

A retrospective review of patients admitted to a tertiary intensive care unit following the February 6th earthquake in Türkiye

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ABSTRACT

BACKGROUND: The Kahramanmaraş earthquake that occurred in Türkiye in 2023 affected 14 million people, resulting in 53,537 deaths and more than 100,000 injuries. In large-scale disasters, it is crucial to rapidly initiate complex treatment processes in hospitals equipped with tertiary intensive care units following the initial on-site response. In this study, we aimed to retrospectively analyze the types of trauma and the associated surgical and medical treatments of patients affected by the earthquake who were admitted to our level 3 intensive care unit. Our objective was to contribute to future disaster preparedness planning in healthcare institutions and to improve intensive care treatment strategies.

METHODS: This retrospective single-center study was conducted at Mersin City Training and Research Hospital. Clinical data of patients treated in the tertiary intensive care unit were reviewed. The recorded variables included demographic characteristics, time of hospital admission, length of hospital stay, complete blood count, creatine kinase, myoglobin, albumin levels, liver and renal function tests, Acute Physiology and Chronic Health Evaluation II (APACHE II) score, type of trauma, presence of crush syndrome and acute kidney injury, surgical interventions and types of surgery, renal replacement therapy, blood transfusion, fluid therapy, nutritional support, requirement for mechanical ventilation, psychiatric support, hyperbaric oxygen therapy, mortality, and referral to another hospital.

RESULTS: A total of 80 patients were included in the study; 53.8% were female, and the mean age was 49.93 years. The overall mortality rate was 22.5%. The mean age was higher in the mortality group, and lymphocyte count was also significantly higher in this group. The proportion of patients receiving renal replacement therapy was greater in the mortality group compared to survivors ($p=0.035$). Eleven patients died within the first five days of admission, and 13 of the deceased patients had acute kidney injury. Mechanical ventilation and total parenteral nutrition were more frequently required in the mortality group.

CONCLUSION: Advanced age, the need for total parenteral nutrition, renal replacement therapy, and mechanical ventilation were identified as predictors of mortality among trauma patients followed in a tertiary intensive care unit.

Keywords: Earthquake; intensive care; mortality; renal replacement therapy.

INTRODUCTION

Two major earthquakes (an earthquake doublet occurring within 9 hours, with magnitudes of 7.7 and 7.6 on the

Richter scale) struck Türkiye on February 6, 2023. The Kahramanmaraş earthquake sequence directly affected 11 cities. This disaster impacted 14 million people, resulting in 53,537 registered deaths, more than 100,000 injuries, and

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damage to approximately 40,000 buildings, including hospitals.^[1] In natural disasters, healthcare services are initiated at the scene, and injured individuals are transported to the nearest healthcare facility. Patients requiring advanced care are subsequently referred to centers capable of providing more complex treatments. Following triage, those in need of critical care are admitted to intensive care units. Patients with multiple trauma often undergo major surgical procedures and require close monitoring in the intensive care unit.^[2-5] The localization of trauma, the presence of crush syndrome, and the supportive and resuscitative treatments administered in the intensive care unit, particularly for patients who developed crush syndrome, are considered key determinants of survival and morbidity. Crush syndrome is frequently observed in patients admitted to the intensive care unit after being trapped under debris. Increased vascular permeability and disruption of the cell membrane lead to massive fluid accumulation in the interstitial space.

Compartment syndrome and hypovolemia accompanying trauma are considered important factors that increase mortality, particularly in the presence of acute kidney injury and crush syndrome. The timely implementation of surgical interventions, in addition to appropriate medical treatment, significantly improves prognosis through a multidisciplinary approach.^[5-7]

Additionally, service capacity can be enhanced through the safe referral of suitable patients to advanced healthcare institution outside the affected region, allowing qualified beds in large-scale hospitals near the disaster area to remain available for ongoing triage and new admissions.^[4] Following the Kahramanmaraş earthquake, our hospital admitted patients both directly and through referral due to its proximity to the disaster region. After triage, patients requiring critical care were admitted to the hospital's intensive care units.

In this study, we aimed to analyze the clinical and demographic characteristics of earthquake victims admitted to our tertiary resuscitation intensive care unit and to compare the features of survivors and non-survivors.

We also aimed to evaluate the admission and treatment algorithms applied in our intensive care unit. Specifically, we examined the contributions of medical and surgical treatments to morbidity in patients with crush syndrome, as well as the types and severity of trauma observed. Based on the data obtained, we sought to generate analyses that may help develop strategies to reduce morbidity and mortality in similar natural disasters and to guide best practices for hospitals with tertiary intensive care units.

MATERIALS AND METHODS

After obtaining approval from the Mersin University Clinical Research University Clinical Research Ethics Committee (20/03/2024-06-283), the medical records of patients admitted to the tertiary intensive care unit of Mersin City Training

and Research Hospital between February 6, 2023 and March 6, 2023, who had been referred from the earthquake region, were analyzed using the hospital information management system (HIMS). Patients who were transferred to another center immediately after initial admission were excluded from the study. The following data were recorded: demographic characteristics, time of hospital admission, length of hospital stay, laboratory parameters at admission and on the third day of intensive care (complete blood count [CBC], creatine kinase [CK], myoglobin, albumin levels, liver and renal function tests [creatinine, glomerular filtration rate (GFR)], Acute Physiology and Chronic Health Evaluation II (APACHE II) score, type of trauma, presence of crush syndrome and acute kidney injury, surgical interventions and types of surgery, renal replacement therapy, blood product use, daily fluid therapy, nutritional support, requirement for mechanical ventilation, psychiatric support, use of hyperbaric oxygen therapy, mortality, and referral to another healthcare facility. Informed consent for treatment was obtained from the patients or their first-degree relatives. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Statistical Analysis

The distribution of variables was assessed using the one-sample Kolmogorov-Smirnov test. Qualitative data were presented as numbers and percentage, while quantitative data were expressed as mean±standard deviation. Group comparisons were performed using the Mann-Whitney U test or Student's t-test. Categorical data were compared using the Chi-square test and presented as numbers and percentages.

Significant predictors of mortality were determined using binary logistic regression analysis. All analyses were performed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL), version 20. Statistical significance was set at $p < 0.05$ for all analyses.

RESULTS

After the initial enrollment of 120 cases, 40 patients who were referred to other healthcare facilities in the region were excluded from the study. A total of 80 patients, including 43 females, were included in the final analysis (Table 1). The mean age was 49.93 years. The overall mortality rate was 22.5%. In the mortality group, the mean age and lymphocyte count were significantly higher compared to the survivor group ($p=0.013$ and $p=0.022$, respectively) (Table 2). On day 1, blood creatinine levels, age, and APACHE II scores were significantly higher in the mortality group than in the survivor group ($p=0.04$, $p=0.013$, and $p=0.000159$, respectively) (Table 3). Renal replacement therapy was administered to 50% of patients in the mortality group, which was significantly higher compared to 24.2% in the survivor group ($p=0.035$) (Table 4). In the mortality group, age, total parenteral nutrition (TPN) use, and renal replacement therapy were significantly more frequent ($p=0.020$ and $p=0.006$) (Table 5). Acute kidney injury was reported as the cause of death in 11 of the 18 de-

Table 1. Demographic characteristics of patients

Variable	Mortality (n=18) Mean±SD	Survival (n=62) Mean±SD	p-value
Age (years)	54.00±19.98	41.00±18.74	0.013*
WBC (Day 1)	19.17±8.50	16.64±10.69	0.359
NEU (Day 1)	16.00±6.68	13.92±9.90	0.407
PLT (Day 1)	25.20±11.42	24.78±10.97	0.876
Albumin (Day 1)	3.18±0.58	3.12±0.52	0.693
Monocytes (Day 1)	1.00±0.69	0.82±0.51	0.227
Neu/Lym (Day 1)	12.32±7.14	13.37±8.87	0.647
Plt/Lym (Day 1)	210.70±137.75	250.87±156.32	0.232
Mon/Lym (Day 1)	0.72±0.44	0.79±0.51	0.594
Daily fluid volume (L)	4.61±1.68	4.69±1.44	0.838
Time from trauma to ICU (days)	6.56±5.74	4.39±4.53	0.097
ICU length of stay (days)	8.28±9.65	6.16±6.05	0.262

*P<0.05; aStudent's t-test; bChi-square test; *Non-homogeneous variable.

Table 2. Regression analysis

Variable	Mortality (n=18) Median (95% CI)	Survival (n=62) Median (95% CI)	p
LYM (Day 1)*	1.26 (0.85–2.82)	1.04 (0.84–1.37)	0.022*
CK (Day 1)*	10,000 (180–10,000)	10,000 (489–10,000)	0.465
Myoglobin (Day 1)*	10,000 (609–10,000)	10,000 (337–10,000)	0.090

Table 3. Comparison of kidney function tests

Variable	Survivors (n=62)	Mortality (n=18)	p
Age (years)	41.00±18.74	54.00±19.98	0.013*
GFR1	80.4±57.71	60.69±42.49	0.051
GFR2	93.95±58.21	59.76±44.19	0.09
Creatinine 1	1.66±1.49	2±1.67	0.04*
Creatinine 2	1.51±1.59	1.75±1.1	0.173
APACHE II score	14.15±7.51	21.15±9.9	0.000159*
Female gender, n (%)	33 (53.2)	10 (55.6)	0.861

p<0.05; Mann-Whitney U test; GFR1 (first-day GFR); GFR2 (third-day GFR); Creatinine 1 (first-day creatinine); Creatinine 2 (third-day creatinine).

Table 4. Intensive care unit characteristics

Variable	Mortality (n=18) N (%)	Survival (n=62) N (%)	P
Male gender, % (n)	44.4 (8)	46.8 (29)	0.861
Renal replacement therapy, % (n)	50 (9)	24.2 (15)	0.035*
Head injury, % (n)	16.7 (3)	16.1 (10)	0.957
Extremity injury, % (n)	61.1 (11)	79 (49)	0.122
Trunk injury, % (n)	38.9 (7)	43.5 (27)	0.725
Mechanical ventilation	94.4 (17)	22.6 (14)	<0.001*
FFP transfusion	27.8 (5)	14.5 (9)	0.192
ES transfusion	44.4 (8)	58.1 (36)	0.307
TS transfusion	11.1 (2)	0 (0)	0.192
Psychiatric support	0 (0)	25.8 (16)	N/A
Surgery	38.9 (7)	54.8 (34)	0.233
External referral	0 (0)	16.1 (10)	0.957
Crush syndrome	61.1 (11)	45.2 (28)	0.233
AKI	61.1 (11)	46.8 (29)	0.284
Hyperbaric therapy	11.1 (2)	9.7 (6)	0.858
Oral nutrition	38.9 (7)	88.7 (55)	<0.001*
Enteral nutrition	11.1 (2)	9.7 (6)	0.858
Total parenteral nutrition	94.4 (17)	59.7 (37)	0.006*
Inotropic support	100 (18)	0 (0)	N/A

*P<0.05; aStudent's t-test. FFP: Fresh frozen plasma; ES: Erythrocyte suspension; PS: Platelet suspension; AKI: Acute kidney injury.

Table 5. Multivariate analysis

Variable	OR	95% CI	P value
Year	1.038	1.006–1.071	0.020*
Lymphocyte count	1.032	0.614–1.245	0.158
TPN	9.591	1.139–79.553	0.006*
Renal replacement therapy	1.968	0.466–8.310	0.035*
Mechanical ventilation	39.58	4.632–338.247	<0.001*

p<0.05; Mann-Whitney U test; GFR1 (first-day GFR); GFR2 (third-day GFR); Creatinine 1 (first-day creatinine); Creatinine 2 (third-day creatinine).

ceased patients (61.1%). (Tables 6 and 7). Fasciotomy was the most commonly performed trauma-related surgery (17.8%). Additionally, a cesarean section was performed on one pregnant patient with extremity trauma (Table 8).

DISCUSSION

This study demonstrated that the higher rate of hemodialysis in the mortality group indicates that crush syndrome is

a major contributor to mortality, and the need for renal replacement therapy (RRT) has predictive value for mortality. Furthermore, the requirement for mechanical ventilation was also found to be a predictor of mortality. At admission, lymphocyte counts were significantly higher in survivors.

Similar to the February 6, 2023 Kahramanmaraş earthquake in Türkiye, large-scale natural disasters worldwide have dem-

Table 6. Causes of death among deceased patients

Diagnosis	Sequence No	Day of Admission	Length of Stay
ARDS	1	1	15
Acute kidney injury	2	2	3
ARDS	3	1	10
Acute kidney injury	4	2	2
Acute kidney injury	5	3	1
Acute kidney injury	6	3	8
Acute kidney injury	7	17	4
Sepsis	8	13	41
Head trauma	9	2	5
Acute kidney injury	10	16	1
Acute kidney injury	11	3	1
Head trauma	12	6	17
ARDS	13	17	3
Acute kidney injury	14	3	1
ARDS	15	11	13
Acute kidney injury	16	7	6
Acute kidney injury	17	3	12
Acute kidney injury	18	5	6

Table 7. Mortality rates

Diagnosis	N=18 n (%)
AKI	11 (61.11%)
ARDS	4 (22.22%)
Head trauma	2 (11.11%)
Sepsis	1 (5.55%)

onstrated that well-organized rescue operations at the disaster site and within the rubble are of critical importance. Additionally, survival rates can be increased and morbidity reduced through a rapid and well-coordinated advanced front-line healthcare organization.^[2,3,5,8,9] An emergency alarm was issued on the morning of February 6 in accordance with the administrative decision of our hospital management. Patients who were eligible for discharge or transfer from the intensive care unit were evacuated, and 300 hospital beds in total (100 of which were intensive care beds) were allocated for potential patients from the disaster area.

In this regard, the study by Kulakoğlu et al., which included data from Kilis State Hospital in the earthquake region, reported that while the bed occupancy rate was 72.7% before

the disaster, it was reduced to 12% following triage under the declared state of emergency, thereby making beds available for emergency management.^[10]

It was anticipated that the need for tertiary intensive care beds for earthquake victims at our hospital would gradually increase starting from the first day. Patients who were treated and stabilized but still required tertiary intensive care were referred from our hospital to centers outside the affected region. Ultimately, 18 earthquake victims were successfully transferred from our tertiary intensive care unit by ground and air ambulance. Previous relevant studies have not provided detailed information regarding intercity transfers of patients from one intensive care unit to another.

Similar to findings from studies conducted after the 1999 Marmara earthquake, early access to healthcare services was shown to have a positive impact on survival rates and to reduce complications.^[7,10] In his study, Koyuncu reported that the time from entrapment under the rubble to arrival at a healthcare facility ranged between 4 and 36 hours, with a mean of 8 hours.^[11] Gürü et al. stated that the highest number of patient admissions occurred on the third and fourth days at a hospital in Ankara, which served as a distant referral center after the February 6 earthquake.^[12] Similarly, Bulut et al., reporting their experience after the Marmara earthquake, indicated that the highest number of admissions occurred on

Table 8. Types of surgical procedures in mortality and survival groups

Type of Surgery	Total (n=80) n (%)	Mortality (n=18)	Survival (n=62)
Fasciotomy	13 (17.8%)	2	11
Laparotomy	2 (2.7%)	1	1
Tube thoracostomy	11 (15.4%)	3	8
Amputation	7 (9.58%)	1	6
Lower extremity fracture	12 (16.4%)	3	9
Upper extremity fracture	4 (5.47%)	2	2
Debridement	10 (13.6%)	-	10
Flap	2 (2.7%)	-	2
Grafting	2 (2.7%)	-	2
Pelvic fracture repair	3 (4.1%)	-	3
Cesarean section	1 (1.36%)	-	1
Splenectomy	1 (1.36%)	-	1
Vertebral fracture	4 (5.47%)	1	3
Perianal repair	1 (1.36%)	1	-
Total	73 (100%)	14	59

the third and fourth days.^[13] In our study, 50 earthquake victims (62.5%) admitted to the intensive care were hospitalized within the first three days. Due to our hospital's proximity to Hatay by sea and air, the number of admissions from this region was higher during the first three days. Although there was no statistically significant difference between survivors and non-survivors in terms of intensive care unit admission after trauma, survivors tended to arrive earlier (4-39 days), whereas deceased patients were admitted later (6-56 days).

Furthermore, the platelet-to-lymphocyte ratio (PLR), neutrophil-to-lymphocyte ratio (NLR), and monocyte-to-lymphocyte ratio (MLR) are associated with inflammatory processes related to trauma, immune response, infection, and blood vessel wall inflammation. Several studies have investigated whether elevated levels of these ratios are associated with increased morbidity and mortality.^[14-17] In our analysis, NLR, MLR, and PLR values calculated from admission blood samples were lower in the deceased patient group; however, no statistically significant difference was observed between survivors and non-survivors. When lymphocyte count was evaluated, it was higher in survivors.

Previous studies have shown that extremity, trunk, head, and spinal injuries are the most common types of trauma among earthquake victims. It has also been reported that patients frequently present to emergency departments in severe clinical conditions, including crush syndrome, hemorrhage, hemorrhagic diathesis, respiratory failure, and central nervous

system injury.^[3,8,11] The study by Kundakçı et al. reported that head and neck injuries, as well as extremity traumas, were associated with increased mortality.^[18] In our study, extremity trauma was the most common type of injury among patients admitted to our tertiary intensive care unit, whereas head trauma was the least common. No difference was found between survivors and non-survivors in terms of the anatomical location of trauma.

Among 32 patients treated by Li et al. in a tent intensive care unit following the 2008 Wenchuan earthquake, 17 were diagnosed with crush syndrome, nine with acute renal failure (ARF), and four with multiple organ dysfunction syndrome (MODS). Six patients (18.75%) died: four due to MODS and two due to ARF.^[2]

In a review conducted by Erek et al., which included 639 earthquake victims hospitalized in 35 different centers after the 1999 Marmara earthquake, 512 patients had extremity injuries, 100 had thoracic or abdominal trauma, and 323 underwent fasciotomy. The study reported that 477 patients (74.6%) with acute kidney injury secondary to crush syndrome received dialysis treatment one or more times, while 147 patients recovered without dialysis.^[19] In their study, Buyurgan et al. analyzed 1,110 earthquake victims who presented to the emergency department as either directly or via transfer. They reported that 18.8% of patients developed crush syndrome and 3% developed acute kidney injury. These patients were hospitalized and treated with emergency inter-

ventions, RRT, amputation, fasciotomy, and fluid therapy as indicated.^[20] Similarly, Huang's study on the Chi-Chi earthquake emphasized the importance of fluid therapy, as well as timely fasciotomy and amputation when necessary, in the management of crush syndrome.^[21] In the study by Demirkan et al., conducted at a center where 18 trauma patients were treated following the Marmara earthquake, 12 patients required mechanic ventilator support. Seven patients underwent fasciotomy due to extremity trauma, six underwent amputation, seven received RRT, and six received continuous renal replacement therapy (CRRT). ARF developed in 13 patients. Five patients died due to multiple organ failure (MOF), and two died due to sepsis.^[7] Similarly, Bulut et al., in their report on experiences after the Marmara earthquake, identified crush syndrome as the most frequent cause of death.^[13] These studies demonstrated that crush syndrome and acute kidney injury had a significant impact on mortality and morbidity among earthquake victims.^[2,7,18-20] It was also reported that, within the first 24 hours, fluid resuscitation combined with prompt surgical intervention was implemented under close monitoring.^[2,5,7]

In our study, 60 of the 80 earthquake victims admitted to our tertiary intensive care unit had extremity trauma. During follow-up, 39 patients developed crush syndrome and 40 developed acute kidney injury (AKI). Patients received fluid therapy consisting of 20% mannitol (150 mL) and 0.9% NaCl buffered with bicarbonate, administered up to a total of 4-6 liters per day. Among the 40 patients who developed acute kidney injury, renal replacement therapy was initiated when indicated, in addition to fluid resuscitation. Considering the high number of admissions during the first days after the earthquake, the predominance of young and middle-aged patients, and the fact that these were primary admissions to our hospital, creatinine levels were used as the primary indicator of renal function in this dynamic intensive care setting. Accordingly, acute kidney injury was defined based on serum creatinine levels in accordance with the KDIGO (Kidney Disease: Improving Global Outcomes) guidelines to assess renal function in our study, as the role of GFR in AKI staging has not yet been clearly established.^[22] Patients with renal injury were classified into two groups: Stage 1-2 (mild to moderate AKI) and Stage 3 (severe AKI). Since baseline creatinine levels were unknown, increases in creatinine were estimated based on patient age and overall clinical condition. Patients with Stage 3 AKI required renal replacement therapy and had serum creatinine levels above 4. Pre-earthquake health records, hospital system data, and e-Pulse records could not be accessed due to lack of authorization. Therefore, creatinine levels were assumed to be normal in most young patients without comorbidities. If creatinine levels were within the normal range at initial presentation, AKI classification was based on subsequent increases in creatinine levels over time.

A total of 41 patients underwent surgical procedures. The three most common operations were fasciotomy, lower ex-

tremity fracture repair, and tube thoracostomy. Cesarean section, perianal repair, and splenectomy were each performed in one patient. In the mortality group, limb fracture surgery was performed in 5 of the 18 deceased patients.

Amputation was performed in seven patients overall and was the fifth most common surgical procedure after debridement. Hyperbaric oxygen therapy was administered to eight patients with severe extremity injuries. Thirty-one patients required mechanical ventilation.

APACHE II scores were higher in the mortality group. Eleven of the 18 patients who died had acute kidney injury, and 11 patients died within the first five days of admission. Regarding causes of death, one patient died of sepsis, two of head trauma, and four of acute respiratory distress syndrome (ARDS). Our results showed that 11 of the 18 deceased patients were diagnosed with crush syndrome-associated AKI and received RRT; all were classified as Stage 3 AKI. There was no significant difference in the prevalence of crush syndrome between non-survivors and survivors. However, crush syndrome was associated with an increased need for RRT and higher mortality. In addition, the requirement for mechanical ventilation was found to be a predictor of mortality.

The number of operated patients was higher among survivors, and the most common procedures were fasciotomy and amputation. The higher rate of surgical interventions in this group suggests that timely surgical management may have contributed to survival and allowed for additional corrective procedures as patients' survival time increased.

In the study by Koyuncu et al., 123 earthquake victims received erythrocyte suspension (ES), 69 received fresh frozen plasma (FFP), and a total 1,008 units of blood products were administered.^[11] In our study, ES, FFP, and platelet suspension (PS) were the most frequently transfused blood products. Among survivors, FFP was administered to nine patients and ES to 36 patients. In the mortality group, FFP was administered to five patients, ES to eight patients, and PS to two patients. Platelet suspension was administered only to two patients in the mortality group. The higher proportion of FFP and PS transfusions in the mortality group suggests that coagulation disorders were more severe among deceased patients.

When analyzing nutritional support in patients treated at our tertiary intensive care unit, an aspect not widely addressed in the studies we reviewed, we found that total parenteral nutrition was the most commonly used method. In the mortality group, nutrition was provided exclusively via TPN, as gastrointestinal feeding was not feasible due to the requirement for inotropic support in all deceased patients. In contrast, patients in the survivor group were predominantly able to resume oral feeding after a short period of TPN. There are very few studies reporting psychiatric support provided in intensive care units during disaster periods. In our study, four patients received psychiatric support during their ICU stay. Only one of these patients required pharmacological treat-

ment, which was initiated after psychiatric evaluation. All four patients received psychotherapy and were encouraged to maintain family contact more frequently than other patients.

After initial treatment in the intensive care unit, 40 of the 120 stabilized patients whose treatment was expected to be prolonged and who were deemed suitable for transfer were referred to hospitals outside the province by ground ambulance. These transfers were confirmed in advance in order to free intensive care beds for new patients expected to arrive.

Limitations

This study had certain limitations. First, no information could be obtained regarding the clinical outcomes of the referred patients, as follow-up data were not accessible. Additionally, there were missing data in the medical records of the earthquake victims, particularly regarding renal function from the time of the disaster until hospital admission. Therefore, detailed analyses of these parameters could not be performed.

CONCLUSION

Effective organization of emergency healthcare service lines in disaster areas after an earthquake, the rapid completion of each stage of care, and the treatments applied in the intensive care unit are significant factors that influence survival and serve as key determinants of prognosis. Compartment syndrome, which is frequently encountered in such injuries, is managed with fasciotomy, amputation, fluid resuscitation, renal replacement therapy, and antibiotic treatment. Ventilatory and nutritional support are also important components that directly affect prognosis. It should be emphasized that the safe referral of stabilized earthquake victims to advanced healthcare institutions enables the admission of new patients to available intensive care beds. To ensure that these processes are carried out accurately and systematically, we believe that hospitals should establish disaster plans and develop written protocols for post-disaster patient management. Such structured preparation may assist physicians in patient follow-up during future disasters. Further detailed research is needed to develop management algorithms.

Ethics Committee Approval: This study was approved by the Mersin University Clinical Research University Clinical Research Ethics Committee (Date: 20.03.2024, Decision No: 2024-06-283).

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ORİJİNAL ÇALIŞMA - ÖZ

Türkiye'de 6 Şubat depreminde üçüncü basamak yoğun bakım ünitesinde tedavi edilen hastaların retrospektif olarak incelenmesi

AMAÇ: Türkiye'de 2023 yılında meydana gelen Kahramanmaraş depremi 14 milyon insanı etkilemiştir. Deprem 53.537 kişinin ölümüne ve 100.000'den fazla yaralının geride kalmasına neden olmuştur. Bu tür büyük afetlerde, sahada ilk müdahaleyi takiben gelişmiş yoğun bakım ünitesine sahip hastanelerde komplike tedavi süreçlerinin hızla başlatılması çok önemlidir. Bu çalışmada, depremden etkilenen ve 3. seviye yoğun bakım ünitemize kabul edilen hastaların travma türlerini, ilişkili cerrahi ve tıbbi tedavilerini retrospektif olarak analiz etmeyi planladık. Sonuç olarak, sağlık kurumlarında doğal afetlere yönelik hazırlıklar ve yoğun bakım ünitesindeki tedavi stratejileri hakkında ileriye dönük yapılacak planlamalara ilham olmayı amaçladık

GEREÇ VE YÖNTEM: Bu retrospektif tek merkezli çalışma, Mersin Şehir Eğitim ve Araştırma Hastanesi'nin üçüncü basamak yoğun bakım ünitesinde tedavi gören hastaların klinik bilgilerinin toplandığı bir çalışmadır. Hastaların demografik verileri, hastaneye geliş zamanı, hastanede kalış süresi, tam kan sayımı, kreatin kinaz, miyogloblin, albümin düzeyleri, karaciğer ve böbrek fonksiyon testleri, APACHE II skoru, travma tipi, ezilme sendromu, akut böbrek hasarı varlığı, cerrahi girişim, cerrahi tipleri, renal replasman tedavisi, kan transfüzyonu, sıvı tedavisi, beslenme desteği, mekanik ventilasyon ihtiyacı, psikiyatrik destek, hiperbarik oksijen tedavisi, mortalite, başka bir hastaneye sevk edilme durumları kaydedildi.

BULGULAR: Bu çalışmaya %53.8'i kadın olan ve yaş ortalaması 49.93 olan 80 hasta dahil edilmiştir. Mortalite oranı %22.5 olup ortalama yaş daha yüksektir, aynı şekilde lenfosit sayısı da anlamlı derecede yüksek bulunmuştur. Mortalite grubunda renal replasman tedavisi alan hasta yüzdesi sağ kalan gruba göre daha yüksekti. ($p=0.035$) Ölen hastaların 13'ünde akut böbrek hasarı mevcuttu ve 11 hasta ilk beş gün içinde öldü. Mekanik ventilasyon ve total parenteral beslenme uygulanan hastalar ölüm grubunda daha yaygındı.

SONUÇ: Üçüncü basamak yoğun bakım ünitesinde takip edilen travma hastalarında ileri yaş, total parenteral beslenme, renal replasman tedavisi ve mekanik ventilasyon varlığı mortalite için prediktör olarak bulunmuştur.

Anahtar sözcükler: Deprem; mortalite; renal replasman tedavisi; yoğun bakım.

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