Travmada Güncel Literatür

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OMÜ Tıp Fakültesi Acil Tıp AD/Samsun

Bu sunumun amacı

- 2017 yılında travma konusu üzerinde öne çıkan ve okunması gerektiğini düşündüğüm çalışmaları sunmaktır.

Travma

- Tüm dünyada ölümün önde gelen nedenidir.
- Her yıl 45 milyondan fazla insan travma sonrası orta-ağır derecede sakatlık problemi yaşamaktadır.
- 18-29 yaş grubundakilerde en büyük ölüm nedeni Trafik kazalarıdır.
- YBÜ'ne kabul edilen hastaların ~%30'unu travmalı hastalar oluşturur.

Travma

- Travmatik yaralar, küçük yara izlerinden, çoklu organ sistemlerini içeren karmaşık yaralanmalara kadar değişebilir.

- Ciddi travmalı olgular, belirlenmiş bir travma merkezinde tedavi edildiğinde mortalite ya da morbidite olasılığı belirgin şekilde düşmektedir.

- **Yaşlılık, obezite, büyük komorbid hastalıklar ve belirgin hemoraji** travmalı hastalarda kötü prognozla ilişkili faktörlerdir.

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EMERGENCY RADIOLOGY

Imaging algorithms and CT protocols in trauma patients: survey of Swiss emergency centers

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Abstract

Objectives To identify imaging algorithms and indications, CT protocols, and radiation doses in polytrauma patients in Swiss trauma centres.

Methods An online survey with multiple choice questions and free-text responses was sent to authorized level-I trauma centres in Switzerland.

Results All centres responded and indicated that they have internal standardized imaging algorithms for polytrauma patients. Nine of 12 centres (75 %) perform whole-body CT (WBCT) after focused assessment with sonography for trauma (FAST) and conventional radiography; 3/12 (25 %) use WBCT for initial imaging. Indications for WBCT were similar across centres being based on trauma mechanisms, vital signs, and presence of multiple injuries. Seven of 12 centres (58 %) perform an arterial and venous phase of the abdomen in split-bolus technique. Six of 12 centres (50 %) use multiphase protocols of the head (n = 3) and abdomen (n = 4), whereas 6/12 (50 %) use single-phase protocols for WBCT. Arm position was on the patient's body during scanning (3/12, 25 %), alongside the body (2/12, 17 %), above the head (2/12, 17 %), or was changed during scanning (5/12, 42 %). Radiation doses showed large variations across centres ranging from 1268-3988 mGy*cm (DLP) per WBCT.

Conclusions Imaging algorithms in polytrauma patients are standardized within, but vary across Swiss trauma centres, similar to the individual WBCT protocols, resulting in large variations in associated radiation doses.

Key Points

- *Swiss trauma centres have internal standardized imaging algorithms for trauma patients*
- *Whole-body CT is most commonly used for imaging of trauma patients*
- *CT protocols and radiation doses vary greatly across Swiss trauma centres*

Travmalı Hastalarda Görüntüleme Algoritmaları ve BT protokolleri: İsviçre Acil Merkezleri Anketi

- İsviçre'de 12 adet 1. düzey travma merkezine son 10 yılda başvuran multitravmalı hastalara çekilen görüntüleme metodları sorgulanmış ve önerileri istenmiş,
- Bu 12 merkezden 9'u FAST sonrası, 3'ü FAST uygulamaksızın tüm vücut BT görüntüleme istediklerini belirtmişler,
- Bu 12 merkezden sadece 2'si hastanın vücut ağırlığına göre kontrast maddenin doz ayarlamasını yapmaktaymış,
- Tüm vücut BT görüntülemede her merkezin kendi içinde protokoller geliştirdiği görülmüş ve **travma görüntülemesinde henüz bir fikir birliğinin sağlanamadığı ortaya çıkmıştır**.

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Review

Whole body CT versus selective radiological imaging strategy in trauma: an evidence-based clinical review

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ABSTRACT

Background: Trauma patients often present with injuries requiring resuscitation and further evaluation. Many providers advocate for whole body computed tomography (WBCT) for rapid and comprehensive diagnosis of life-threatening injuries.
Objective: Evaluate the literature concerning mortality effect, emergency department (ED) length of stay, radiation, and incidental findings associated with WBCT.
Discussion: Physicians have historically relied upon history and physical examination to diagnose life-threatening injuries in trauma. Diagnostic imaging modalities including radiographs, ultrasound, and computed tomography have demonstrated utility in injury detection. Many centers routinely utilize WBCT based on the premise this test will improve mortality. However, WBCT may increase radiation and incidental findings when used without considering pre-test probability of actionable traumatic injuries. Studies supporting WBCT are predominantly retrospective and incorporate trauma scoring systems, which have significant design weaknesses. The recent REACT-2 trial randomized trauma patients with high index of suspicion for actionable injuries to WBCT versus selective imaging and found no mortality difference. Additional prospective trials evaluating WBCT in specific trauma subgroups (e.g. polytrauma) are needed to evaluate benefit. In the interim, the available data suggests clinicians should adopt a selective imaging strategy driven by history and physical examination.
Conclusions: While observational data suggests an association between WBCT and a benefit in mortality and ED length of stay, randomized controlled data suggests no mortality benefit to this diagnostic tool. The literature would benefit from confirmatory studies of the use of WBCT in trauma sub-groups to clarify its impact on mortality for patients with specific injury patterns.

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Travmada Tüm Vücut BT'si ile Seçili Radyografinin Karşılaştırılması: Kanıta Dayalı Klinik Derleme

- İki strateji mortaliteye etkileri, hastanın AS'de kalma süresi, radyasyon maruziyet ve tüm vücut BT'sinde tesadüfen saptanan bulgular açısından karşılaştırılmış,
- Mortalite açısından fark bulunmamakla birlikte, tüm vücut BT'sinin teşhisi hızlandırdığı ve AS'de kalma süresini kısalttığı saptanmıştır. Fakat radyasyon maruziyetinin sorun olma özelliğini koruduğu görülmüş,
- Yazarlar; **yaralanmanın lokal bölgelere sınırlı olmadığı multitravmalı hastalarda tüm vücut BT'nin çekilmesi gerektiğini önermektedir**.

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Full length article

What injuries should we expect in the emergency room?

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ABSTRACT

Introduction: Beside serious and potentially fatal injuries, the majority of pediatric trauma patients present with minor injuries to emergency departments. The aim of this study was to evaluate age-related injury pattern, trauma mechanism as well as the need for surgery in pediatric patients.

Patients and methods: Retrospective Study from 01/2008 to 12/2012 at a level I trauma center. All patients < 18 years of age following trauma were included. Injury mechanism, injury pattern as well as need for surgery were analyzed according to different age groups (0–3 years, 4–7 years, 8–12 years and 13–17 years). Major injuries were defined as fractures, dislocations and visceral organ injuries. Minor injuries included contusions and superficial wounds.

Results: Overall, 15300 patients were included (59% male, median age 8 years). A total of 303 patients (2%) were admitted to the resuscitation room and of these, 69 (0.5% of all patients) were multiply injured (median Injury Severity Score (ISS) 20 pts). Major injuries were found in 3953 patients (26%). Minor injuries were documented in 11347 patients (74%). Of those patients with a major injury, 76% (2991 patients) suffered a fracture, 3% (132 patients) a dislocation and 3% (131 patients) an injury of nerves, tendons or ligaments. The majority of fractures were located in the upper extremity (73%) (elbow fractures 16%; radius fractures 16%; finger fractures 14%). Patients with minor injuries presented with head injuries (34%), finger injuries (10%) and injuries of the upper ankle (9%). The most common trauma mechanisms included impact (41%), followed by falls from standing height (24%), sport injuries (15%) and traffic accidents (9%). Overall, 1558 patients (10%) were operated. Of these, 61% had a major and 39% a minor injury.

Conclusion: Almost 75% of all children, who presented to the emergency department following trauma revealed minor injuries. However, 25% suffered a relevant, major injury and 0.5% suffered a multiple trauma with a median ISS of 20. Overall, 10% had to be operated. The most frequently found major injuries were extremity fractures, with elbow fractures as the most common fracture.

AS'de Hangi Yaralanmaları Beklemeliyiz?

- Voth ve ark. bu çalışmaya 0-17 yaş arasındaki tüm travmalı hastaları dahil etmiş ve travmalı hastaları minör/major olarak iki ana gruba ayırmış (Minör; kontüzyon, distorsiyon, yanık ve yüzeyel yaralar),
- Tüm travmalı olguların %74'nün minör travma geçirdiğini ve olguların %10'nun cerrahi müdehaleye ihtiyacı bulunduğunu,
- En sık görülen minor travmanın kafa travması, major travmanın ise dirsek kırığı olduğunu gözlemlemişler ve
- Dirsek kırıklarına kalıcı hasar riski taşıdıkları için vurgu yapmışlardır.

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REVIEW ARTICLE

From FAST to E-FAST: an overview of the evolution of ultrasound-based traumatic injury assessment

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Abstract Ultrasound is a ubiquitous and versatile diagnostic tool. In the setting of acute injury, ultrasound enhances the basic trauma evaluation, influences bedside decision-making, and helps determine whether or not an unstable patient requires emergent procedural intervention. Consequently, continued education of surgeons and other acute care practitioners in performing focused emergency ultrasound is of great importance. This article provides a synopsis of focused assessment with sonography for trauma (FAST) and the extended FAST (E-FAST) that incorporates basic thoracic injury assessment. The authors also review key pitfalls, limitations, controversies, and advances related to FAST, E-FAST, and ultrasound education.

Keywords Ultrasound · Point-of-care testing · Pneumothorax · FAST · Abdominal trauma · Thoracic trauma

Introduction

Evaluation of patients with thoraco-abdominal trauma continues to present a challenge for emergency practitioners and traumatologists. As many as 50 % of patients with severe abdominal trauma and/or multiple injuries either have a normal initial abdominal exam or are unconscious and thus unable to provide a reliable abdominal exam [1, 2]. Consequently, the unreliable nature of history and physical exam in the trauma population has led physicians to increasingly depend on diagnostic imaging. Computed tomography (CT) is a widely used imaging modality but involves ionizing radiation and is not the best option for unstable or potentially unstable patients [3]. Concurrently, the use of ultrasound has increased during the past decade, with sonography becoming an essential adjunct in the trauma resuscitation area [4, 5].

- Ultrasonografi Temelinde Travmatik Hasarın Değerlendirildiği bu çalışmada; travmalı hastalarda FAST ve e-FAST uygulamalarının faydalılıkları incelenmiştir.

- Akut yaralanma sonrası USG incelemenin; travmalı hastaların temel değerlendirilmesinde, hasta başı karar vermede, klinik durumu stabil olmayan hastalar için olası cerrahi prosedürlerin belirlenmesinde fayda sağladığı görülmüş.

- Sonuç olarak **cerrahların veya travma tedavisi uygulayan diğer hekimlerin USG açısından eğitilmesinin büyük önem taşıdığı sonucuna varılmıştır**.

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Original research

The modified rapid emergency medicine score: A novel trauma triage tool to predict in-hospital mortality

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ABSTRACT

Background: Trauma systems currently rely on imperfect and subjective tools to prioritize responses and resources, thus there is a critical need to develop a more accurate trauma severity score. Our objective was to modify the Rapid Emergency Medicine (REMS) Score for the trauma population and test its accuracy as a predictor of in-hospital mortality when compared to other currently used scores, including the Revised Trauma Score (RTS), the Injury Severity Score (ISS), the "Mechanism, Glasgow Coma Scale,

Modifiye Hızlı Acil Tıp Skoru: Hastane İçi Mortaliteyi Öngörmede Yeni Bir Travma Triyaj Yöntemi

- Travma dışı hastalar için geliştirilmiş olan triyaj yöntemi REMS'in (Rapid Emergency Medicine Score) travma hastalarında da mortalite göstergesi olarak kullanılabileceğinden hareketle;

  REMS'te kullanılan **yaş, sistolik kan basıncı, diyastolik kan basıncı, kalp hızı, solunum hızı, GKS ve oksijen satürasyonu** parametrelerinden modifiye REMS'de diyastolik kan basıncı çıkarılmıştır.

Modifiye REMS

Table 1
mREMS Scoring System.

Variable	Score 0	+1	+2	+3	+4	+5	+6
Age (years)	≤44	45-64		65-74	>74		
Systolic Blood Pressure (SBP)	110-159	160-199	≥200		≤79		
		90-109	80-89				
Heart Rate	70-109		110-139	140-179	>179		
(HR - beats/min)			55-69	40-54	≤39		
Respiratory Rate	12-24	25-34	6-9	35-49	>49		
(RR - breaths/min)		10-11			≤5		
Oxygen Saturation (%)	>89	86-89		75-85	<75		
Glasgow Coma Scale	14 or 15		8-13			5-7	3 or 4

Table 3 REMS score characteristics (p<0.0001) for 3680 patients with trauma

REMS	Alive (N)	Dead (N)	Mortality (%)
0–2	1749	6	0.3
3–5	999	20	2
6–9	547	39	6.7
10–11	110	28	20.3
12–13	53	26	32.9
14–15	22	18	45
16–19	8	33	80.5
20–21	1	13	92.9
22–26	0	8	100
Total	3489	191	5.2

REMS, Rapid Emergency Medicine Score.

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Original Contribution

FAST for blunt abdominal trauma: Correlation between positive findings and admission acid-base measurement

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ABSTRACT

Purpose: This study aimed to determine any association between positive findings in ultrasonography examination and initial BD value with regard to diagnosis of intra-abdominal bleeding following blunt abdominal trauma.
Methods: A prospective, multi-center study of consecutive adult patients was performed from April to September 2015. Demographics, initial vital signs and arterial BD were evaluated with respect to presence of any association with intra-abdominal bleeding and in-hospital mortality. FAST study was performed to find intra-abdominal bleeding. Receiver operating characteristic (ROC) curves tested the ability of BD to identify patients with intra-abdominal hemorrhage and probable mortality.
Results: A total of 879 patients were included in final analysis. The mean (SD) age was 36.68 (15.7) years and 714 patients (81.2%) were male. According to multivariable analysis, statistically significant association was observed between negative admission BD and both intra-abdominal bleeding (OR 3.48, 95% CI 2.06–5.88, $p < 0.001$) and in-hospital mortality (OR 1.55, 95% CI 1.49–1.63, $p < 0.001$). ROC curve analysis demonstrated sensitivity of 92.7% and specificity of 22.1% for the best cut-off value of BD (−8 mEq/L) to diagnose internal hemorrhage. Further, a cut-off value of −7 mEq/L demonstrated significant predictive performance, 94.8% sensitivity and 53.6% specificity for in-hospital mortality.
Conclusion: This study revealed that arterial BD is an early accessible important marker to identify intra-abdominal bleeding, as well as to predict overall in-hospital mortality in patients with blunt abdominal trauma.

Künt Abdominal Travmada FAST: Pozitif Bulguların Geliş Asid-Baz Ölçümleri ile Korelasyonu

- Künt karın travmalı 879 hastaya FAST incelemesi yapılmış,
- Bu hastalardan 168'inde (%19.1) FAST (+) saptanmış,
- FAST (+) ve FAST (-) olan hastalar başvuru anında bakılan Baz Defisiti açısından karşılaştırılmış,
- Künt karın travmalı hastalarda **Baz Defisiti'nin -8 mEq/L'lik cut-off değeriyle batın içi kanamının göstergesi olduğu sonucuna varılmıştır**.

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Original Contribution

Fluid resuscitation of trauma patients: How much fluid is enough to determine the patient's response?

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1. Introduction

The topic of damage control resuscitation has become increasingly popular during the last several years [1–4]. This topic involves several key concepts that include permissive hypotension (restrictive fluid resuscitation), which is a strategy that restricts fluid use before any bleeding is controlled to avoid excessive blood loss. However, the related studies have mainly evaluated patients with penetrating injury and in the pre-hospital setting. Therefore, it is unclear whether this approach provides benefits in cases of blunt trauma or in-hospital setting. In addition, patients with hypotension should be rapidly stabilized with a moderate fluid infusion to maintain tissue perfusion. Therefore, the American College of Surgeon's Advanced Trauma Life Support training program emphasizes a "balanced" approach to ensure adequate tissue perfusion and minimize the risk of re-bleeding by avoiding inadequate or excessive fluid administration [5].

The Advanced Trauma Life Support and Japan Advanced Trauma Evaluation and Care guidelines both recommend an initial rapid infu-

2. Methods

This prospective descriptive 3-year study (2008–2011) evaluated ≥ 16-year-old patients with blunt trauma and a systolic blood pressure (SBP) of ≤90 mm Hg at admission. We excluded patients who had received any fluids before the admission, such as patients who had been transferred from other hospitals. The standard trauma resuscitation protocols were used for all other components of care. The patients' hemodynamic parameters were recorded after 1 L and 2 L of fluid resuscitation. Institutional review board (Rinku General Medical Center) approved the study. Non-response (hemodynamic instability) was defined as sustained hypotension (SBP of ≤90 mm Hg) or prolonged tachycardia (heart rate [HR] of >120 bpm) after 1 L and 2 L of fluid resuscitation. All uses of surgery or interventional radiology to control hemorrhage were reviewed and reevaluated. We also evaluated the abilities of non-response and SBP after 1 L and 2 L of fluid resuscitation to predict the requirement for an immediate intervention using receiver operating characteristic curve analysis. All data were presented as

Travma Hastalarında Sıvı Resüsitasyonu: Hasta Cevabının Değerlendirilmesinde Ne Kadar Sıvı Yeterlidir?

- Kristaloid sıvı ve kan verilmesine rağmen yanıt alınamayan (devam eden hT, taşikardi) hastalarda kanama kontrolü için ek girişime ihtiyaç duyulduğundan hareketle;
- Bu prospektif çalışma üç yılda künt vücut travması ile hastaneye başvuran ve başvuru anında SKB 90 mmHg'nın altında olan erişkin 69 olgu üzerinde gerçekleştirilmiş,
- Hastalara **1L ve 2L sıvı verilmiş ve reüsitasyon sonrasında hemodinamik parametreleri kaydedilmiş. Görülmüş ki, 2L sıvı verilmesini beklemeksizin 1L verilmesi sonrası cevaplarının ek girişim gerekliliğini ortaya koymada yeterli olduğu** sonucuna ulaşılmıştır.

Tranexamic acid in major trauma: implementation and evaluation across South West England

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Objective To carry out a prospective evaluation of tranexamic acid (TXA) use in trauma patients.

Patients and methods TXA was introduced to all emergency ambulances and emergency departments in the South West, UK, on 1 December 2011. We carried out a prospective evaluation of TXA use in trauma patients in the South West Peninsula between December 2011 and December 2012. We collected prehospital and hospital data on TXA administration using the Trauma Audit Research Network database. Data on prehospital administration of TXA were cross-checked with the South Western Ambulance Service Trust. Data were analysed using SPSS (version 20).

Results Altogether, 82 patients were administered TXA during the study period. The median age of the patients was 49 years (IQR 30, 66), and 72% were men. One-third of the patients arrived at hospital by air ambulance. During the first 3 months, administration of TXA was limited to one patient each month receiving the drug. However, an upward trend was observed after June until October 2012, with the increment being more than 10 fold in July, September and October 2012.

Conclusion This is the first study to evaluate the use of TXA in civilian practice in the UK. Our study shows that ambulance service personnel and emergency departments can effectively administer TXA. *European Journal of Emergency Medicine* 24:44–48

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Keywords: ambulance, hospital, trauma, tranexamic acid

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Majör Travmada Traneksamik Asid: Güney Batı İngiltere'de Uygulama ve Değerlendirme

- Sentetik lizin derivesi olan Traneksamik asid, Plazminojenin lizin bağlayan kısımlarını bloke ederek pıhtı yıkımını engellemektedir,

- Traneksamik asid ne kadar çabuk verilirse o kadar faydalı olur gerçeğinden hareketle; **Traneksamik asidin hastane öncesi dönemde, ekibin eğitilmesi sonrası belli protokoller ile ambulanslarda uygulanmasının travmatik kanamlı hastalarda faydalı olacağı belirtilmektedir**.

Military use of tranexamic acid in combat trauma: Does it matter?

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BACKGROUND: Tranexamic acid (TXA) has been previously reported to have a mortality benefit in civilian and combat-related trauma, and was thus added to the Joint Theater Trauma System Damage Control Resuscitation Clinical Practice Guideline. As part of ongoing system-wide performance improvement, the use of TXA has been closely monitored. The goal was to evaluate the efficacy and safety of TXA use in military casualties and provide additional guidance for continued use.

METHODS: A total of 3,773 casualties were included in this retrospective, observational study of data gathered from a trauma registry. The total sample, along with three subsamples for massive transfusion patients (n = 784), propensity-matched sample (n = 1,030), and US/North Atlantic Treaty Organization (NATO) military (n = 1,262), was assessed for administration of TXA and time from injury to administration of TXA. Outcomes included mortality and occurrence of pulmonary embolism and deep vein thrombosis. Multivariable proportional hazards regression models with robust standard error estimates were used to estimate hazard ratios (HR) for assessment of outcomes while controlling for covariates.

RESULTS: Results of univariate and multivariate analyses of the total sample (HR, 0.97; 95% confidence interval [CI], 0.62–1.53; $p = 0.86$), massive transfusion sample (HR, 0.84; 95% CI, 0.46–1.56; $p = 0.51$), propensity-matched sample (HR, 0.68; 95% CI, 0.27–1.73; $p = 0.34$), and US/NATO military sample (HR, 0.76; 95% CI, 0.30–1.92; $p = 0.48$) indicate no statistically significant association between TXA use and mortality. Use of TXA was associated with increased risk of pulmonary embolism in the total sample (HR, 2.82; 95% CI, 2.08–3.81; $p < 0.001$), massive transfusion sample (HR, 3.64; 95% CI, 1.96–6.78; $p = 0.003$), US/NATO military sample (HR, 2.55; 95% CI, 1.73–3.69; $p = 0.002$), but not the propensity-matched sample (HR, 3.36; 95% CI, 0.80–14.10; $p = 0.10$). TXA was also associated with increased risk of deep vein thrombosis in the total sample (HR, 2.00; 95% CI, 1.21–3.30; $p = 0.02$) and US/NATO military sample (HR, 2.18; 95% CI, 1.20–3.96; $p = 0.02$).

CONCLUSION: In the largest study on TXA use in a combat trauma population, TXA was not significantly associated with mortality, due to lack of statistical power. However, our HR estimates for mortality among patients who received TXA are consistent with previous findings from the CRASH-2 trial. At the same time, continued scrutiny and surveillance of TXA use in military trauma, specifically for prevention of thromboembolic events, is warranted. (*J Trauma Acute Care Surg.* 2017;83: 579–588. Copyright © 2017 Wolters Kluwer Health, Inc. All rights reserved.)

LEVEL OF EVIDENCE: Therapeutic, level IV.

KEY WORDS: Tranexamic acid; combat casualty care; massive transfusion.

Savaş Travmalarında Traneksamik Asidin Kullanımı: Fark yaratır mı?

- Geriye dönük olarak 3733 olgu Traneksamik asid alanlar ve almayanlar diye iki gruba ayrılmış ve bu iki gruptaki olgular ölüm, PE ve DVT açısından karşılaştırılmıştır.

- **Çoklu amputasyonlu küçük alt grup hastalarda Traneksamik asid kullanılmasının mortaliteyi düşürdüğü ancak tüm mortalite üzerinde bir etkisinin bulunmadığı saptanmış ve ayrıca Traneksamik asid kullanılanlarda PE ile DVT riskinin belirgin olarak arttığı görülmüştür.**

Tranexamic Acid Update in Trauma

Ricardo J. Ramirez, MD[a], Philip C. Spinella, MD[b], Grant V. Bochicchio, MD, MPH[a,*]

KEYWORDS

• Tranexamic acid • Trauma • Coagulopathy • Hemorrhage • Antifibrinolytics • Surgery

KEY POINTS

- Tranexamic acid (TXA), a synthetic lysine derivative, has previously shown efficacy for reducing blood loss in several surgical procedures.
- TXA has shown a mortality benefit in bleeding trauma patients when administered within 3 hours of injury; however, there is no decrease in blood product transfusions.
- Pharmacokinetics and optimal dosing in trauma patients remain unknown.
- Ongoing and future trials are needed to refine current understanding of TXA's mechanisms of action in trauma patients and to optimize drug administration.

INTRODUCTION

Trauma is the leading cause of death and disability worldwide, with an estimated 5.8 million people dying every year as a result of traumatic injury.[1,2] In both military and civilian settings, hemorrhage remains the most common cause of preventable death after traumatic injury.[3–6] In recent years, there has been considerable interest in antifibrinolytic agents for the prevention of hemorrhagic death in severe trauma patients. The Clinical Randomization of an Antifibrinolytic in Significant Hemorrhage (CRASH)-2 and Military Application of Tranexamic Acid in Trauma Emergency Resuscitation (MATTERs) studies were pivotal, landmark studies that brought the antifibrinolytic agent tranexamic acid (TXA) to the forefront of discussion after evidence suggested improved mortality in civilian and military trauma, respectively.[7,8] Based on results

Travmada Traneksamik Asid Güncellemesi

- Kanamanın hem sivil hem de askeri travmalarda ölümün en önemli önlenebilir nedeni olduğundan hareketle Traneksamik asid'in hastane öncesi kullanımına dair olumlu görüşler ortaya atılmıştır,
- Traneksamik asid'in immün sisteme ve travma farmakokinetiğine katkıları olduğunun altı çizilmiştir,
- Şu ana kadar yapılan çalışmaların (bir kısmı devam eden), Randomize kontrollü çalışmalar ile desteklenmesi sonrası Traneksamik asid'in daha net faydasının ve en uygun doz ve zamanın ortaya koyulması ile günlük pratiğimize daha fazla gireceği belirtilmektedir.

Damage control resuscitation in patients with severe traumatic hemorrhage: A practice management guideline from the Eastern Association for the Surgery of Trauma

Jeremy W. Cannon, MD, SM, Mansoor A. Khan, MBBS (Lond), PhD, Ali S. Raja, MD, Mitchell J. Cohen, MD, John J. Como, MD, MPH, Bryan A. Cotton, MD, Joseph J. Dubose, MD, Erin E. Fox, PhD, Kenji Inaba, MD, Carlos J. Rodriguez, DO, John B. Holcomb, MD, *and* **Juan C. Duchesne, MD**, *Philadelphia, Pennsylvania*

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Şiddetli Travmatik Kanamalı Hastalarda Hasar Kontrollü Resüsitasyon: Travma Cerrahisi Doğu Birliğinden Pratik Yönetim Rehberi

- Bu çalışmada literatürde bulunan 31 metaanaliz gözden geçirilmiştir.

- Diğer önerilerin yanı sıra **Traneksamik asid'in hastane içi erken dönemde kullanımı tavsiye edilmekte**dir.

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A comparison study of pelvic fractures and associated abdominal injuries between pediatric and adult blunt trauma patients

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ABSTRACT

Purpose: Pelvic fractures are a marker of severe injury, mandating a thorough investigation for the presence of associated injuries. Anatomical and physiological differences between adults and children may lead to a different impact of pelvic fractures on these populations. The purpose of this study is to compare pelvic fractures between pediatric and adult blunt trauma victims, mainly regarding their severity and associated intraabdominal injuries.
Methods: A retrospective study involving blunt trauma patients suffering pelvic fractures, according to the records of the Israeli National Trauma Registry. Patients included children, aged 0–14 years, and adults between 15 and 64 years. The presence and severity of associated injuries were assessed.
Results: Overall, 7621 patients aged 0–64 years were identified with pelvic fractures following blunt trauma. The incidence of pelvic fractures in children was (0.8%), as compared to 4.3% in adults, $p < 0.0001$. The most common mechanism of injury was motor vehicle accident (MVA) in adults, and pedestrian hit by car (PHBC) in children. About a quarter of the patients in both groups had an ISS >25. Adults sustained significantly more moderate to severe pelvic fractures (AIS ≥ 3) than children (26.7% vs. 17.4%, $p < 0.0001$). The overall mortality rate was similar among the two groups (5.4% in adults, 5.2% in children, $p = 0.7554$). The only associated injury with statistically significant difference in incidence among the two groups was rectal injury (1.2% among children, 0.2% among adults, $p < 0.0001$). Among adult patients, there was a clear correlation between the severity of pelvic fractures and the severity of concomitant splenic and hepatic injuries ($p = 0.026$, $p = 0.0004$, respectively). Among children, a similar correlation was not demonstrated.
Conclusions: Adults involved in blunt trauma are more likely to sustain pelvic fractures, and these are generally more severe fractures, as compared to children suffering from blunt trauma. Nonetheless, mortality rates were found similar in both groups. The only associated injury with statistically significant difference in incidence among the two groups was rectal injury. In adults, but not in children, higher grade pelvic fractures correlated with more severe concomitant splenic or hepatic injuries.
Level of evidence: The level of evidence for this study is III (3).

- Bu çalışmanın amacı travmanın ciddiyeti ve eşlik eden karın içi yaralanmalar açısından pelvis kırıklı çocuk ve erişkin olguları karşılaştırmak.

- Pelvis kırığı, travmalı olgularda ciddi yaralanma açısından bir belirteçtir. Pediyatrik ve erişkin olgular arasındaki anatomik ve fizyolojik farklılıklar nedeniyle pelvis kırıkları bu iki grupta farklı klinik tablolara neden olabilir.

- Çocuklarla kıyaslandığında, erişkinlerde künt vücut travması sonrası pelvis kırıkları daha sık görülmektedir. Erişkinlerde görülen pelvis kırıkları daha ciddi ve tedavisi daha zor kırıklardır ancak mortalite açısından iki grup arasında fark yoktur.
- **Erişkinlerde pelvis kırığına Karaciğer-Dalak yaralanmalarının eşlik etmesi daha sık iken, çocuklarda pelvis kırığıyla beraber rektal yaralanmalar anlamlı olarak fazla görülmektedir**.

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Review Article

Current trauma care system and trauma care training in China

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ABSTRACT

Trauma is a life-threatening "modern disease". The outcomes only could be optimized by cost-efficient and prompt trauma care, which embarks on the improvement of essential capacities and conceptual revolution in addition to the disruptive innovation of the trauma care system. The experiences from the developed countries, the systematic trauma care training are the cornerstone of the generalization and the improvement on the trauma care, such as the Advance Trauma Life Support (ATLS). Currently, the pre-hospital EMS (emergency medical services) has been one of the essential elements of infrastructure of health services in China, which is also fundamental to the trauma care system. Hereby, the China Trauma Care Training (CTCT) with independent intellectual property rights has been initiated and launched by the Chinese Trauma Surgeon Association to extend the up-to-date concepts and techniques in the field of trauma care as well to reinforce the generally well-accepted standardized protocols in the practices. This article reviewed the current status of the trauma care system as well as the trauma care training.

Çin'de Travma Bakım Sistemi ve Travma Bakımı Eğitiminin Günümüzdeki Durumu

- Multidisipliner travma birimlerinin kurulması,
- Düzenli travma kursların uygulanması,
- AS'lerde travma resüsitasyon alanlarının oluşturulması,
- Hastane çevresindeki yolların düzenlenmesi ve AS'in teknik ekipman açısından güçlendirilmesi,

- Ayrı bir birim olana kadar travma cerrahisi, yoğun bakım ve abdomen cerrahisinin işbirliği içinde çalışması,

- Travma ve acil bakımın yeni bir dal olarak tıp fakültelerine girmesi,

- Travma merkezlerinin güçlendirilmesi,

- Belli rehberlerin belirlenerek bunlara uyulması önerilerinde bulunulmuş.

SABRINIZ İÇİN TEŞEKKÜR EDERİM