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Retrospective Analysis of Forensic Cases Admitted to the Emergency Department of a Second Level Hospital

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Abstract

Objective: In this study, we aimed to examine the demographic and epidemiological characteristics of forensic cases admitted to the emergency department and the forensic reports prepared for these cases and compare them with the literature.

Material and Method: This retrospective study was conducted in the emergency department of a secondary care hospital for a period of one month. Patients were grouped according to their application time; they were compared in terms of demographic characteristics, forensic report information, and clinical characteristics.

Results: 848 patients were included in the study. The average age of the patients was 30.9±12.5 and most were male (79.5%). While the highest rate of patients was diagnosed with assault algebra (80.2%), the rate of issuing a final report was found to be higher (87.6%). It was determined that the fewest applications were made between 00:00-07:59. No statistically significant difference was found in the comparison of forensic case or forensic report characteristics according to application time (p=0.218).

Conclusion: The number of applications as forensic cases is higher at certain times of the day. Since emergency departments provide uninterrupted service 24/7; emergency department physicians should continue the management of forensic cases regardless of the time of admission and show due care in preparing forensic reports.

Key Words: Forensic case, Forensic report, Emergency department

İkinci Basamak Bir Hastanenin Acil Servisine Başvuran Adli Olguların Retrospektif Analizi

Özet

Amaç: Bu çalışmada acil servise başvuran adli nitelikteki olguların demografik, epidemiyolojik özelliklerini ve bu olgulara düzenlenen adli raporları inceleyip, literatür ile karşılaştırmayı amaçladık.

Materyal ve Metot: Retrospektif nitelikteki bu çalışma, ikinci basamak bir hastanenin acil servisinde bir aylık süreç için yürütüldü. Hastane elektronik veri sistemi aracılığıyla başvuru saatlerine göre gruplandırılan hastalar; demografik özellikleri, adli rapor bilgileri ve klinik özellikleri açısından karşılaştırıldı.

Bulgular: Çalışmaya 848 hasta dahil edildi. Hastaların yaş ortalaması 30.9±12.5'di. Hastalar en yüksek oranda darp-cebir muayenesi nedeniyle başvurmuş olduğu görülürken (%80.2), kati rapor düzenlenme oranı daha yüksek saptandı (%87.6). En az başvurunun 00:00-07:59 zaman diliminde yapıldığı belirlendi. Adli vaka ya da adli rapor özelliklerinin başvuru saatine göre karşılaştırmasında istatistiksel olarak anlamlı bir fark saptanmadı (p=0.218).

Sonuç: Adli olguların başvuru sayısı günün belli saatlerinde daha fazladır. Acil servislerde 7/24 kesintisiz hizmet verildiğinden; acil servis hekimleri başvuru saatinden bağımsız olarak adli olguların yönetimini sürdürmeli, adli rapor hazırlanmasında gereken özeni göstermelidir.

Anahtar kelimeler: Adli vaka, Adli rapor, Acil servis

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INTRODUCTION

Forensic case is defined as the occurrence of a physical or mental illness or death as a result of intent, negligence, imprudence or carelessness caused by the person himself/herself or external

factors (1,2). Traffic accidents, falls, assault cases, occupational accidents, poisonings, burns, electric and lightning strikes, all kinds of asphyxia cases, penetrating tool injuries, firearm injuries, cases of abuse or suspicion of abuse and suicide attempts are considered as forensic cases (3,4).

Documents prepared by physicians regarding the medical conditions of forensic cases and required to be reported to the judicial authorities by Article 280 of the Turkish Penal Code are characterized as forensic reports (3,5).

In this study, forensic cases admitted to a secondary emergency department (ED) and forensic reports prepared for these cases were examined. It was also aimed to evaluate the relationship between the time of presentation to the ED and demographic and clinical characteristics of forensic cases and forensic report characteristics.

MATERIALS AND METHODS

Patients admitted to the ED a secondary care hospital, between 01.01.2021 and 31.01.2021 and evaluated as forensic cases were retrospectively analyzed. The diagnoses, demographic characteristics, admission times, consultation information and treatment processes of the patients were accessed through the hospital registration system. Forensic reports issued to the patients were also examined to determine the life-threatening conditions of the patients, the need for simple medical intervention and the type of forensic report issued to the patients. As a result, a data set containing all the information obtained was created. Patients whose data entries were missing in the hospital registration system or whose forensic report information could not be accessed were not included in the study. In addition, all age group patients were included in the study.

Patients were divided into three groups as 08:00-15:59, 16:00-23:59 and 00:00-07:59 according to the time of presentation to the ED. These three groups were compared in terms of demographic characteristics, forensic report information and clinical features.

Statistical Analysis

The data collected in our study underwent statistical analysis using the SPSS (Statistical Package for Social Sciences) program version 21.0 (SPSS Inc., Chicago, IL, USA). Statistical analysis was performed using descriptive statistics (frequency, percentage distribution). The continuous variables were represented using either the mean±standard deviation or the median with the interquartile range (median, 25th-75th percentiles), depending on the distribution of the data. The categorical variables were represented using frequency and percentage. The normality of the data was assessed using the Kolmogorov-Smirnov test and distribution graphs. The

distinction between the groups was assessed using the Student's t-test (for data that followed a normal distribution) or the Mann-Whitney U test (for data that did not follow a normal distribution). The Chi-square test was utilized to compare categorical data. The accepted level of statistical significance was determined to be $p<0.05$

RESULTS

During the one-month period in which the study was conducted, 848 patients who were evaluated as forensic cases in the ED, for whom forensic reports were issued and whose records were accessed completely were included in the study. The mean age of the patients was calculated as 30.9±12.5 years. Of the patients included in the study, 79.5% were male. When the diagnoses of the patients accepted as forensic cases were analyzed, the highest rate was assault and battery (80.2%) and the lowest rate was electric shock (0.4%). Again, since the study was conducted in January, it was observed that 4% of the patients were issued a forensic report with the diagnosis of carbon monoxide intoxication. When the admission times of the patients were analyzed, it was determined that the least number of admissions were made at 00:00-07:59 (14.9%). A similar number of admissions were observed at 08:00-15:59 and 16:00-23:59 (43.50% and 41.6%). It was also determined that 3.5% of the patients were consulted to any department and 2.6% of the patients were hospitalized. When the forensic reports of the patients included in the study were examined, it was determined that most of the reports were issued as definitive reports (87.6%), 2.7% of the reports contained the phrases “life is in danger” and 64% of the reports contained the phrases “cannot be resolved with simple medical intervention”. Demographic-clinical characteristics and forensic report data of the patients in the study are listed in Table 1.

Table 1. Demographic-clinical characteristics of the patients and forensic report data

	n (%)
Age	30.9±12.5
Gender	
Male	674 (79.5)
Female	174 (20.5)
Forensic case nature	
Assault	680 (80.2)
Traffic accident	41 (4.8)
Occupational accident	36 (4.2)
Carbon monoxide intoxication	34 (4)
Suicidal attempt	29 (3.4)
Falling	17 (2)
Penetrating sharps injury	8 (1)
Electric shock	3 (0.4)
Application time	
08:00-15:59	369 (43.5)
16:00-23:59	353 (41.6)
00:00-07:59	126 (14.9)
Consultation	
No	818 (96.5)
Yes	30 (3.5)
Treatment process	
Discharge	826 (97.4)
Hospitalization	22 (2.6)
Type of report	
Final	743 (87.6)
Provisional	105 (12.4)
Life-threatening	
No	825 (97.3)
Yes	23 (2.7)

Data are expressed as mean±standard deviation and n(%).

Patients grouped according to the time of admission were compared in terms of age, gender, consultation with any department and the end of treatment and no statistically significant difference was found (Table 2).

Again, these three groups of patients were compared in terms of the type of forensic report issued, life-threatening status and simple medical intervention requirements and no statistically significant difference was found (Table 2).

Table 2. Comparison of variables according to admission hours

	Application Hours			p
	08:00-15:59 (*n*=369)	**16:00-23:59 (*n*=353)**	**00:00-07:59 (*n*=126)**	
Age	30.8±13.5	31.5±12.2	29.3±10.2	0.218
Gender				
Male	295 (79.9)	273 (77.3)	106 (84.1)	0.258
Female	74 (20.1)	80 (22.7)	20 (15.9)	
Consultation				
No	354 (95.9)	343 (97.2)	121 (96.0)	0.643
Yes	15 (4.1)	10 (2.8)	5 (4.0)	
Treatment process				
Discharge	359 (97.3)	346 (98.0)	121 (96.0)	0.476
Hospitalization	10 (2.7)	7 (2.0)	5 (4.0)	
Type of report				
Final	323 (87.5)	312 (88.4)	108 (85.7)	0.735
Temporary	46 (12.5)	41 (11.6)	18 (14.3)	
Life-threatening				
No	357 (96.7)	348 (98.6)	120 (95.2)	0.097
Yes	12 (3.3)	5 (1.4)	6 (4.8)	

Data are expressed as mean±standard deviation and n(%). χ^2: Chi-square test analysis was used to compare two different groups and $p<0.05$ was accepted as significant

DISCUSSION

Since EDs are the most common place of presentation for forensic cases, forensic reports are most frequently prepared by ED physicians (2). Since forensic reports are of great importance in terms of the functionality of the law, emergency physicians should show the necessary care and attention while preparing these reports (3,6).

Although the minimum age range of the patients in our study was 0 and the maximum age range was 80, the mean age was found to be similar to the literature (7,8). This finding of the mean age is related with the fact that most of the patients included in the study (68.9%) were below the age of 35 years.

As in the literature, the male gender ratio was higher in this study (9,10). It was thought that men were more involved in forensic events in relation to their higher presence in social life.

In previous studies, the most common diagnosis of forensic cases was traffic accident and the second most common diagnosis was battery (6,11). In our study, it was observed that the most common diagnosis was assault. The reason for this is that forensic reports given during the detention/prison entry-exit process were also included in this group. Again, the rate of forensic reports issued for carbon monoxide intoxication was higher in our study than in the study of Kukul

et al. The reason for this is related to the fact that only January data were collected in our study and this diagnosis is more common especially in winter months.

Similar to the study by Arslanoğlu et al, it was found that the highest number of forensic case presentations was made during the 08:00 -15:59 shift (12). In other studies in the literature, it was reported that the highest number of admissions were made during the 16:00-23:59 shift (13). In our study, although the rates of admission at 08:00-15:59 and 16:00-23:59 shifts were close, the reason for more admissions at the first shift may be related to the high rate of cases with a diagnosis of assault and battery brought from institutions. In this study, variables were compared according to the time of admission and it was determined that the characteristics of forensic cases or forensic reports did not differ according to the time of admission. The reason for this may be that EDs provide 24/7 uninterrupted service and the necessary service is provided regardless of the time.

Unlike the literature, the rate of consultation of patients with any department was low in our study (10,14). This was attributed to the high number of cases with a diagnosis of assault and battery in relation to the reasons mentioned previously.

Similar to previous studies, the treatment process of most of the patients in our study was completed as outpatients and the patients were discharged from the ED (8,12). Since the rates of forensic cases resulting from high-energy trauma or requiring long-term follow-up were low in our study, the hospitalization rate was also found to be low.

There are two types of forensic reports: provisional and final reports, and mostly provisional reports are issued as a preliminary report guiding physicians while issuing a final report.8 In our study, the rate of final reports issued was found to be higher, which is different from the literature (14,15). The reason for this was thought to be the diagnosis rates according to the nature of forensic cases.

In the forensic reports issued in our study, life-threatening and simple medical intervention status were found to be similar to the literature (6,11). The high rate of no life-threatening condition and the low rate of not resolvable with simple medical intervention is related with the high rate of assault and battery reports issued for entry and exit from detention/prison.

Forensic reports are mostly issued in EDs, and the intensity of applications of forensic cases may vary according to time periods. Regardless of the time of admission, emergency physicians should show the utmost care in approaching forensic cases and preparing forensic reports, taking into account the legal process.

CONCLUSION

In our study, it was also found that forensic cases with the diagnosis of assault and battery were the most common patients admitted to the ED. In order to reduce the intensity in EDs, separate units can be established within the hospital for the preparation of forensic reports for such cases referred from institutions.

Ethics Committee Approval: Prior to the study, the approval of Erciyes University Clinical Research Ethics Committee' numbered 384/2018 and dated 18.07.2018 was obtained.

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