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Demographic Characteristics of Occupational Accidents Admitted to the Emergency Department of Tekirdağ Namık Kemal University Hospital

Tekirdağ Namık Kemal Üniversitesi Hastanesi Acil Servisine Başvuran İş Kazalarının Demografik Özellikleri

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ABSTRACT

Aim: It was aimed to evaluate the demographic characteristics of patients who were admitted to our emergency department due to occupational accidents and to examine the outcomes of the forensic reports.

Materials and Methods: The electronic files and forensic reports of patients admitted to our emergency department due to occupational accidents between 01.01.2020 and 31.12.2020 were retrospectively analyzed.

Results: The mean age of the 235 cases included in our study was 33.9±10.9 years. The number of male cases was 192 (81.7%) and the number of female cases was 43 (18.3%). The shift with the highest number of occupational accidents was day shift with 125 cases (53.2%). The most common mechanisms of occupational accidents were injuries caused by work machines/tools with 111 (47.2%) cases. In 82 (34.9%) cases, simple soft tissue trauma was the most common diagnosis. Two hundred seventeen (92.3%) of the cases were discharged, while 1 (0.4%) died. In the forensic reports of 48 (20.4%) of the current cases, it was not stated whether their current condition could be resolved by simple medical intervention. A permanent report was written in 2 (0.8%) of all forensic reports.

Conclusion: Occupational accidents presenting to our emergency department are most commonly seen in young adult males in their thirties and during day shifts. The mechanism of development of occupational accidents and the diagnoses received by patients differ among health centers. Physicians working in our emergency department tend to share medical and judicial responsibilities with other specialties.

Keywords: Emergency medicine, occupational accidents, occupational health and safety

ÖZ

Amaç: İş kazası sebebiyle acil servisimize başvuran hastaların demografik özelliklerini değerlendirmek ve tutulan adli raporların sonlanımlarını incelemek amaçlanmıştır.

Gereç ve Yöntem: Acil servisimize 01.01.2020 ile 31.12.2020 tarihleri arasında iş kazası sebebiyle başvuran hastaların elektronik dosyaları ve adli raporları retrospektif olarak incelenmiştir.

Bulgular: Çalışmamıza dahil olan 235 olgunun yaş ortalaması 33,9±10,9 şeklindedir. Erkek olguların sayısı 192 (%81,7), kadınların sayısı 43'tür (%18,3). En çok iş kazası gelişen vardiya 125 olgu (%53,2) ile gündüz vardiyasıdır. İş kazası mekanizmalarından en sık görüleni 111 (%47,2) olgu ile iş makinesi/aleti sebebiyle olan yaralanmalardır. Seksen iki (%34,9) olguda konulan basit yumuşak doku travması en sık tanıdır. Olguların 217'si (%92,3) taburcu edilmişken, 1'i (%0,4) ise hayatını kaybetmiştir. Mevcut olguların 48'inin (%20,4) adli raporunda mevcut durumlarının basit tıbbi müdahale ile giderilip giderilemeyeceği belirtilmemiştir. Tüm adli raporların 2'sine (%0,8) kati rapor yazılmıştır.

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Sonuç: Acil servisimize başvuran iş kazaları en sık otuzlu yaşlardaki, genç yetişkin erkeklerde ve gündüz vardiyalarında görülmektedir. İş kazalarının gelişme mekanizması ve hastaların aldıkları tanılar sağlık merkezleri arasında farklılık göstermektedir. Acil servisimizde görev yapan hekimler tıbbi ve adli sorumlulukları diğer branşlar ile paylaşmaya yatkındır.

Anahtar Kelimeler: Acil tıp, iş kazaları, iş sağlığı ve güvenliği

INTRODUCTION

Occupational accidents are an important problem in terms of individual and social health as well as economic and social aspects. An accident causes the injured worker to be temporarily or permanently unable to do his/her job and causes material and moral losses on behalf of the worker and the employer[1]. In direct proportion to the rapid industrialization and technological developments in the world and in Türkiye, there is an increase in occupational accidents[2].

According to the International Labor Organization (ILO), approximately 340 million occupational accidents occur annually worldwide. It is estmated that around 2.3 million workers die each year because of occupational accidents or illnesses, equivalent to more than 6.000 deaths a day. Recent data from the ILO show that occupational accidents and diseases are increasing worldwide[3]. In Türkiye, the number of occupational accidents is 681.401 and the number of people who lost their lives due to occupational accidents is 1.966 according to 2023 data published by the Social Security Institution (SSI) (Figures 1,2)[4].

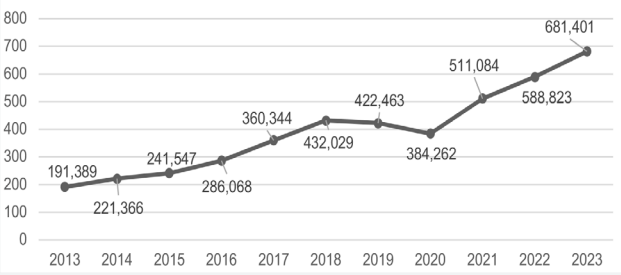

Figure 1. Distribution of the number of occupational accidents in Türkiye by years

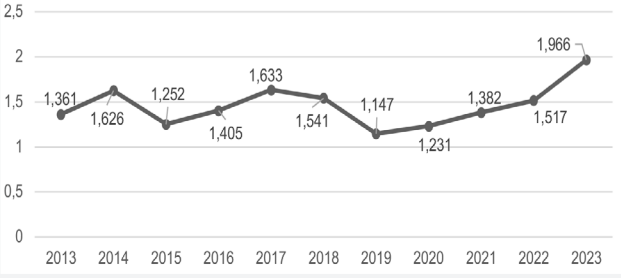

Figure 2. Distribution of fatal occupational accidents in Türkiye by years

The aim of this study is to evaluate the demographic characteristics of patients admitted to emergency departments (EDs) after occupational accidents and to give ideas to ED physicians and occupational health and safety specialists in terms of their approaches before and after the accident. At the same time, the contents and deficiencies of forensic reports on occupational accidents will be discussed.

MATERIALS AND METHODS

In this study, we retrospectively examined the demographic information and forensic reports of the patients who had occupational accidents and who applied to our center within one year, with the approval of Tekirdağ Namık Kemal University (TNKU) Faculty of Medicine Non-Interventional Clinical Research Ethics Committee (decision no: 2022.90.05.17 date: 31.05.2022).

Study Population and Data Collection

The sample size of the study was determined as all cases with inclusion criteria among the occupational accident cases admitted to the ED of TNKU Hospital between 01.01.2020 and 31.12.2020. Case files were obtained from the data processing and archive unit of our hospital with the permission of the ethics committee. Cases whose data could not be adequately accessed were not included in the study.

Statistics Analysis

The information obtained was subjected to statistical tests using the Statistical Package for the Social Sciences 26. Demographic data were analyzed using frequencies and descriptive tests. The Pearson chi-square and Fisher's exact test comparison tests were performed to make comparisons between independent categorical data. In these comparison tests, a value of $p<0.05$ was considered statistically significant. The results obtained are presented in tables and figures.

RESULTS

The minimum age was 18 years, the maximum age was 64 years, and the median age was 33.9±10.9 years in 235 patients admitted due to occupational accidents. Of the cases, 192 (81.7%) were male and 43 (18.3%) were female (Figure 3).

It was observed that 125 (53.2%) of the patients presented to our ED after an occupational accident during the morning shift (08:00 to 16:00 hours), 83 (35.3%) during the evening

shift (16:00 to 00:00 hours), and 27 (11.5%) during the night shift (00:00 to 08:00 hours) (Figure 4).

When we ranked the mechanisms of injuries according to their frequencies, we found that 111 (47.2%) of the cases were due to work machine/tool related injuries, 55 (23.4%) due to foreign body in the eye, 48 (20.4%) due to fall regardless of level, 11 (4.7%) due to burns, 2 (0.9%) due to smoke inhalation, and one person each due to syncope and electric shock.

The most common diagnoses received by the occupational accident cases were simple soft tissue trauma in 82 (34.9%), foreign body in the eye in 53 (22.6%), and superficial or deep incisions in 52 (22.1%) (Table 1).

When the clinical outcomes of the cases were analyzed, it was determined that 217 (92.3%) cases were discharged after the evaluations and 1 (0.4%) case died despite the interventions performed in our ED and afterwards (Table 2).

In the forensic reports kept for the patients admitted to our ED due to occupational accidents, it was determined that 213 (90.6%) of 235 cases were not life threatening and 3 (1.3%) were life threatening. In 19 (8.1%) cases, no opinion was expressed about whether there was a life-threatening situation or not. When the rates of whether the existing trauma stated in the forensic reports could be resolved with simple medical intervention (SMI) were analyzed, it was determined that 145 (61.7%) of the cases could be resolved with SMI and 42 (17.9%) of the cases had traumas that could not be resolved with SMI. In 48 (20.4%) cases, SMI status was not specified. It was found that 189 (80.4%) of the finalizations of the forensic reports of occupational accidents were reported as status/opinion, 41 (17.4%) as temporary report, and 2 (0.9%) as permanent report.

There was a statistically significant correlation between whether the lesions seen in patients admitted to our ED due to occupational accidents could be resolved with SMI and whether these patients were consulted to other specialist, and it was seen that the cases that could not be resolved with SMI were consulted to different specialist with a higher rate (Pearson chi-square test p<0.001) (Table 3).

When the forensic report closure status and discharge status of the cases were compared, it was observed that 2 patients

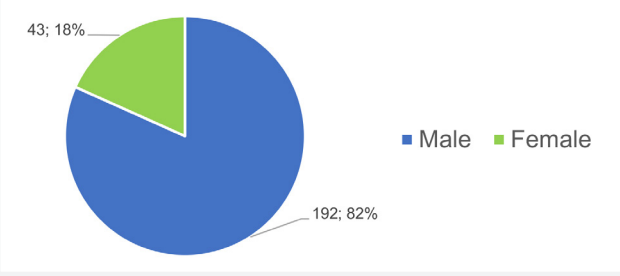

Figure 3. Gender distribution of occupational accidents admitted to our emergency department

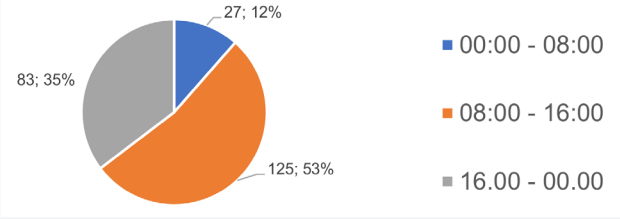

Figure 4. Realization rate of occupational accidents by work shifts

Table 1. Diagnoses of patients admitted to the ED due to occupational accidents

Diagnosis	n (%)
Simple soft tissue trauma	82 (34.9%)
Foreign body in the eye	53 (22.6%)
Superficial or deep incisions	52 (22.1%)
Fracture of the limb or phalanx	12 (5.1%)
First degree burn	9 (3.8%)
COVID-19 infection	5 (2.1%)
Cranial bone fracture	3 (1.3%)
Shoulder dislocation	3 (1.3%)
Second degree burn	2 (0.9%)
Foreign body in soft tissue	2 (0.9%)
Lumbar vertebral fracture	2 (0.9%)
Bone fractures involving multiple sites	2 (0.9%)
Respiratory status due to smoke inhalation	2 (0.9%)
Single finger (complete) traumatic amputation	1 (0.4%)
Open penile injury	1 (0.4%)
Intracranial hemorrhage	1 (0.4%)
Exposure of electric	1 (0.4%)
Syncope	1 (0.4%)
COVID-19 pneumonia	1 (0.4%)

ED: Emergency department

Table 2. Clinical outcomes of patients admitted to the emergency department due to occupational accidents

Clinical outcome	n (%)
Discharged	217 (92.3%)
Admission to clinical ward	10 (4.3%)
Medical treatment refusal	4 (1.7%)
Referral to another center	2 (0.9%)
Leaving the emergency room without permission	1 (0.4%)
Excitus	1 (0.4%)

who were discharged were given a permanent report, while no permanent report was given to any patient who was not discharged. The fact that no permanent report was issued in patients who were not discharged was found to be statistically significant (Pearson chi-square test p=0.002) (Table 4).

DISCUSSION

Occupational accidents admitted to our ED are most commonly seen in young adult males in their thirties and during day shifts. The mean age, gender, and time of the accident are similar to the literature[4-9].

It was observed that the most common mechanism of injury in occupational accident cases admitted to our ED was work machine/tool related injuries and the most common diagnosis was simple soft tissue trauma. In the studies in the literature, it was determined that the injury mechanisms and diagnoses of the cases differed among the centers. The lines of work near the centers where the studies were conducted may differ and each line of work has its own occupational accident risks. The proximity of health centers to workplaces with different risks in terms of occupational accidents causes differences in the mechanism of injury and the diagnosis of the worker who has an occupational accident. It will be useful to take these into consideration for the precautions to be taken and medical approaches to be emphasized[10-13].

One of the cases (0.4%) who had an occupational accident died despite the treatments applied in our ED and afterwards. According to the SSI data of 2020, the rate of deaths due to occupational accidents in our country is 0.32%, which is close to our data[14].

Table 3. Consultation rates of patients admitted to the emergency department with occupational accidents according to SMI status

SMI status	Consulted	Not consulted	p-value
Resolvable	19 (8%)	23 (9.7%)	<0.001
Irresolvable	32 (13.6%)	113 (48%)	<0.001

SMI: Simple medical intervention

Table 4. Comparison of the number of discharged patients and the closure statuses of reports among patients admitted to emergency department due to occupational accidents

FRCS	Discharged n (%)	Not discharged n (%)	p-value
Status/opinion report	175 (74.4%)	14 (5.9%)	0.002
Temporary	39 (16.5%)	2 (0.8%)	
Permanent	2 (0.8%)	0 (0%)	

FRCS: Forensic report closure status

Statistical studies conducted with the data of forensic reports kept after occupational accidents in our center show that emergency physicians tend to consult with other specialities in cases that cannot be resolved with SMI. With the same data, it is seen that emergency physicians write status/opinion reports instead of writing a permanent report even in patients with simple traumas who are discharged. As a result, it is thought that emergency physicians share medical and forensic responsibilities but cause prolonged judicial processes.

Forensic reports kept for patients admitted to our ED due to occupational accidents differ from those kept in other centers. SMI status was not specified in 48 (20.4%) of the forensic reports analyzed in our study. Such a rate has not been found in the literature[11,15]. It is predicted that trainings between physicians working in our ED and forensic medicine specialists will be beneficial to decrease these rates and to evaluate the deficiencies and inaccuracies in forensic reports.

Study Limitations

Since our study was a single-center retrospective study, data losses were notable due to storage problems. Another limitation is that it would be difficult to generalize about the population since the data obtained were applied to a single center.

CONCLUSION

The demographic statistics we obtained from the cases of occupational accidents are mostly consistent with the national and international literature. Due to the different industrial branches located in distant regions, the mechanisms of development and the resulting traumas of the occupational accidents that come to our center and to the health centers in the literature are different.

The rate of issuing a permanent report in discharged patients is quite low. It is thought that emergency physicians mostly conclude forensic reports as status/opinion reports and share their responsibilities in medical and forensic processes. For forensic cases, the current life threatening and SMI status and forensic report conclusions are very important. Inaccuracies and deficiencies in forensic report writing can be eliminated with the trainings that emergency physicians and forensic medicine specialists working in our center will conduct together.

Ethics

Ethics Committee Approval: Approval from the Non-Interventional Clinical Research Ethics Committee of Tekirdağ Namık Kemal University (TNKU) Faculty of Medicine (decision no: 2022.90.05.17, date: 31.05.2022).

Informed Consent: In this study, we retrospectively examined the demographic information and forensic reports of the

patients who had occupational accidents and who applied to our center within one year.

Footnotes

Authorship Contributions

Concept: B.İ.B., S.Ö., S.B., Design: B.İ.B., S.Ö., H.Ş., S.B., Data Collection or Processing: B.İ.B., H.Ş., Analysis or Interpretation: B.İ.B., S.Ö., S.B., Literature Search: B.İ.B., S.Ö., H.Ş., S.B., Writing: B.İ.B., S.Ö., H.Ş., S.B.

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

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