VAN TIP DERGİSİ Medical Journal

CLINICAL RESEARCH / KLİNİK ÇALIŞMA

Van Tıp Derg 30 (4):354-360, 2023
DOI:10.5505/vtd.2023.37043

Recent Situation in Emergency Department Admissions of Convicted Patients, a Retrospective Multicenter Study

Hüküm Giymiş Hastaların Acil Servis Başvurularında Son Durum, Retrospektif Çok Merkezli Bir Çalışma

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Abstract

Introduction: The aim of this study is to determine the clinical characteristics of convicted patients admitted to the emergency department and to compare the similar and different aspects of emergency services offered to convicted patients between secondary and tertiary hospitals.

Materials and Methods: This study was designed as a multicenter, retrospective cross-sectional. Convicted patients aged 18 and over who applied to the emergency departments of the hospitals mentioned in 2021-2022 were included in the study. Patients under the age of 18 and those with missing data were excluded from the study. The medical records of the cases were examined, and demographic characteristics, time of admission to the emergency department, emergency triage code, admission complaint, diagnosis, consultations, clinical outcomes, and any re-admissions to the emergency department within 24 hours were recorded.

Results: Of the cases, 1415 (81.2%) were treated in the secondary hospital and 327 (18.8%) were treated in the tertiary hospital. The cases with green code (62.4%) in the secondary hospital, and the cases with yellow (64.2%) and red codes (26.6%) in the tertiary hospital were more common. The most common complaint in both hospitals was physical assault (19.7%- 30%). Fracture diagnoses were more frequent in the tertiary hospital compared to the secondary hospital. Consultation requests, ward hospitalizations, intensive care unit admissions, and emergency surgeries were more frequent in the tertiary hospital compared to the secondary hospital.

Conclusion: Trauma emerged as the primary reason for convicted patients seeking care at both hospitals, with a significant portion of cases being related to violent behaviors. Nonetheless, clinical differences exist between convicted patients admitted to secondary and tertiary hospitals, encompassing factors like emergency triage code, admission complaints, diagnoses, consultations, and patient outcomes.

Keywords; Prisoners; emergency service; violence; deliberate self-harm; communicable diseases.

Özet

Amaç: Bu çalışmanın amacı acil servise başvuran hükümlü hastaların klinik karakteristiklerini belirlemek ve ikinci ve üçüncü basamak hastaneler arasında hükümlü hastalara sunulan acil servis hizmetlerinin benzer ve farklı yönlerini karşılaştırmaktır.

Gereç ve Yöntem: Çok merkezli ve retrospektif olarak tasarlanan bu araştırmaya 2021-2022 yıllarında belirtilen hastanelerin acil servisine başvuran 18 yaş ve üzeri hükümlü hastalar dahil edildi. 18 yaş altındakiler ve verileri eksik olan hastalar çalışma dışı bırakıldı. Olguların tıbbi dosyaları incelenerek demografik özellikleri, acil servise başvurduğu saat, acil triyaj kodu, başvuru şikâyeti, teşhis, konsültasyon, klinik sonlanımı ve acil servise 24 saat içinde tekrar başvurusu olup olmadığı kaydedildi.

Bulgular: Olguların 1415'i (%81.2) ikinci basamak, 327'si (%18.8) üçüncü basamak hastanede tedavi edilmişti. İkinci basamakta yeşil kodlu (%62.4), üçüncü basamakta ise sarı (%64.2) ve kırmızı kodlu (%26.6) hasta başvurusu daha fazlaydı. Her iki hastanede de en sık başvuru şikâyeti darptı (%19.7-%30). Üçüncü basamakta fraktür tanısı 2. basamağa göre daha sıktı. Üçüncü basamak hastanede konsültasyon istenen hasta oranı, servise yatış, yoğun bakım ünitesine kabul ve acil operasyona alınan hasta oranı ikinci basamağa göre daha fazlaydı.

Sonuç: Hükümlü hastaların her iki hastaneye de en sık başvuru nedeni travma olup, büyük çoğunluğu şiddet içeren davranışlarla ilişkilidir. Ancak ikinci ve üçüncü basamak hastanelere başvuran hükümlü hastalar arasında hastaların acil triyaj kodu, başvuru şikâyetleri, konulan teşhisler, konsültasyonlar ve hasta sonlanımı açısından klinik farklılıklar vardır.

Anahtar Kelimeler; Hükümlü hastalar; acil servis; şiddet; kasıtlı kendine zarar verme; bulaşıcı hastalıklar.

Introduction

Access to adequate healthcare for details and convicts is one of the fundamental human rights and is protected by international treaties (1). The health status of individuals sentenced toimprisonment is generally worse, both psychologically and physically, than that of the general population, and providing healthcare services to these individuals is a complex issue

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Received:26.08.2023, Accepted:18.09.2023

involving medical, financial, and security concerns (2-4). It has been reported that the majority of details and convicts have one or more health problems (5). Detainee and convict patients are also a special patient group for emergency services (6). Research has shown that prisoner patients have a higher rate of emergency room visits than the general population while in prison and after release (7,8). Most of these visits are related to mental health problems, and in addition, detainees and convicts have been shown to be at higher risk than the general population for infectious and physical diseases (8-11). According to data from the Ministry of Justice in Türkiye, there are 314,000 details and convicts (12). Although Türkiye ranks second among European countries in terms of the number of details and convicts per capita, there are limited studies on the health of prisoner patients (13). The aim of this study is to determine the clinical characteristics of prisoner patients who apply to secondary and tertiary hospital emergency services and to compare the similarities and differences between hospitals.

Materials and Methods

Study design and setting: This multicenter retrospective cross-sectional study was conducted simultaneously at a university-affiliated tertiary education and research hospital located in a metropolitan city center and a secondary state hospital emergency service located in the district center of the same province. The tertiary hospital is located in the city center with a population of approximately 4.5 million, while the secondary hospital is located in the district center with a population of approximately 135,000. These two hospitals are located within the same city limits.

In Türkiye, the initial evaluation of prisoner patients is carried out in the prison infirmary, and prisoner patients are directed to the nearest hospital with a prisoner service. Currently, there are four closed prisons and three hospitals with prisoner services in our province. The hospitals where the study was conducted are hospitals specially designed for prisoner patients. The hospital in the city center is the only tertiary hospital with a prisoner service. Prisoner patients are directly referred from the prison infirmary to the tertiary hospital where the study was conducted. In addition, if advanced tests and treatments are required for prisoner patients taken to all hospitals in the province, including the district state hospital where the study was conducted, they are referred to our hospital in the city center.

Participants: The study population included prisoners aged 18 and above who presented to the emergency department of the specified hospitals between 2021 and 2022. Patients under 18 years of age and those with incomplete data in their medical records were excluded from the study.

Data sources and measurement: Data on demographic characteristics (age and gender), time of emergency department presentation (during and outside working hours), emergency triage code, presenting complaint, diagnosis, consultation, patient outcome (discharge, hospital admission, admission to the intensive care unit, emergency surgery, transfer, refusal of treatment, death), and whether the patient revisited the emergency department within 24 hours were recorded from the medical records of the patients. The purpose of this study is to determine the clinical differences in emergency healthcare services required by prisoners in secondary and tertiary hospitals. In addition, hospitalization and mortality rates of prisoners were also calculated.

Ethical approval: The study was approved by the Izmir Katip Çelebi University Non-Invasive Clinical Research Ethics Committee (Decision No: 0120, Date: 24.02.2022).

Statistical analysis: IBM SPSS Statistics 28 (SPSS Inc., Chicago, USA) program was used for data analysis. Descriptive statistics were presented using frequency, percentage, mean, and standard deviation values. The normal distribution of the data was evaluated using the Kolmogrov-Smirnov test. A p-value of <0.05 was considered statistically significant. All statistics were conducted with a 95% confidence interval. The chi-square test, Fischer's exact chi-square test were used for data analysis.

Results

A total of 1732 cases were included in the study, of which 1661 (95.4%) were male. The mean age of males was 40.2 ± 13.0 and the mean age of females was 36.7 ± 10.0. Of the cases, 1415 (81.2%) were treated in secondary hospital and 327 (18.8%) were treated in tertiary hospital. The comparison of sociodemographic characteristics between secondary and tertiary hospitals is presented in Table 1. The rate of after-hours admission was statistically significantly higher in tertiary hospital ($p=0.001$). Green-coded cases were more common in secondary hospital (62.4%), while yellow (64.2%) and red-coded (26.6%) cases were more common in tertiary hospital ($p=0.001$, $p=0.001$, $p=0.001$, respectively) (Table 1).

Table 1: Comparison of secondary and tertiary hospitals admissions according to sociodemographic

	Secondary Hospital n (%)	Tertiarty Hospital n (%)	Total n (%)	p value*
Gender				
Male	1347 (95.2)	314 (96.0)	1661 (95.4)	0.521
Woman	68 (4.8)	13 (4.0)	81 (4.6)	
Age group				
18-24	75 (5.3)	56 (17.1)	131 (7.5)	0.001
25-44	835 (59.0)	214 (65.4)	1049 (60.2)	
45-64	407 (28.8)	49 (15.0)	456 (26.2)	
65 and over	98 (6.9)	8 (2.5)	106 (6.1)	
Admission Hour				
During working hours	614 (43.4)	92 (28.1)	706 (40.5)	0.001
Out of hours	801 (56.6)	235 (71.9)	1036 (59.5)	
Triage Code				
Red	59 (4.2)	87 (26.6)	146 (8.4)	0.001
Yellow	473 (33.4)	210 (64.2)	683 (39.2)	
Green	883 (62.4)	30 (9.2)	913 (52.4)	

*****Percentage of columns**, ***Obtained from Chi-Square test characteristics, admission time and triage codes.

Table 2: Distribution of the first 10 reasons for admissions according to the hospitals

Secondary Hospital		Tertiarty Hospital	
	n (%)[a]		n (%)[a]
1. Assault	279 (19.7)	1. Assault	98 (30.0)
2.Falling	130 (9.2)	2. Suicide attempt	39 (11.9)
3. Abdominal pain	130 (9.2)	3. Other	23 (7.0)
4. Chest pain	112 (7.9)	4. Foreign body ingestion	21 (6.4)
5. Sore throat	91(6.4)	5. Gunshot injury	19 (5.8)
6. Cough	73 (5.2)	6. Falling	18 (5.5)
7. Dyspnea	66 (4.7)	7. Abdominal pain	14 (4.3)
8. Fever	49 (3.5)	8. Soft tissue trauma	10 (3.1)
9. Nausea-vomiting	46 (3.3)	9. Penetrating tool injury	8 (2.4)
10. Headache	43 (3.0)	10. Dyspnea	7 (2.1)

[a]Percentage of columns among reasons for applying

The most common complaints among patients who applied to the secondary hospital were assault (19.7%), abdominal pain (9.2%), and falls (9.2%), while in the tertiary hospital, they were assault (30%) and suicide attempt (11.9%) (Table 2). The most common diagnoses in the secondary hospital were soft tissue injuries (29.9%) and COVID-19 (8.8%), while in the tertiary hospital, they were soft tissue injuries (30%) and suicide attempts (11.9%). Fracture diagnosis was more common in

the tertiary hospital compared to the secondary hospital (p=0.001) (Table 3). Consultation was requested for 239 (16.9%) of the patients who applied to the secondary hospital, with 17 (1.2%) cases requiring consultation from more than one specialty. In the tertiary hospital, consultation was requested for 191 (58.4%) patients, with a total of 301 consultation requests. The number of patients requiring consultation from multiple specialties in the tertiary hospital was 80 (24.5%). Both the rate of patients requiring consultation and the rate of patients requiring consultation from multiple specialties were significantly higher in the tertiary hospital (p<0.001 for both). The most commonly requested specialties for consultation in the secondary hospital were psychiatry (17.9%) and chest diseases (15.6%), while in the tertiary hospital, they were psychiatry (16.9%) and gastroenterology (14.3%) (Table 4). The tertiary hospital had a significantly higher rate of hospitalization, admission to the intensive care unit (ICU), and emergency surgery compared to the secondary hospital (p=0.001 for all). Similarly, the rate of patients who refused the recommended

Table 3: Distribution of the first 10 diagnoses for according to the hospitals

Secondary Hospital		Tertiarty Hospital	
	n (%)[a]		n (%)[a]
1.Soft tissue injury	423 (29.9)	1.Soft tissue injury	98 (30.0)
2.COVID-19	125 (8.8)	6. Suicide attempt	39 (11.9)
3.Non-specific abdominal pain	98 (6.9)	2.Other	41 (12.5)
4.Non-cardiac chest pain	93 (6.6)	3.Fracture	35 (10.7)
5. URTI	84 (5.9)	5. Foreign body ingestion	26 (8.0)
6.Acute bronchitis	38 (2.7)	6.Pneumothorax	10 (3.1)
7.Anxiety disorder	37 (2.6)	7. Non-specific abdominal pain	7 (2.1)
8. Suicid attempt	37 (2.6)	8. URTI	5 (1.5)
9.Other	35 (2.5)	9.COVID-19	5 (1.5)
10.Gastroenteritis	34 (2.4)	10. Artery injury	5 (1.5)

[a]Percentage of columns among diagnoses, URTI: Upper respiratory tract infection

Table 4: Distribution of consultations requested for according to the hospitals

Secondary Hospital		Tertiarty Hospital	
	n (%)[a]		n (%)[a]
1. Psychiatry	47 (17.9)	1. Psychiatry	51 (16.9)
2. Chest diseases	41 (15.6)	2.Gastroenterology	43 (14.3)
3. Internal Medicine	34 (13.0)	3. General surgery	41 (13.6)
4. Infectious diseases	25 (9.5)	4. Orthopedics and traumatology	41 (13.6)
5. Cardiology	23 (8.8)	5. Ear Nose Throat Diseases	18 (6.0)
6.Orthopedics and traumatology	22 (8.4)	6. Cardiovascular surgery	16 (5.3)
7.General surgery	21 (8.0)	7. Plastic and reconstructive surgery	14 (4.7)
8. Neurology	21 (8.0)	8. Eye diseases	13 (4.3)
9. Gynecology and obstetrics	12 (4.6)	9. Chest surgery	11 (3.7)
10. Eye diseases	6 (2.3)	10. Neurosurgery	10 (3.3)

[a]Percentage of columns among consulted branches

Table 5: Distribution of patient outcome status of the study group according to the hospitals

Patient outcome	Secondary Hospital n (%)[a]	Tertiarty Hospital n (%)[a]	Total n (%)[a]	p value*
Discharge				
Yes	1215 (85.9)	186 (56.9)	1401 (80.4)	0.001*
No	200 (14.1)	141(43.1)	341 (19.6)	
Admission to ward				
Yes	87 (6.1)	42 (12.8)	129 (7.4)	0.001*
No	1328 (93.9)	285 (87.2)	1613 (92.6)	
Operation				
Yes	24 (1.7)	28 (8.6)	52 (3.0)	0.001*
No	1391 (98.3)	299 (91.4)	1690 (97.0)	
Admission to ICU				
Yes	1 (0.1)	14 (4.3)	15 (0.9)	0.001**
No	1414 (99.9)	313 (95.7)	1727 (99.1)	
Referred				
Yes	56 (4.0)	13 (4.0)	69 (4.0)	NA
No	1359 (96.0)	314 (96.0)	1673 (96.0)	
Exitus				
Yes	2 (0.1)	2 (0.6)	4 (0.2)	NA
No	1413 (99.9)	325 (99.4)	1738 (99.8)	
Refusing treatment				
Yes	30 (2.1)	42 (12.8)	72 (4.1)	0.001*
No	1385 (97.9)	285 (87.2)	1670 (95.9)	

[a]Percentage of columns, ICU: Intensive Care Unit**, ***Obtained from Chi-Square test, ******Obtained from Fischer's exact chi-square test, NA: Not applicab

treatment was also higher in the tertiary hospital (p=0.001) (Table 5). On the other hand, the discharge rate from the hospital and the rate of returning to the emergency department within 24 hours were significantly higher in the secondary hospital compared to the tertiary hospital (p=0.001 for both).

Discussion

The prison population has significantly increased worldwide in the last decade (14,15). When considering the number of prisoners and convicts relative to the population, Türkiye ranks second among European countries, with more than 300,000 people living in prisons (12,13). Due to worse physical, mental, and social conditions, prisoners' health problems are more varied and complex than those of the general population. Emergency services play an important role in providing health services to prisoners, but to date, very few studies have examined the emergency department visits of prisoners in Türkiye (6,16,17). Moreover, none of these studies have performed a multicenter evaluation. This study is the first multicenter investigation in Türkiye that examines emergency department visits of prisoner patients, comparing the visits to two hospitals at the secondary and tertiary hospital. The majority of the participants were middle-aged men. When examined from a demographic perspective, our study found that the ratio of male/female patients and the average age of patients in both hospitals were similar. These ratios are consistent with the demographic characteristics of incarcerated patients (6,12,16-18). In the secondary hospital, the high number of green-coded (requiring urgent treatment but not hospitalization and can be treated on an outpatient basis) patient admissions during both working and non-working hours suggests that incarcerated patients unnecessarily occupy emergency department services in secondary hospital and raises concerns about potential abuse. Koc et al. reported that the majority of admissions to a prison campus hospital were for situations that did not require emergency treatment or hospitalization (6). Most of the admissions to the tertiary hospital, on the other hand, were for yellow or red-coded patients. This indicates that tertiary emergency department services are being used appropriately and that the referral chain is being operated correctly. In both hospitals, the most common reason for admission

is trauma-related, and the vast majority are associated with violent behavior (such as assault, stab or gunshot wounds, etc.). Soft tissue injuries were the most common diagnosis in both hospitals. The high incidence of violent events and self-harm behaviors may be due to the higher prevalence of mental health problems among incarcerated patients compared to the general population (8,9). When the consulted specialties were evaluated, psychiatry was the top-ranked specialty in both hospitals, and the results of previous studies support this idea. We believe that routine psychiatric examination and psychosocial support to convicted patients will reduce the number of emergency department admissions. However, when considering consultations requested for trauma in the tertiary hospital, specialized specialties such as cardiothoracic surgery, plastic and reconstructive surgery, and thoracic surgery were the most frequently requested, indicating that patients had serious injuries. Additionally, we found that self-harm behavior (such as suicide attempts, foreign body ingestion, corrosive substance ingestion, etc.) led to a high rate of admissions to the tertiary hospital. The rate of hospitalization, admission to the intensive care unit, and emergency surgery in the tertiary hospital was significantly higher than in the secondary hospital. Our findings that patients who require specialized consultations indicate are referred to the tertiary hospital, where they receive appropriate treatment. In the secondary hospital, consultations for respiratory diseases, internal medicine, and infectious diseases were more frequent than other specialties. This may be due to the prevalence of symptoms related to infectious diseases (such as fever, cough, sore throat, dysuria, etc.) in the complaints of patients who visit the secondary hospital. The high incidence of infectious diseases in this population may be a result of their living conditions in close proximity and under poor hygiene conditions (10-11). The fact that the diagnoses received by patients in the secondary hospital are most often related to infectious diseases also supports this idea. However, the low number of patients in this group in the tertiary hospital also suggests that these patients have simple illnesses that can be treated on an outpatient basis in the secondary hospital. In addition, we think that the prevalence of infectious diseases can be reduced by measures such as personal care and hygiene trainings, uncrowded wards and early isolation of sick people. Within 24 hours after discharge, the rate of emergency department visits with the same complaint is significantly higher in the secondary hospital. We believe that in addition to patients abusing the emergency department, the fact that prisons are far from central locations makes it easier to reach the district state hospital. The low rate of readmissions to the tertiary hospital is also a result of appropriate evaluation and treatment in the secondary hospital.

Study limitations: The limitations of the study may include its retrospective and the lack of detailed information about the health data of prisoners before entering prison.

Conclusion

Trauma was the most common reason for admission to both hospitals, and most of them were due to violence-related behaviors and self-harm. However, clinical differences exist between convicted patients admitted to secondary and tertiary hospitals, covering factors such as the emergency triage code, admission complaints, diagnoses, consultations, and patient outcomes. In the secondary care hospital, simple traumas and infectious diseases, which are usually treated as an outpatient, are treated. In the tertiary hospital, services are provided for more serious injuries that require surgical treatment, complicated cases involving more than one specialty, or those who need intensive care.

Ethics committee approval: The study was approved by the Izmir Katip Çelebi University Non-Invasive Clinical Research Ethics Committee (Decision No: 0120, Date: 24.02.2022).

Conflict of interest: No conflict of interest was declared by the authors.

Financial disclosure: There is no financial resources for this study.

Authors contributions: CA: Concept and design, data collection and processing, analysis and interpretation, literature review, writing, reviewing and revision. RK: Concept and design, analysis and interpretation, literature review, writing, reviewing and revision, critical review OS: Concept and design, data collection and processing, analysis and interpretation, literature review, writing, reviewing and revision.

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