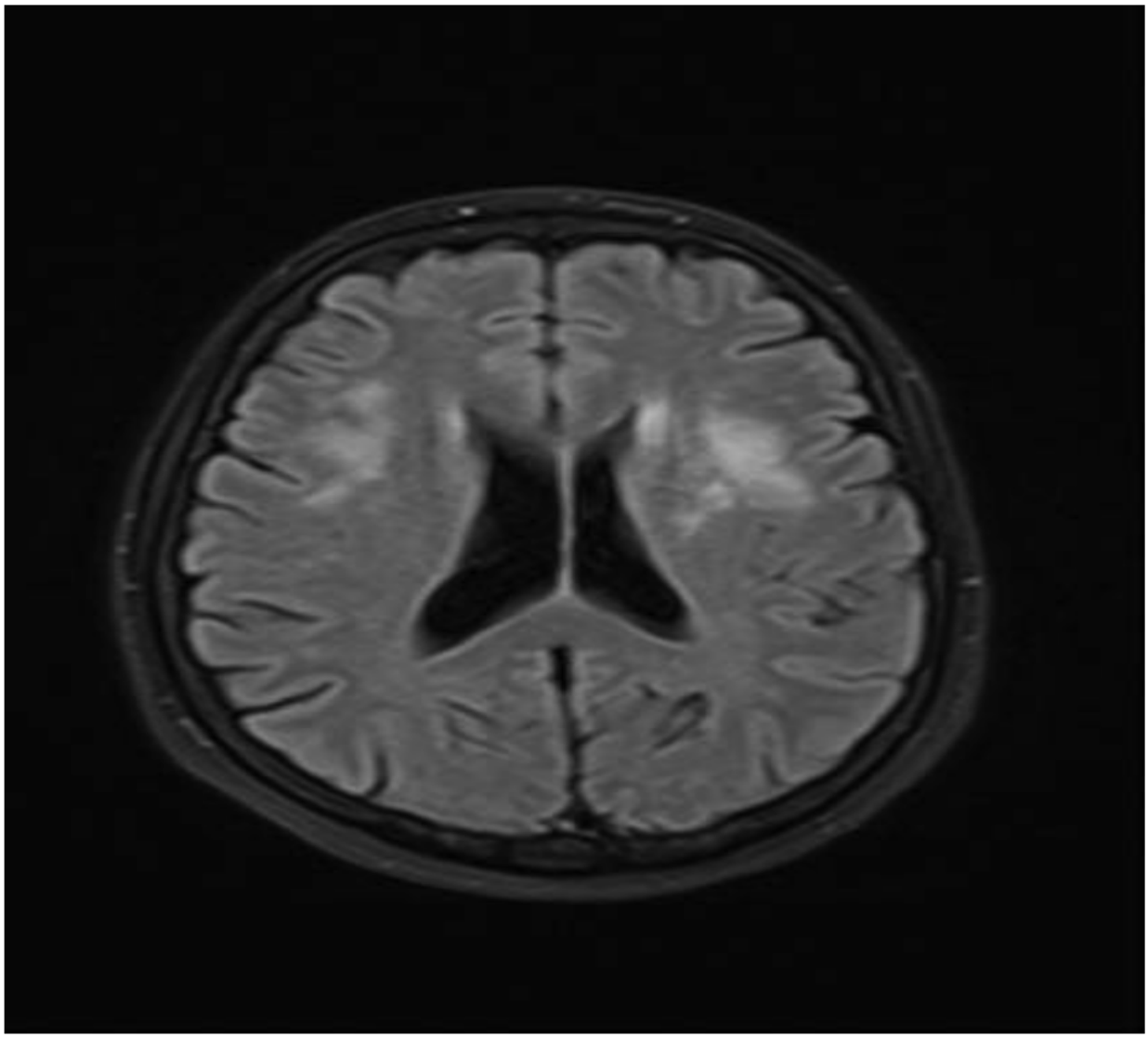
Case

Our patient is a 54-year-old woman. She applied to the emergency department of our hospital with complaints of headache, dizziness and loss of strength in her left arm. In the anamnesis taken from the patient, it was learned that he had been suffering from headache for approximately 10 years and that it had increased in the last 6 months. When the character of the

pain was questioned, it was learned that the pain started from the top of the head and spread to the entire head, that the pain was throbbing and was accompanied by dizziness. Along with the pain, the patient had nausea but did not vomit. In addition, the pain was accompanied by phonophobia, photophobia and osmophobia. The pain worsens with movement and lasts approximately 1-3 days. He had these pains about 3-5 times a month. The patient was previously diagnosed with migraine and was started on venlafaxine and piracetam. But today, when his pain was so severe and he lost strength in his left arm, he felt the need to go to the emergency room.

The patient's medical history included hypertension, coronary artery disease, inguinal hernia, lumbar disc herniation, and a cholecystomy operation. In the patient's family history, it was learned that his mother had ischemic cerebrovascular disease and migraine, and his father had hypertension and ischemic cerebrovascular disease. There was no abnormality in the patient's vital signs and they were within normal limits. In the physical examination of the patient, pathologically, 1/5 loss of strength in the left upper extremity and an earlier fall in the left lower extremity were observed with the Mingazzini test. The patient's laboratory findings were within normal values. There was no acute change in the patient's cranial tomography. Since the patient's diffusion MRI showed areas compatible with sub cortical infarction(Picture-1), he was admitted to the neurology service with the preliminary diagnosis of CADASIL.

In the neurology service, vasculitis markers, homocysteine, sediment, Brucella and Lyme serologies were requested for differential diagnosis. No abnormality was detected in the 24-hour ECG recording and echo. No significant plaque or stenosis was observed in the patient's carotid-vertebral artery Doppler ultrasound. Again, the EEG was evaluated as normal. The Genetics department was consulted regarding the patient's NOTCH 3 mutation. Prophylaxis for the patient's migraine was started.



Picture-1: Areas compatible with sub cortical infarction on MRI

Discussion

In a previous study of 33 cases conducted in France, female gender was reported (6). The patient in our case is female and is compatible with the literature in terms of gender. Our patient's family history of maternal stroke and migraine is compatible with CADASIL, an autosomal dominantly inherited disease. Although it is not proven by what mechanism the NOTCH3 gene, which has been proven to be faulty in CADASIL disease, affects the brain vessels, it is thought that the NOTCH3 gene is responsible for the production of osmophilic granular material around the cerebral vascular smooth muscle (7). It is thought that correction of vascular smooth muscle metabolism and correction of CFLIP, the product of the faulty

NOTCH3 gene, may be effective in treatment (8). It has been shown that valproic acid has a neuroprotective effect and increases the lifespan of brain vascular cells by increasing the level of cFLIP. For this reason, valproate is recommended for use in CADASIL patients (9). Additionally, acetazolamide is recommended for the prophylaxis of migraine attacks seen in CADASIL (10).

Conclusion

Unfortunately, in today's conditions, there are many applications to the emergency department and due to the excessive workload, adequate anamnesis cannot be taken and physical examination cannot be performed. Emergency medicine is an important branch of science that works and/or should work in collaboration with many branches of science. CADASIL should be kept in mind in patients who come to the emergency department with headache and ischemic stroke, and a detailed anamnesis should be taken, including family history. Neurology consultation should be requested in appropriate cases.

Conflict of Interest: Authors declared no conflict of interest.
Financial Disclosure: Authors declared no financial support.

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OP-362

Evaluation of Deaths Occurring in Erciyes University Hospitals Between 2020-2022

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İntroduction

Death data is an important indicator for evaluating the health status of regions both at the national level and of countries at the international level. This study was conducted to evaluate the deaths occurring in Erciyes University Hospitals between 2020-2022.

Materials and Methods

This retrospective study was conducted between June and August 2023. In the research, death data between 2020-2022 obtained from Kayseri Erciyes University Hospitals Information Technology Center was used.

Results

A total of 1215 deaths occurred in Kayseri Erciyes University Hospitals between 2020 and 2022, of which 716 (58.9%) were male and 499 (41.1%) were female. The average age at death was 66.01±15.69 years. Erk. 67.4% (819 deaths) of deaths occurred in intensive care units, 28.8% in emergency departments (350 total deaths, 10 deaths in the pediatric emergency department) and 3.8% (46 deaths) in wards. Average in men Age at death is 62.77±15.12, average age at death in women is 68.37±16.12.

Discussion

When the deceased patients were examined, the number of male patients was higher. Consistent with the literature, male patients die at an earlier age, while female patients die later. This is compatible with the public health principle that male patients die earlier and women live longer (6).

The number of patients dying in the anesthesia intensive care unit was higher than in other intensive care units, but no statistically significant difference was found. However, in 2 years,

the number of patients who died in our clinic, which is an important tertiary care emergency room in its region, had more deaths than all intensive care units, contrary to expectations.

Conclusion

The contribution of death statistics to the planning and reorganization of health services is invaluable and it is necessary to be very meticulous in this regard. In addition, considering the high number of deaths and the number of patients treated in emergency departments, we believe that a better health service will be provided if the burden of personnel and money spent on intensive care units is shifted to emergency services.

Key Words: Death, University Hospital, Emergency Service

İntroduction

Death data is an important indicator in assessing the health status of both regions at the national level and countries at the international level. It is considered one of the most important indicators in planning the country's health services (1).

Death statistics are used for purposes such as calculating the distribution of deaths over time, evaluating regional differences, and investigating the reasons for these differences. Mortality statistics are important for the execution of both preventive and curative services. According to the General Hygiene Law in our country, burial is prohibited without a burial license. A 'Death certificate' must be filled out by the relevant physician. The completed documents are forwarded to the Turkish Statistical Institute via the death notification system. In our country, death records started to be collected since 1931, and since 1957, it has started to cover all provincial and district centers (3).

This study was conducted to evaluate the deaths occurring in Erciyes University Hospitals between 2020-2022.

Materials and Methods

This retrospective study was conducted between June and August 2023. In the research, death data between 2020 and 2022 obtained from Kayseri Erciyes University Hospitals Information Technologies Center was used. Statistical Package for the Social Sciences (SPSS) 21.0 program and Microsoft Office Excel programs were used to analyze the data. Before obtaining the data, the decision of the academic board was taken, and after the approval of the hospital chief physician, the data was obtained from the hospital information system. From these data, categorical measurements are summarized as numbers and percentages.

Results

A total of 1215 deaths occurred in Kayseri Erciyes University Hospitals between 2020 and 2022, of which 716 (58.9%) were male and 499 (41.1%) were female. The average age at death was 66.01±15.69 years. The average age of death in men is 62.77±15.12, and in women it is 68.37±16.12. The highest age of death for men is 94, and for women it is 103. When deaths are examined by age; It was determined that 1.7 percent of the deaths (21 deaths) were under the age of 18, and 52.4 percent of the deaths in this group (11 deaths) occurred under the age of 1. While 60.3 of all deaths (733 deaths) occurred in the group aged 65 and over, 16.9% of the deaths in this group (124 deaths) occurred in individuals aged 85 and over. 67.4% of the deaths (819 deaths) occurred in intensive care units, 28.8% in emergency departments (350 total deaths, 10 deaths in the pediatric emergency department) and 3.8% (46 deaths) in wards. Most of the deaths occurred in intensive care units. It was 23.7% (194 deaths) in the anesthesia intensive care unit, 22.8% (187 deaths) in the internal medicine intensive care unit, and 21.1% (173 deaths) in the cardiology intensive care unit. 19.6% (9 deaths) of the deaths that occurred in the services were in the infectious diseases and clinical microbiology service, 19.6% (9 deaths) were in the nephrology service, 8.7% (4 deaths) were in the gastroenterology service and 8%, 7 (deaths) occurred in the gastroenterology ward. These (4 deaths) occurred in the hematology ward. Apart from these services, deaths also occurred in physical therapy, rehabilitation, gynecology, ear, nose and throat diseases and orthopedics services.

Gender	Number(n)	Ratio(%)
Male	716	58,9
Female	419	41,1
Summary	1215	100

Table-1: Mortality rates by gender

Intensive care	Number(n)	Ratio (%)
Anesthesia Intensive care	194	23,7

Internal medicine Intensive care	187	22,8
Coronary Intensive care	173	21,1
Emergency Service	350	28,8

Table-2: Clinics where deaths occur most frequently

Discussion

Death records are very important for countries to obtain death statistics. Death records must be accurate and reliable (4). In order to fill out the forms legally, accurately and completely, medical students, doctors and all health institutions must receive training at regular intervals (5). Thus, the data obtained will be more accurate and reliable.

When the deceased patients were examined, the number of male patients was higher. Consistent with the literature, male patients die at an earlier age, while female patients die later. This is compatible with the public health principle that male patients die earlier and women live longer (6).

The death rate is higher in men than in women. The average age of death is higher in women than in men. Two out of every three deaths occurred in intensive care units and emergency rooms.

The number of patients dying in the anesthesia intensive care unit was higher than in other intensive care units, but no statistically significant difference was found. However, in 2 years, the number of patients who died in our clinic, which is an important tertiary care emergency department in its region, had more deaths than all intensive care units, contrary to expectations (Table-2). When the personnel and money burden spent on intensive care units were evaluated, the emergency department had more cardiopulmonary resuscitations, more patients, and therefore more deaths than all other intensive care units.

Conclusion

The contribution of death statistics to the planning and reorganization of health services is invaluable and it is necessary to be very meticulous in this regard. In addition, considering the

high number of deaths and the number of patients treated in emergency departments, we believe that a better health service will be provided if the burden of personnel and money spent on intensive care units is shifted to emergency services.

Conflict of Interest: Authors declared no conflict of interest.

Financial Disclosure: Authors declared no financial support.

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