

Travmada PAN BT mi, Seçici BT mi?

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Sunum Planı

- Seçmek ne demektir?
- Travma alt grupları, yaralanma çeşitleri
- BT Tarihçesi
- Literatürde PAN BT
- VOMİT
- PAN CT Dezavantajları
 - Yoğun radyasyon ve etkileri
 - Ölüm Riski? Malignite? Gereksiz çekim?
 - Artan maliyet

Seçmek...

1. Benzerleri arasında **hoşa gideni seçip** almak veya **yararlanmak** için ayırmak
2. Birine oy vererek bir göreve getirmek
3. **Üstün, iyi, uygun** bularak yeğlemek
4. Ne olduğunu **anlamak, fark etmek**
5. Farklı görmek, **üstün görmek.**
6. Tercihini bir yönde kullanmak.
7. **Titiz davranmak**, kolay kolay beğenmemek

Minör izole yaralanmadan-kompleks yaralanmalar

- Travmatik beyin hasarı
- Travmatik spinal kord hasarı
- Servikal spinal kolon hasarı
- Torasik ve lomber spinal kolon has.
- Penetran boyun yaralanması
- Künt torasik travma
- Penetran torasik travma
- Kosta kırıkları, göğüs duvar hasarı
- Kardiyak yaralanma (künt toraks)
- Künt abdominal travma
- Abdominal bıçaklanma ...
- Abdominal ateşli silah...
- Minör/Major Pelvic travma
- Künt Genitoüriner yaralanma
- Üst/Alt genitoüriner sistemin penetre yaralanması
- Terör olayları (Patlamalar)
- Özellikle hasta grupları, çocuklar, gebeler, geriatric hastalar...

BT ve Tarihçesi

- Bilgisayarlı tomografi taraması, modern tıpta en etkili yöntemlerden biridir.
- İlk defa 1990'ların başında spiral, 1998'de multislice BT
- İlerleyen teknoloji ve artan travma hastaları CT ile değerlendirilmenin önünü açmış bulunmakta
- Pan CT=Whole body CT=Total body CT
- İlk defa 1997'de Low, 2001'de ise Ptak ve arkadaşları tarafından tüm vücut taraması (panscan)/pan-CT gündeme getirilmiş
- Defansif tıp, malpraktis korkusu nedeniyle PAN BT popüler ve yaygınlaştı, ancak bu yaklaşım doğru mu?

Low R, Duber C, Schweden F, Lehmann L, Blum J, Thelen M. Whole body spiral CT in primary diagnosis of patients with multiple trauma in emergency situations. RoFo: Fortschritte auf dem Gebiete der Röntgenstrahlen und der Nuklearmedizin 1997;166(5):382–8.

Ptak T, Rhea J, Novelline R. Experience with a continuous, single-pass wholebody multidetector CT protocol for trauma: the three-minute multiple trauma CT scan. Emerg Radiol 2001;8(5):250–6

Literatürde PAN BT

- Pan CT çekilmeyerek atlanmış tanı oranı %1.3-%47 arasında değişkenlik göstermekte
- Randomize kontrollü çalışmalar daha yeni..
- Travmanın alt gruplarını irdeleyen çalışmalar az
- Tesadüfi bulguların tespitinde PAN CT nin Selective CT ye üstün olduğu gösterilmiştir (böbrek kisti, AC nodül, safra kesesinde taş...)

VOMIT

- Victim of Modern Imaging Technology
- Yanlış pozitif sonuçlar ve ‘incidentalomas’ (tesadüfen bulunan asemptomatik tümörler)...
- Modern teknolojiden gelen yoğun bilgi akışı ve birbirini takip eden testler sonucu olumsuz etkilenen hasta = VOMIT
- Bu yoğun bilgi ve testler sonucunda gereksiz prosedürler, anksiyete, kafa karışıklığı ve komplikasyonlar kaçınılmazdır
- Hayward R. VOMIT (victims of modern imaging technology)—an acronym for our times. BMJ 2003. 326(7401):1273.

PAN BT Dezavantajları:

- Yoğun radyasyon
- Artan maliyet
- Tespit edilen hastalığın kliniğin seyrini etkilememesi
- Yüksek cihaz ve bakım ücretleri
- Tesadüfi bulguların getirdiği endişe ve gereksiz soruşturma
- Kesin endikasyonları ile ilgili görüş birliği yok

Yoğun Radyasyon

- 1998'den 2007'e kadar CT kullanımı 3 kat arttı ve artmakta
- BT yi neden sık kullanıyoruz?
 - Yıkılamayan tabular
 - Takip etmede güçlükler
 - Eksik bilgi alımı ve paylaşımı
 - Hasta talebi
 - Verilen hasarın somut olmaması
 - Tabiki bizlerin de BT yi çok sevmemiz...

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

Long B¹, April MD², Summers S³, Koyfman A⁴.

Examination	Average effective dose (mSv)
WBCT	24
Brain	1.8
CTA brain	2.5
Sinuses	0.6
Cervical spine	3
CTA carotids	4.4
Chest	5.1
CTA chest	2.4
Thoracic spine	12
Abdomen	11
Kidney	11
Lumbar spine	12
Pelvis (dedicated)	4.5

2 PAN BT atom bombasından daha...

- 1945 atomic bomb survivors in Japan who experienced a **mean effective dose of 40 mSv**. These survivors are known to have an **increased cancer risk**, and a **similar exposure can be reached in five to six CT scan**.



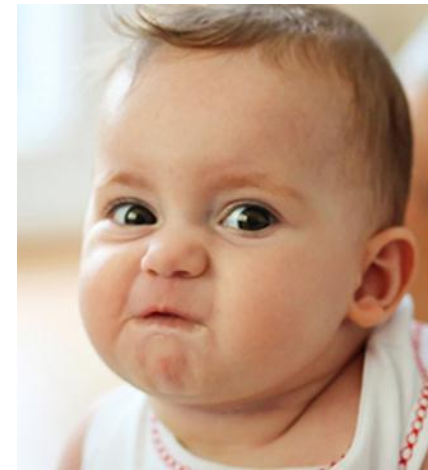
- Rohner D, Bennett S, Samuratunaga C et al. Cumulative total effective whole-body radiation dose in critically ill patients. Chest.2013;144(5):1481-1486

Ölüm Riski? Malignite? Gereksiz çekim?

...

- The risk of **dying from radiation induced cancer** is estimated to be **0.08%** after **one single WBCT** in a 45 year old patient. **1/1250**
- **1,5-2% malignant tumors** are associated with radiation expose in CT scan in US.
- It has been estimated that **30 % percent or more** of advanced imaging studies ordered in the United States may be **unnecessary** .
- Sierink JC, Saltzherr TP, Wirtz MR et al, Radiation exposure before and after the introduction a dedicated total body CT protocol multitrauma patients. Emerg Radiol 2013, 20(6):507-512
- Snyder GE, Whole body imaging in blunt multisystem trauma patients who never examined. Ann Emerg 2008, 52(2):101-103
- Computed tomography-an increasing source of radiation exposure. Brenner DJ, Hall EJ N Engl J Med 2007; 357:2277

Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study



Mark S Pearce, Jane A Salotti, Mark P Little, Kieran McHugh, Choonsik Lee, Kwang Pyo Kim, Nicola L Howe, Cecile M Ronckers, Preetha Rajaraman, Sir Alan W Craft, Louise Parker, Amy Berrington de González

Summary

Background Although CT scans are very useful clinically, potential cancer risks exist from associated ionising radiation, in particular for children who are more radiosensitive than adults. We aimed to assess the excess risk of leukaemia and brain tumours after CT scans in a cohort of children and young adults.

Methods In our retrospective cohort study, we included patients without previous cancer diagnoses who were first examined with CT in National Health Service (NHS) centres in England, Wales, or Scotland (Great Britain) between 1985 and 2002, when they were younger than 22 years of age. We obtained data for cancer incidence, mortality, and loss to follow-up from the NHS Central Registry from Jan 1, 1985, to Dec 31, 2008. We estimated absorbed brain and red bone marrow doses per CT scan in mGy and assessed excess incidence of leukaemia and brain tumours cancer with Poisson relative risk models. To avoid inclusion of CT scans related to cancer diagnosis, follow-up for leukaemia began 2 years after the first CT and for brain tumours 5 years after the first CT.

Findings During follow-up, 74 of 178 604 patients were diagnosed with leukaemia and 135 of 176 587 patients were diagnosed with brain tumours. We noted a positive association between radiation dose from CT scans and leukaemia (excess relative risk [ERR] per mGy 0·036, 95% CI 0·005–0·120; $p=0\cdot0097$) and brain tumours (0·023, 0·010–0·049; $p<0\cdot0001$). Compared with patients who received a dose of less than 5 mGy, the relative risk of leukaemia for patients who received a cumulative dose of at least 30 mGy (mean dose 51·13 mGy) was 3·18 (95% CI 1·46–6·94) and the relative risk of brain cancer for patients who received a cumulative dose of 50–74 mGy (mean dose 60·42 mGy) was 2·82 (1·33–6·03).

Lancet 2012; 380: 499–505

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June 7, 2012
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- 2012 Lancet
- 1985-2002
- <22 y
- 170 000+ hastada
- Çocukluk çağında BT çekiminin Lösemi ve Beyin TM riskini artırdığını
- Maruz kalınan kümülatif radyasyon dozunun riski artırdığı ortaya konmuş

RESEARCH

Cancer risk in 680 000 people exposed to computed tomography scans in childhood or adolescence: data linkage study of 11 million Australians

 OPEN ACCESS



- For all types of cancer combined, incidence was 24% greater in the exposed group than in the unexposed group (IRR 1.24 (95% confidence interval 1.20 to 1.29), $P < 0.001$),
 - and the IRR increased by 0.16 (0.13 to 0.19) with each additional CT scan ($P < 0.001$)
 - Future CT scans should be limited to situations where there is a definite clinical indication, with every scan optimised to provide a diagnostic CT image at the lowest possible radiation dose.
- 2013 BMJ
 - 680 000 kişi
 - <19 y
 - Kanser insidansı maruz kalanlarda %24 fazla
 - Her ek çekim de (doz artınca) risk artmakta
 - BT çekimleri belirlenmiş klinik endikasyonlarla sınırlı kalmalı
 - Ve her çekim dozu mümkün olduğu kadar düşük tutulmalı

Aydın Adnan Menderes Üniversitesi Hastanesinde beyin tomografisi çekimlerinde onlarca çocuğa limitlerin çok üzerinde radyasyon verildiği ortaya çıktı. Üç yıldır taşeron bir şirket tarafından yapılan görüntüleme işleminde 0-5 yaş arasındaki çocukların özellikle beyin tomografileri izin verilen limitlerin 7-10 katına ulaşan oranda radyasyonla çekilmiş.

“Çocuğu hasta bir doktorun dikkati”

Kendisi de bir devlet hastanesinde çalışan bir doktorun, çocuğuna çekilen beyin tomografisi (BTA) çekimindeki dozları araştırması sonrasında ortaya çıkardığı bilgiler onlarca çocuğun BTA'larının yüksek dozda radyasyon verilerek yapıldığını ortaya koydu.

Konunu araştırdıktan sonra yargı aşamasına taşıyan doktorun dikkati önemli bir sağlık sorununu da ortaya çıkardı. Radyasyonla kanser vakaları arasındaki bağlantı bilinmesine rağmen 0-5 yaş arası onlarca çocuğun yüksek dozda radyasyona maruz bırakıldığı ortaya çıktı.

Artan Maliyet

- Fazladan istenen BT protokollerinin ücretleri (ülkemizde... USA)
- Yüksek cihaz ve bakım ücretleri
- Artmış personel sağlık çalışanı iş yükü, ek personel gerekliliği
- Hastanede yatışa katkısı? Yoğun bakımda kalış süresine katkısı?

Fazladan istenen BT protokollerinin ücretleri



**MR VE
TOMOGRAFİ
TEKRARINA
SINIRLAMA**





Yüksek cihaz ve bakım ücretleri



Comparison of whole-body computed tomography vs selective radiological imaging on outcomes in major trauma patients: a meta-analysis

[Libing Jiang](#),¹ [Yuefeng Ma](#),¹ [Shouyin Jiang](#),¹ [Ligang Ye](#),¹ [Zhongjun Zheng](#),¹ [Yongan Xu](#),¹ and [Mao Zhang](#)^{✉1}

- Acilde Kalış-Servis Yatış-Yoğun Bakım Yatış Süre
 - 26371 hasta, 11 çalışma analiz edilmiş
 - Erişkin künt multitravma (yaş > 16, injury severity score > 16).
- 3) Comparisons: studies compared WBCT with conventional diagnostic algorithm (NWBCT, including X-rays of the chest and pelvis and FAST followed by selective CT or no CT).
- Shorter **stay in the ED** (weighted mean difference (WMD), **-27.58 min**; 95% CI, -43.04 to -12.12].
 - There was **no effect** of WBCT on the **length of ICU stay** (WMD, 0.95 days; 95% CI: -0.08 to 1.98) and the **length of hospital stay** (WMD, 0.56 days; 95% CI: -0.03 to 1.15).

Systematic review and meta-analysis of routine total body CT compared with selective CT in trauma patients.

Emerg Med J. 2014 Feb.

Healy DA · Hegarty A, Feeley I, Clarke-Moloney M ,Grace PA, Walsh SR

- **BACKGROUND:**
- Full-body CT scanning is increasingly being used in the initial evaluation of severely injured patients. We sought to analyse the literature to determine the benefits of full-body scanning in terms of mortality and length of time spent in the emergency department (ED).
- **METHODS:**
- A systematic search of the Pubmed and Cochrane Library databases was performed. Eligible studies compared trauma patients managed with selective CT scanning with patients who underwent immediate full-body scanning. Using random effects modelling, the pooled OR was used to calculate the effect of routine full-body CT on mortality while the pooled weighted mean difference was used to analyse the difference in ED time.
- **RESULTS:**
- Five studies (8180 patients) provided mortality data while four studies (6073 patients) provided data on ED time. All were non-randomised cohort studies and were prone to several sources of bias. There was no mortality difference between groups (pooled OR=0.68; 95% CI 0.43 to 1.09, p=0.11). There was a significant reduction in the time spent in the ED when patients underwent full-body CT (pooled effect size of weighted mean difference=-32.39 min; 95% CI -51.78 to -13.00; p=0.001).
- **CONCLUSIONS:**
- We eagerly await the results of randomised controlled trials. Firm clinical outcome data are expected to emerge in the near future, though data on cost and radiation exposure will be needed before definitive conclusions can be made.

Selective computed tomography (CT) versus routine thoracoabdominal CT for high-energy blunt-trauma patients.

Cochrane Database Syst Rev. 2013 Dec.

Van Vugt R, Keus F, Kool D, Deunk J, Edwards M

BACKGROUND:

Trauma is the fifth leading cause of death worldwide, and in people younger than 40 years of age, it is the leading cause of death. During the resuscitation of trauma patients at the emergency department, there are two different commonly used diagnostic strategies. Conventionally, there is the use of physical examination and conventional diagnostic imaging, potentially followed by selective use of computed tomography (CT). Alternatively, there is the use of physical examination and conventional diagnostics, followed by a routine (instead of selective) use of thoracoabdominal CT. It is currently unknown which of the two strategies is the better diagnostic strategy for patients with blunt high-energy trauma.

OBJECTIVES:

To assess the effects of routine thoracoabdominal CT compared with selective thoracoabdominal CT on mortality in blunt high-energy trauma patients.

SEARCH METHODS:

We searched the Cochrane Injuries Group's Specialised Register, Cochrane Central Register of Controlled Trials (Issue 4, 2013); MEDLINE (OvidSP), EMBASE (OvidSP) and CINAHL for all published randomised controlled trials (RCTs). We did not restrict the searches by language, date or publication status. We conducted the search on the 9 May 2013.

SELECTION CRITERIA:

We included RCTs of trauma resuscitation algorithms using routine thoracoabdominal CT versus algorithms using selective CT in this review. We included all blunt high-energy trauma patients (including blast or barotrauma).

DATA COLLECTION AND ANALYSIS:

Two authors independently evaluated the search results.

MAIN RESULTS:

The systematic search identified 481 references; after removal of duplicates, 396 remained. **We found no RCTs comparing routine versus selective thoracoabdominal CT in blunt high-energy trauma patients.** We excluded 381 studies based on the abstracts of the publications because of irrelevance to the review topic, and a further 15 studies after full-text evaluation.

This systematic review noted the absence of any randomized controlled trials meeting their inclusion criteria and concluded that "while the diagnostic value of WBCT seems clear, its benefits on mortality cannot be established."

AUTHOR'S CONCLUSIONS: We found NO RCTs of routine versus selective thoracoabdominal CT in patient with blunt high-energy trauma. Based on the lack of evidence from RCTs, it is not possible to say which approach is better in reducing deaths.



Randomized study of **E**arly **A**ssessment by
CT scanning in **T**rauma patients-2

Sierink et al. BMC Emergency Medicine 2012, 12:4
<http://www.biomedcentral.com/1471-2270/12/4>

BMC
Emergency Medicine

STUDY PROTOCOL

Open Access

A multicenter, randomized controlled trial of
immediate total-body CT scanning in trauma
patients (REACT-2)

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Johannes B Reitsma⁴, Michael JR Edwards⁵, Joachim Hohmann⁶, Benn JA Beuker⁷, Peter Patka⁸, James W Sulzbach⁹,
Marcel G W Dijkgraaf⁶ and J Carel Goslings¹, for the REACT-2 study group

Immediate total-body CT scanning versus conventional imaging and selective CT scanning in patients with severe trauma (REACT-2): a randomised controlled trial

Joanne C Sierink, Kaij Treskes, Michael J R Edwards, Benn J A Beuker, Dennis den Hartog, Joachim Hohmann, Marcel G W Dijkgraaf, Jan S K Luitse,
Ludo F M Beenen, Markus W Hollmann, J Carel Goslings, for the REACT-2 study group*

Lancet 2016; 388: 673-83

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S0140-6736(16)30932-1

Multicenter, **R**andomized Study of **E**arly **A**ssessment by **C**T Scanning in Severely Injured
Trauma Patients (**REACT-2**)

Immediate total-body CT scanning versus conventional imaging and selective CT scanning in patients with severe trauma (REACT-2): a randomised controlled trial

Joanne C Sierink, Kaij Treskes, Michael J R Edwards, Benn J A Beuker, Dennis den Hartog, Joachim Hohmann, Marcel G W Dijkgraaf, Jan S K Luitse, Ludo F M Beenen, Markus W Hollmann, J Carel Goslings, for the REACT-2 study group*

Summary

Background Published work suggests a survival benefit for patients with trauma who undergo total-body CT scanning during the initial trauma assessment; however, level 1 evidence is absent. We aimed to assess the effect of total-body CT scanning compared with the standard work-up on in-hospital mortality in patients with trauma.

Methods We undertook an international, multicentre, randomised controlled trial at four hospitals in the Netherlands and one in Switzerland. Patients aged 18 years or older with trauma with compromised vital parameters, clinical suspicion of life-threatening injuries, or severe injury were randomly assigned (1:1) by ALEA randomisation to immediate total-body CT scanning or to a standard work-up with conventional imaging supplemented with selective CT scanning. Neither doctors nor patients were masked to treatment allocation. The primary endpoint was in-hospital mortality, analysed in the intention-to-treat population and in subgroups of patients with polytrauma and those with traumatic brain injury. The χ^2 test was used to assess differences in mortality. This trial is registered with ClinicalTrials.gov, number NCT01523626.

Findings Between April 22, 2011, and Jan 1, 2014, 5475 patients were assessed for eligibility, 1403 of whom were randomly assigned: 702 to immediate total-body CT scanning and 701 to the standard work-up. 541 patients in the immediate total-body CT scanning group and 542 in the standard work-up group were included in the primary analysis. In-hospital mortality did not differ between groups (total-body CT 86 [16%] of 541 vs standard work-up 85 [16%] of 542; $p=0.92$). In-hospital mortality also did not differ between groups in subgroup analyses in patients with polytrauma (total-body CT 81 [22%] of 362 vs standard work-up 82 [25%] of 331; $p=0.46$) and traumatic brain injury (68 [38%] of 178 vs 66 [44%] of 151; $p=0.31$). Three serious adverse events were reported in patients in the total-body CT group (1%), one in the standard work-up group (<1%), and one in a patient who was excluded after random allocation. All five patients died.

Interpretation Diagnosing patients with an immediate total-body CT scan does not reduce in-hospital mortality compared with the standard radiological work-up. Because of the increased radiation dose, future research should focus on the selection of patients who will benefit from immediate total-body CT.

Funding ZonMw, the Netherlands Organisation for Health Research and Development.

- Lancet 2016 **Randomize kontrollü çalışma**
- Uluslararası 5 merkezli
- >18 y
- 2011-2014
- 1083 hasta
- In-hospital mortality did not differ between groups (total-body CT 86 [16%] of 541 vs standard work-up 85 [16%] of 542; $p=0.92$)
- Also did not differ between groups in subgroup analyses in patients with polytrauma and traumatic brain injury

Is Whole-Body CT Associated With Reduced In-Hospital Mortality in Children With Trauma? A Nationwide Study.

Abe T^{1,2}, Aoki M³, Deshpande G¹, Sugiyama T^{2,4}, Iwagami M², Uchida M², Nagata I², Saitoh D⁵, Tamiya N².

Author information

Abstract

OBJECTIVES: We aimed to investigate whether whole-body CT for children with trauma is associated with a different mortality than only selective CT.

DESIGN: A multicenter, retrospective cohort study.

SETTING: Nationwide trauma registry from 183 tertiary emergency medical centers in Japan.

PATIENTS: We enrolled pediatric trauma patients less than 16 years old who underwent whole-body CT or selective CT from 2004 to 2014.

INTERVENTIONS: We classified the patients into a whole-body CT group if they underwent head, chest, abdomen, and pelvis CT and a selective CT group if they underwent at least one, but not all, of the above scans.

MEASUREMENTS AND MAIN RESULTS: We analyzed data from 9,170 eligible patients (males, 6,362 [69%]; median age, 9 yr [6-12 yr]). Of these, 3,501 (38%) underwent whole-body CT. The overall in-hospital mortality was 180 of 9,170 (2.0%), that of patients who underwent whole-body CT was 102 of 3,501 (2.9%), and that of patients who underwent selective CT was 78 of 5,669 (1.4%). After adjusted multilevel logistic regressions and propensity score matching, the whole-body CT group demonstrated no significant difference in terms of in-hospital mortality compared with the selective CT group. The adjusted odds ratios (whole-body CT vs selective CT) for in-hospital mortality were as follows: multilevel logistic regression model 1 (1.05 [95% CI, 0.70-1.56]); multilevel logistic regression model 2 (0.72 [95% CI, 0.44-1.17]); propensity score-matched model 1 (0.98 [95% CI, 0.65-1.47]); and propensity score-matched model 2 (0.71 [95% CI, 0.46-1.08]). Subgroup analyses also revealed similarities between CT selection and in-hospital mortality.

CONCLUSIONS: In this nationwide study, whole-body CT was frequently used among Japanese children with trauma. However, compared with the use of selective CT, our results did not support the use of whole-body CT to reduce in-hospital mortality. Selective use of imaging may result in less radiation exposure and provide more benefits than whole-body CT to pediatric trauma patients.

- Haziran 2019
- 183 Japonya merkez
- 2004-2014
- 9170 çocuk
- 6-12 yaş
- 3501 pan bt(%38)
- 180/9170 ex %2
- 102 ex pan bt
- 78 ex selektif bt
- Mortalitede anlamlı farklılık yok
- Alt gruplarda da fark yok
- Madem mortalite azalmıyor neden ek radyasyon...

TEŞEKKÜRLER!

Primum non nocere



Primum non nocere



The role of whole-body computed tomography in determining risky patient group with regard to polytrauma patients in the emergency department

Hong Kong Journal of Emergency Medicine
2018, Vol. 25(3) 123–129
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DOI: 10.1177/1024907918755174
journals.sagepub.com/home/hkj



Enver Özçete, Selahattin Kiyan, İlhan Uz,
Meltem Songür Kodik and Yusuf Ali Altuncı 

Abstract

Background: High rates in trauma-related mortality pose a major health problem and increase every day. Early diagnosis and treatment can be lifesavers for this patient group in the emergency departments, which serve as the first place to admit trauma patients in a hospital.

Objectives: We aim to determine high-risk criteria to indicate trauma patients getting the most use from whole-body tomography in patients with multiple traumas and reduce unnecessary computed tomography.

Methods: We examined retrospectively all electronic files and computed tomography results of patients, who had been admitted to emergency department due to trauma, and who had undergone whole-body computed tomography.

Results: We found that possibility of multiple injuries increased by 5.9 times in patients requiring mechanical ventilation. Possibility of multiple injuries in patients with free fluid in the Focused Assessment with Sonography for Trauma increased by 5.6 times. We also observed that possibility of multiple injuries in patients with Glasgow Coma Score < 13 increased by 4.3 times. Possibility of multiple injuries in hypoxic patients increased by 3.2 times. Possibility of multiple injuries in patients with a pulse $\geq 120/\text{min}$ increased by 1.8 times. Possibility of multiple injuries in patients with shock index ≥ 0.9 increased by 1.7 times.

Conclusion: High-risk group in terms of multiple traumas involves mechanical ventilation need in trauma patients, positive Focused Assessment with Sonography for Trauma, Glasgow Coma Score being under 13, hypoxia, tachycardia, positive shock index, and extravehicular traffic accidents. Whole-body computed tomography should be performed in this patient group.

Conclusion

High-risk group in terms of multiple traumas involves the need for mechanical ventilation in trauma patients, positivity in the FAST, GCS being under 13, hypoxia, tachycardia, positivity in SI, and extravehicular car injuries as a mechanism. This patient group should be underwent whole-body CT.

- 546 da 5 exitus, mortalite az ve anlamlılık bakılmamış
- Yüksek riskli grup için paremetreler bakılmış