ORIGINAL ARTICLE

First step toward a better trauma management: Initial results of the Northern Izmir Trauma Registry System for children

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ABSTRACT

BACKGROUND: Trauma is an important health problem in children, and improvement in trauma care on the national level is possible only through the knowledge gathered from trauma registry systems. This information is not available in our country, because there is no current trauma registry system in the hospitals. Our aim in this paper is to explain the trauma registry system we have developed and to present the first year's data.

METHODS: The planned trauma registry system was integrated into the emergency department registry system of 14 hospitals in the Izmir province. The data of pediatric patients with multiple trauma have been recorded automatically through the registry system. Demographics, vital signs, mechanism, the type of trauma, anatomical region, Injury Severity Score (ISS), Pediatric Trauma Score (PTS), Glasgow Coma Scale (GCS) score, the length of hospital stay, and the need for blood transfusion/endotracheal intubation/surgery/hospitalization were evaluated by the patient transfer status and outcome.

RESULTS: At the end of one year, a total of 356 pediatric major trauma patients were included in the study. The most common type of trauma was blunt trauma (91.9%), and the most common mechanism was vehicle-related traffic accident (28.1%). In the group with the Glasgow Outcome Scale ≤3; the age was greater, ISS was higher, and PTS was lower. Motorcycle accidents, sports injuries, and penetrating injuries were more frequent in this group. All scores were significantly different between direct and transferred patients. The referral time to the hospital of the transferred patients was longer than directly admitted patients, but the results were not different.

CONCLUSION: Pediatric major trauma is an important cause of mortality and morbidity, and our trauma registry system, which is a successful example abroad, is insufficient in our country. We hope that the trauma registry system we planned and the pilot application we started will be expanded to include other hospitals throughout the country with the aim of developing a national registry system.

Keywords: Major trauma; pediatric trauma; trauma registry; trauma system.

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INTRODUCTION

Trauma is a leading cause of death and disability among children, 950,000 of whom are fatally injured every year worldwide.[1] Disabilities caused by severe injuries are estimated to affect approximately 10 million children annually.[2] Whether death or severe disability follows a major trauma depends not only on the mechanism and severity of the trauma, but also on the effectiveness of the treatment at the scene, during ambulance transport, and in the hospital.[3] Understanding the patterns of pediatric injury is crucial when developing and implementing effective preventive programs.[4]

Izmir is the third largest city in Turkey and has a population of 4.2 million. The hospitals in the northern region of the city constitute a microcosm of the entire country and include research hospitals and hospitals with and without pediatric surgical services or intensive care units. Our hospital is the top-level referral and research hospital in the region—we offer a pediatric emergency service, a pediatric intensive care unit, and a pediatric surgery service. To provide a coordinated service, we sought to first understand the local clinical and sociodemographic characteristics of pediatric trauma patients by establishing a well-designed trauma registry.[5] To the best of our knowledge, no trauma recording system is presently routinely used by emergency services in Turkey. We established a trauma recording system including all the emergency services associated with the Izmir Northern Secretariat Public Hospitals Association.

The aim of this study was to report the first-year results of the pediatric trauma registry system maintained by 14 hospitals in the Northern Izmir Region. We compared the clinical outcomes of children referred from other hospitals to our hospital with those of children transported to us directly from the accident scene, and we identified the factors affecting the clinical probabilities of dying or becoming severely disabled.

MATERIALS AND METHODS

Ministry of Health Izmir Northern Secretariat Public Hospitals Association

There are 14 hospitals in the Ministry of Health Izmir Northern Secretariat Public Hospitals Association (INSA) region, and these serve 2.5 million of the 4 million people living in the Izmir province. There were 2,109,387 patients admitted to the emergency departments of these hospitals; 339,212 of these patients were admitted to the pediatric emergency department of our instutition (Tepecik Training and Research Hospital - TTRH), which is the most appropriate hospital in the region for treating the most severely injured patients. Pediatric emergency specialists and pediatric surgeons are available at all times in this hospital. The TTRH has a Level 3 pediatric intensive care unit, and surgical intervention is available immediately and at all times when necessary. For this reason, most seriously injured patients are transferred to this hospital either directly from the accident scene or from other hospitals.

Izmir Trauma Team

At the beginning of the project, in 2013, a Trauma Coordination Unit was established under the management of INSA. It was developed to collect and coordinate all statistical information related to trauma. The project team, which was formed from trauma-related departments (i.e., general surgery, pediatric surgery, and thoracic surgery), included adult and pediatric emergency medicine specialists, adult and pediatric intensive care specialists, and the director of the ambulance services of the province. After the team was formed, meetings were held every Wednesday for 1 year. At these meetings, the measures to be taken, work plans, and task assignments were determined. All hospitals in the region were informed through official channels about the project. A physician in each center's emergency department was identified as a trauma officer and was responsible for ensuring that data on major trauma patients were entered into a data-

Table 1. Details of the planning process for the first year of the trauma project

Process	Months											
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Review of the literature	X	X	X	X	X	X						
Assessment of the hospitals				X	X	X	X					
Design of the registry						X	X	X				
Modeling							X	X				
Training of the personnel								X	X	X		
First applications and controls										X	X	X
Design of the computer program							X	X	X	X		
Intermediate report						X						
Final report												X

base on a daily basis. A training program was initiated for all personnel involved in the use of the registry. During this training, the proper use of the dedicated software was taught to all registry personnel, and efforts were made to increase the awareness of the registry among emergency service staff. Workshops were held at the four largest hospitals in the region to identify deficiencies in trauma management, and recommendations were made. One workshop report and two progress reports were published after 6 months and at the end of the first year, respectively (Table 1).

In terms of existing guidelines, the "Field Trauma Triage and Hospitals Leveling Guide in Izmir–Turkey" was published before this study began.[6] It was planned that the physical infrastructure, staff and equipment capacities, and staff educational levels in all hospitals would be equalized. Fourteen hospitals in the Northern Izmir Region were visited by the trauma team and evaluated in terms of their trauma management capacities. During this evaluation, the problems encountered when managing trauma patients, the personnel levels, and the lists of the available medical devices and equipment for the treatment of adults and children were noted using on-site audit forms. Based on these data, for the first time in our country, all hospitals were classified as "Level 1," "Level 2," or "Level 3" in terms of adult patient acceptance and as "Level 2" or "Level 3" in terms of pediatric patient acceptance. According to this system, TTRH is classified at Level 3 in terms of both the adult and pediatric trauma patient acceptance, and three other hospitals (Menemen State Hospital, Karsiyaka State Hospital, and Buca Seyfi Demirsoy State Hospital) are Level 2; the other hospitals are Level 1.

Izmir Northern Region Trauma Registry

We used the criteria from the "Guidelines for Field Triage of Injured Patients: Recommendations of the National Expert Panel on Field Triage" published by the Centers for Disease Control and Prevention to identify the cases of major trauma (Tables 2–4).[7] We added a software module to our hospital registry system so that major trauma patients could be identified by the system. First, all International Classification of Diseases (ICD-10) codes related to trauma were determined, and the system was instructed to open an additional window when these codes were entered. This extra window listed the major trauma criteria to be checked. If the patient met at least one of these criteria, the patient was labeled a "major trauma patient" in the registry system.

The following data were subsequently recorded:

- Demographic characteristics (name, surname, sex, age)
- Date and hour of admission (00:00–08:00, 08:00–16:00, and 16:00–00:00 hours)
- Transfer status
- Vital signs (heart rate, respiratory rate, oxygen saturation level, and blood pressure)
- Mechanism of injury (MOI)
- Type of trauma (blunt/penetrating)
- Anatomical region and severity of injury
- Injury Severity Score (ISS), Pediatric Trauma Score (PTS), and Glasgow Coma Scale (GCS) score
- Number of tests and consultations required
- Need for blood transfusion, endotracheal intubation, surgery, or hospitalization
- Outcomes
- Length of stay in the hospital
- Total hospital cost

Table 2. Characteristics of patients recorded in the trauma registry system

1. Patients with vital sign abnormalities
   - For adults: Blood pressure <90/60 mmHg, heart rate >100 beats/min, respiratory rate >20 breaths /min, peripheral oxygen saturation <90%.
   - The critical vital signs for children are shown in Table 2.
2. Patients with Glasgow Coma Scores <14
3. Patients requiring airway support (temporary or permanent) for any reason
4. Suspected or documented stabbing/gunshot injuries to the torso
5. Epidural hematoma, subdural hematoma, traumatic subarachnoid hemorrhage, depressed head fracture, basal skull fracture, or suspicion of any of these
6. Patients fulfilling the major burn criteria (Table 3)
7. Two or more proximal long bone fractures (i.e., the femur and humerus)
8. Complete or near-total amputation proximal to the wrist or ankle
9. Death in the same passenger compartment
10. Falls:
    - Adults: >2 floors or > 5 meters
    - Children: >3 times the height of the child
11. Injury to an extremity and lack of a distal pulse
12. Suspected or documented pelvic fracture
13. Flailed chest
14. Ejection from a car, intrusion into a car, motorcycle crash, bicyclist/pedestrian-vehicle crash
15. Deep neck injuries (to levels below the sternocleidomastoid muscle), enlarged neck hematoma, post-traumatic hoarseness, active bleeding
16. Proximal limb (elbow and knee injuries) injuries with active bleeding
17. Special considerations: women at >20 weeks of gestation, patients with advanced respiratory failure, patients on chronic dialysis, patients using anticoagulants, age over 65 years

Table 3. Critical vital findings for children (the trauma registry system inclusion criteria)

Age	Respiratory rate (Breaths/min)	Pulse (when awake) (Beats/min)	Pulse (when asleep) (Beats/min)	Systolic blood pressure (mmHg)
Newborn	30–60	100–180	80–160	60–90
<1 year	30–60	100–160	75–160	87–105
1–2 years	24–40	80–110	60–90	85–102
3–5 years	22–34	70–110	60–90	89–108
6–12 years	18–30	65–110	60–90	94–120
13–17 years	12–16	60–90	50–90	107–132

Table 4. Trauma registry system inclusion criteria for burns

1. Second-degree burns:
   - Age 10–50 years: >25% of the total body surface area
   - Age <10/>50 years: >20% of the total body surface area
2. Third-degree burns:
   Burns >10% of the total body surface area
3. Second- or third-degree burns involving the face, genital area, or hands
4. Second- or third-degree burns surrounding the limbs
5. Inhalation injuries (wheezing, injury to the mouth and in the mouth, dyspnea, low oxygen saturation, poor vocalization)
6. High-voltage electrical burns
7. Burns combined with major injuries (fractures, internal organ injuries [actual or suspected])
8. Additional comorbid diseases (such as respiratory failure, liver failure, or renal failure)
9. Suspicion of child/elder abuse
10. Psychiatric disorder/possibility of suicide

Study Population

Data from 356 pediatric patients who had sustained a major trauma and were admitted either directly or transferred to the TTRH were analyzed in the study for 1 year. Information on all patients was prospectively recorded from the time of admission until the time of discharge. Data on all cases were obtained from our patient registry system. The ISS and PTS were calculated automatically using the online calculators available at www.trauma.org/archive/scores/web page.[8]

To identify factors affecting outcomes, the Glasgow Outcome Scale (GOS) scores were calculated when patients were discharged from the hospital. The differences between patients who died or who were discharged with sequelae (Group 1: GOS score ≤3) and healthy discharged patients (Group 2: GOS score >3) were examined.[9] The patients were also classified in terms of referral to the hospital as either "direct" (directly admitted) or "transfer" admissions to evaluate the effectiveness of the peripheral emergency services.

The exclusion criteria were failure to meet the guidelines, unspecified injuries, suicide, caustic injuries, foreign body ingestion, and non-traumatic mechanisms of injury.

Ethical approval for this study was granted by the Committee on Ethics in Non-interventional Clinical Studies of our institution (Number 2017-1/3).

Statistical Analysis

Analysis of normality using the Kolmogorov–Smirnov test showed that the numerical data were not distributed normally, and we therefore used the Mann–Whitney U test to compare the two independent groups. The data are expressed as medians with interquartile ranges (IQRs). Categorical data are expressed as numbers (n) with percentages (%). To compare the categorical data from the two independent groups, either the chi-square or Fischer's exact test was used. A p-value <0.05 was considered to be statistically significant. All analyses were performed using the SPSS software (SPSS for MAC version 20.0; SPSS Inc., Chicago, IL, USA).

RESULTS

In total, 356 pediatric patients with major trauma were studied. The median age was 6 years (IQR: 2–11 years), and the majority of patients were male (63.8%). Most incidents involved blunt trauma (91.9%, n = 327). The most common MOIs were pedestrian accidents (100; 28.1%), falls from heights (98; 27.5%), contact with hard objects (33; 9.3%), motor vehicle collisions (29; 8.1%), intentional injuries (28; 7.9%), sports injuries (28;7.9%), motorcycle accidents (17; 4.7%), bicycle accidents (12; 3.4%), electric shocks (7; 2.0%), and other causes (4; 1.1%). The first admitting centers were distributed as follows: Level 1 (10 patients, 2.8%); Level 2 (49 patients, 13.7%); Level 3 (293 patients, 82.3%); another university hospital (1 patient, 0.3%); and a private hospital (3 patients, 0.9%). One hundred and fifty-five (43.5%) children had multiple injuries. Head-and-neck injuries were present in 88 (24.7%), facial injuries in 40 (11.2%), chest injuries in 7

(2%), abdominal injuries in 3 (0.8%), musculoskeletal injuries in 56 (15.7%), and superficial wounds in 7 (2%). Four patients died (1.1%), and 9 patients were discharged with sequelae (2.5%) (Group 1: GOS score ≤3).

When we compared Groups 1 and 2, we found that the patients were older, the ISS was higher, and the PTS was lower in Group 1 than in Group 2 ($p<0.05$). Motorcycle accidents, sports injuries, and penetrating injuries were more common in Group 1 ($p<0.05$) (Table 5).

Seventy-one (20.2%) patients had been transferred from other hospitals; the others had been transported directly from the accident scene. The ISSs, PTSs, GCS scores, and the number of consultations differed significantly between directly admitted patients and patients transferred/referred to our hospital for further treatment (Table 6). The mean times of arrival at our hospital (from the time of the accident) were 115 min for transferred patients and 30 min for directly admitted patients ($p<0.05$).

Table 5. Demographic and injury characteristics of admitted patients by outcomes after trauma

Characteristic n (%) or median (IQR)	Patient with GOS score ≤3 n=13 (3.7%)	Patients with GOS score >3 n=343 (96.3%)	p
Age	14 (5–15)	6 (2–11)	0.010
Trauma mechanism			
Motor vehicle collision	1 (7.7)	28 (8.2)	<0.001
Motorcycle accident	4 (30.8)	13 (3.8)	
Pedestrian accident	1 (7.7)	99 (28.9)	
Fall	0	98 (28.5)	
Bicycle accident	0	12 (3.5)	
Contact with hard object	1 (7.7)	32 (9.3)	
Intentional injury	2 (15.4)	26 (7.6)	
Sports injury	4 (30.8)	24 (7)	
Electricity	0	7 (2)	
Other	0	4 (1.2)	
Trauma type			
Blunt	8 (61.5)	319 (93)	0.002
Penetrating	5 (38.5)	24 (7)	
Trauma region			
Head-and-neck	1 (7.7)	87 (25.4)	0.351
Face	4 (30.8)	36 (10.5)	
Thorax	0	7 (2)	
Abdomen	0	3 (0.9)	
Extremity	2 (15.4)	54 (15.7)	
Superficial	0	7 (2)	
Multiple traumas	6 (46.2)	149 (43.5)	
Time zone			
08:00–16:00	2 (15.4)	99 (28.9)	0.555
16:00–00:00	10 (76.9)	224 (65.3)	
00:00–08:00	1 (7.7)	20 (5.8)	
Transport time (min)	30 (24.5–59)	37 (30–75)	0.388
Injury Severity Score	16 (13–38)	9 (4–16)	<0.001
Pediatric Trauma Score	8 (6–11)	10 (9–11)	0.042
Glasgow Coma Scale <14	3 (23.1)	36 (10.6)	0.164
Invoice (Turkish Lira)	398.88 (185.48–1921.64)	200.81 (91.29–419.64)	0.076
Consultations	1 (1–3)	2 (1–3)	0.431

IQR: Interquartile range; GOS: Glasgow Outcome Scale.

Table 6. Demographic and injury characteristics of all patients by transfer status

Characteristic n (%) or median (IQR)	Direct admission (n=285)	Transferred patients (n=71)	p
Age	5 (2–8)	6 (2–11.5)	0.185
Trauma mechanism			
Motor vehicle collision	23 (8.1)	6 (8.5)	0.209
Motorcycle accident	13 (4.6)	4 (5.6)	
Pedestrian accident	75 (26.3)	25 (35.2)	
Fall	75 (26.3)	23 (32.4)	
Bicycle accident	8 (2.8)	4 (5.6)	
Contact with hard object	31 (10.9)	2 (2.8)	
Intentional injury	24 (8.4)	4 (5.6)	
Sports injury	26 (9.1)	2 (2.8)	
Electricity	6 (2.1)	1 (1.4)	
Other	4 (1.4)	0	
Trauma type			
Blunt	261 (91.6)	66 (93)	0.682
Penetrating	24 (8.4)	5 (7)	
Trauma region			
Head-and-neck	76 (26.7)	12 (16.9)	0.156
Face	34 (11.9)	6 (8.5)	
Thorax	5 (1.8)	2 (2.8)	
Abdomen	2 (0.7)	1 (1.4)	
Extremity	47 (16)	9 (12.7)	
Superficial	7 (2.5)	0	
Multiple trauma	114 (40)	41 (57.7)	
Time zone			
08:00–16:00	85 (29.8)	20 (28.2)	0.298
16:00–00:00	186 (65.3)	44 (66)	
00:00–08:00	14 (4.9)	7 (9.9)	
Transport time (min)	30 (25–51)	115 (68–222)	<0.001
Injury Severity Score	13 (5–18)	9 (4–16)	0.003
Pediatric Trauma Score	9 (8–10)	10 (9–11)	0.004
Glasgow Coma Scale <15	14 (19.7)	25 (8.9)	0.009
Consultations	1 (1–3)	3 (1–5)	<0.001
Overall cost to the hospital (TL)	238.75 (100.11–431.44)	195.68 (92.57–440.23)	0.540
Laboratory cost	117.7 (78.3–217.7)	130.0 (94.7–194.4)	0.300
Salary units for the physicians	189 (93–401)	190 (86–346)	0.881
Hospitalized patients	51 (17.9)	25 (35.2)	<0.001
Hospitalization, days	3 (1–11)	4 (2–10)	0.365
Pediatric intensive care hospitalization	2 (2.8)	4 (1.4)	0.349
Transfusion	2 (2.8)	3 (1.1)	0.266
Endotracheal intubation	1 (0.8)	3 (3.2)	>0.999
Operation	5 (7)	12 (4.3)	0.353
Glasgow Outcome Scale score ≤3	2 (2.8)	11 (3.9)	>0.999

IQR: Interquartile range; TL: Turkish Lira.

DISCUSSION

In this study, we evaluated the value of the pediatric major trauma registry system covering 14 hospitals located in the third largest city of Turkey. Hospitals were divided into three groups in terms of their trauma acceptance capacities. The top level contained only one hospital (TTRH). Nearly all cases involved blunt traumas, and the most common causes of trauma were traffic accidents and falls from heights. Twenty-one percent of cases were referred from other hospitals. Motorcycle accidents, sports injuries, and penetrating injuries were more frequent in patients who died or suffered severe disabilities, and the trauma scores of these patients were higher. Compared with data from those patients who were directly admitted, the trauma scores of transferred patients were lower, but the number of emergency consultations and the hospitalization rates were higher. There was no difference between the two groups in mortality or in the proportion of patients discharged with sequelae.

A trauma registry is a database that helps to document the epidemiology, procedures, and outcomes of trauma care.[10] Trauma systems are developed using the data obtained from the registries, to reduce the mortality of trauma patients by standardizing medical interventions and treatments. For a variety of reasons, it is not feasible to use the trauma systems of the high-income countries in developing countries.[11–13] According to our literature review and current level of knowledge, no research has yet been conducted to establish a mechanism for recording the injuries and outcomes of pediatric patients who have sustained major trauma in our country.[10] We planned our study with this in mind, creating a registry that complies with our hospital system and that can be used without additional personnel or cost. We decided to publish the first results obtained using this system, as we had some promising findings to describe.

In Izmir, 168 people died and 15,109 were injured in 10,703 traffic accidents in 1 year. The Ministry of Health Izmir 112 Emergency Medical System transferred a total of 169,495 patients by ambulance, out of which 7,065 (4.2%) were pediatric trauma patients.[14] Our results show that major trauma to children in our region (the third largest city in Turkey) is primarily attributable to traffic accidents (pedestrians struck by motor vehicles, motor vehicle collisions, persons falling from motorcycles or bicycles; 44.3%), followed by falls from heights (27.8%). These findings are consistent with the study performed by Mitchell et al.,[15] which reported very similar results (41.8% and 27.9%, respectively).

The recent study conducted by Haider et al.[16] suggested that the MOI could be an independent predictor of fatality rates and functional outcomes after injury. In our study, we found that children who had motorcycle or sports accidents had the worst outcomes (GOS score ≤3) ($p<0.05$). It is a fact that most motorcycle accident victims in Turkey do not wear helmets and ride solo without drivers' licenses. Force application and energy transfer are major factors affecting patient outcomes and may be the principal contributors to the observed differences. These results also highlight the importance of control and preventive efforts, which must be increased.

The other factors associated with mortality or severe disability were older age and penetrating trauma. Tracy et al.[4] also reported that being 14–18 years of age and having sustained penetrating injuries were associated with higher ISSs. Two studies concluded that penetrating injuries accounted for 7.5% and 7.4% of the MOIs, respectively.[4,17] In our study, the mean age and the frequency of penetrating trauma were higher in patients with GOS scores ≤3 compared with GOS scores >3. According to the forensic reports on our patients, most of these patients were referred to the emergency service with stab wounds received during fights. We believe that such behavior among adolescents in our region explains the results, which must be shared with local authorities. Additionally, steps must be taken to institute preventive strategies.

The PTS is a quick and simple prognostic tool whereby a child can be rapidly assessed and accurately evaluated.[18] It is known that children with PTSs of 6 and below are at an increased risk of both mortality and morbidity. Unlike the PTS, the ISS is not simple to calculate in emergency room settings when evaluating how severely a child is injured; because the ISS is an anatomical scoring system, one has to determine the severity of injuries via extensive examinations.[19] In our study, patients with GOS scores ≤3 had higher ISSs but lower PTSs, which in accordance with the observations made above.

The PTS calculations can be performed by any care provider, and the results are important for both triage and referral of the patient to an appropriate center.[18] It was found that transferred patients had higher mean ISSs than directly admitted patients.[20–22] In contrast, we found that transferred patients had lower ISSs and higher PTSs than directly admitted patients. The proportion of patients with GCS scores below 14 was lower among transferred than among directly admitted patients. Despite these findings, although the hospitalization rates and consultation needs of transferred patients were higher than those of directly admitted patients, the outcomes of the two groups were similar. The reasons may be as follows: 1) More severely injured patients were referred from the accident scene to TTRH because this is the best-equipped medical center in the northern region of Izmir; 2) some patients were stabilized at other hospitals before the transfer to TTRH; and 3) some severely injured patients were transferred to other university hospitals, which were not included in our registry system.

Disagreement continues as to whether a delay in reaching the final hospital destination increases mortality or morbidity. In a review of 36 studies, Hill et al.[23] reported no difference in

mortality between transferred and direct admissions. In our study, we noted significant delays when patients were transferred from their first hospitals to their final hospitals (30 min for directly admitted vs. 115 min for transferred patients), but this did not affect the outcomes, as the GOS scores did not differ significantly between these groups. We also noticed that one documented reason for patient transfer was "lack of a pediatric surgeon/neurosurgeon/orthopedic surgeon," triggering a need to perform more consultations because of legal obligations. However, as we found no between-group difference in transfusion requirements; the need for surgery, pediatric intensive care hospitalization; or the length of hospital stay, we suggest that some of the transferred patients could have been treated or observed at the first center visited. The next step in reducing such secondary over-triage may involve education of the emergency service staff or the rearrangement the shifts of the consultants at the hospitals.

In conclusion, this report presents a new computerized trauma registry system, which was developed by a group of clinicians actively involved in trauma care and which has been integrated successfully with hospital registry systems. We are presenting our results, to the best of our knowledge, as the first in Turkey with the hope to expand our trauma registry concept to include other hospitals in Turkey and establishing a national system. An analysis of acquired data will make it possible to understand the burden of trauma, leading to improvements in injury prevention and both pre-hospital and hospital procedures.

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ORİJİNAL ÇALIŞMA - *ÖZET*

Çocuklarda daha iyi travma yönetimi için ilk adım: Kuzey İzmir Travma Kayıt Sistemi'nin ilk sonuçları

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AMAÇ: Travma, çocuklarda önemli bir sağlık sorunudur ve ulusal travma yönetimindeki olumlu yöndeki gelişmeler için travma kayıt sistemlerinden edinilen anlık doğru bilgilere ihtiyaç vardır. Ülkemizde hastaneler arası güncel bir kayıt sistemi olmaması nedeniyle bu bilgilere ulaşılamamaktadır. Amacımız, geliştirdiğimiz travma kayıt sistemini açıklayıp ilk yıl verilerini sunmaktır.

GEREÇ VE YÖNTEM: Planlanan travma kayıt sistemi, İzmir ilindeki 14 hastanenin acil servis kayıt sistemine entegre edildi. Pediatrik çoklu travma hastalarının verileri özel olarak kayıt altına alındı. Demografik özellikler, sevk durumu, yaşamsal veriler, mekanizma, travma tipi, anatomik bölge, yaralanma şiddeti ölçeği (ISS), pediatrik travma ölçeği (PTS), Glasgow koma ölçeği (GKS), kan transfüzyonu/endotrakeal entübasyon/cerrahi/hastaneye yatma ihtiyacı ve hastanede kalma süresi ile ilgili veriler değerlendirildi.

BULGULAR: Bir yılın sonunda, toplam 356 pediatrik çoklu travma hastası çalışmaya alındı. En sık travma tipi künt travma (%91.9) ve mekanizması araç dışı trafik kazası (%28.1) idi. Glasgow sonuç ölçeğine göre daha kötü sonuç alınan grupta yaş daha büyük, ISS daha yüksek ve PTS daha düşüktü. Motosiklet kazaları, spor yaralanmaları ve penetran yaralanmalar bu grupta daha sık gözlendi. Tüm ölçekler direkt başvuran ve sevk edilen hastalar arasında anlamlı farklılık gösterdi. Hastaneye başvuru zamanı sevk edilen hastalar için doğrudan başvuran hastalara kıyasla daha uzundu, ancak sonuçları farklı değildi.

TARTIŞMA: Pediatrik çoklu travma mortalite ve morbiditenin önemli bir nedeni olmakla birlikte, yurtdışında başarılı örnekleri olan travma kayıt sistemimiz ülke çapında yeterli değildir. Planladığımız ve pilot uygulamasını başlattığımız travma kayıt sisteminin, ülke genelinde diğer hastaneleri de kapsayacak şekilde genişletilerek işlevsel olmasını umuyoruz.

Anahtar sözcükler: Majör travma; pediatrik travma; travma kayıt sitemi.

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