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Drug intoxications in the emergency department: Our 1-year experience

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ABSTRACT

OBJECTIVE: Drug intoxication (DRI), which occurs due to accidental or suicidal use of high doses of drugs, has a high mortality and morbidity rate. emergency departments of hospitals are the units where these patients first come to the hospital, where the first interventions are performed and where the mortality rate is higher than other departments. therefore, DRI is a more important health problem for the emergency department (ED) than other departments of hospitals. In this study, we aimed to retrospectively investigate the demographic characteristics, drugs used and clinical course of patients admitted to the ED of our hospital with the diagnosis of DRI.

METHODS: Patients admitted to the ED of Malatya Training and Research Hospital with the diagnosis of DRI were retrospectively screened from the hospital database. The patients' demographic characteristics, medications and clinical conditions were recorded. Patients over the age of 18 years who were diagnosed with DRI and whose medicationuse was identified were included in this study. Patients under the of 18 and those poisoned by other substances such as alcohol, illegal chemicals, or agricultural pesticides were excluded.

RESULTS: Demographic characteristics, type of intoxication and clinical course of the patients included in the study are shown in Table 1. In 2023, 282 patients were admitted to the emergency department of our hospital with the diagnosis of DRI. Of these, 60% were women and 40% were men (n=170, n=112, respectively) and there was no statistically significant difference between the numbers of men and women (p=0.156). Fifteen percent of the women were over 50 years of age and 85% were under 50 years of age. this ratio was 55% to 45% in men. there was no statistically significant difference in the age distribution between men and women (p=0.246, p=0.260, respectively), (Table 1). 77% of the patients used overdose drugs for suicidal purposes and 23% accidentally (n=217, n=65, respectively). There was no statistically significant difference in the type of DRI, total number of males and females and age distribution (p=0.26). While 60% of the patients were hospitalized, 25% were admitted to intensive care unit and 35% to service (n=70, n=100, respectively). There were statistically significantly more patients admitted to service (p=0.03).

CONCLUSION: The results of our study show that the number of female patients admitted to the ED of our hospital with the diagnosis of DRI, patients under 50 years of age and suicidal use are higher, the most commonly used drugs in these patients are NSAIDs, SSRIs and antipyschotics as a drug group and drugs used in psychiatric disorders. Our study has shown that frequently used and easily accessible drugs are more likely to be abused, and that questioning such drugs, especially in patients presenting to the emergency service with drug intoxication in this region, may be valuable for diagnosis and treatment.

Keywords: Drug intoxication; emergency department; nonsteroidal anti-inflammatory drug; suicide.

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Drug intoxication (DRI), which occurs due to accidental or suicidal overdose of drugs, has a high mortality and morbidity rate. It is an important health problem with an increasing incidence in recent years [1]. Worldwide, the second leading cause of death in individuals under 30 years of age is suicidal DRI after death by traffic accidents [2]. In particular, emergency departments of hospitals are the units where these patients first come to the hospital, where the first interventions are made and where the mortality rate is higher than other departments, so for the emergency department (ED), DRI is a more important health problem than other departments of hospitals. In the majority of Europe, approximately 30% of the cases between the ages of 15–64 admitted to the ED with intoxication are due to illicit substance use [3]. In a study conducted in Spain in patients admitted to the ED with intoxication, it was found that although there was no difference in the number of sexes, there was a difference in the drugs used [4]. The majority of patients admitted to the ED with intoxication are DRI cases. In a study conducted in our country, it was found that 0.2% of the cases admitted to the ED were DRI cases and 71% of these were single drug and 29% were DRI due to multiple drug use [4]. Therefore, it is very important for ED physicians to intervene early in patients presenting with DRI and to implement rapid and effective treatment methods. In addition, knowing the type of drug addiction in the region and the drug use tendency of the patients who come with suspicion of DRI will increase the chance of early diagnosis and treatment and reduce morbidity and mortality. At the same time, conducting local studies in which the demographic characteristics, clinical conditions and medications used by patients presenting with ED and DRI will make a significant contribution to more effective diagnosis and treatment of such patients.

In this study, we aimed to retrospectively investigate the demographic characteristics, medications used and clinical course of patients admitted to the emergency department of our hospital with the diagnosis of DRI.

MATERIALS AND METHODS

Ethical Approval

Approval for the study was obtained from the Scientific Research Committee of Malatya Training and Research Hospital (date:13.06.2024 no: 2446255678). This study was conducted in accordance with the Declaration of Helsinki.

Highlight key points

- The majority of patients presenting to theemergency department with drug intoxication are women.
- NSAIDs are the most frequently used drugs, and antidepressants and antipsychotic agents used in psychiatric disorders constitute the most common drug groups involved.

Study Population

Patients admitted to Malatya Training and Research Hospital with the diagnosis of ED in January 2023–2024 were retrospectively screened from the hospital database. Demographic characteristics, medications and clinical conditions of the patients were recorded. The study included DRI patients over the age of 18 who were identified to have used the medication; cases of poisoning with other substances such as alcohol, illegal substances, chemicals, pesticides and patients under the age of 18 were excluded.

Statistical Analysis

Data analysis was performed using SPSS (version 20.0, Inc., Chicago, USA). The Kolmogorov-Smirnov test was used to check whether the distribution of continuous variables was normal. Descriptive statistics for continuous variables were presented as mean±standard deviation (SD) or median, while categorical variables were presented as number of cases (n) and percentage (%). Categorical variables were evaluated using the Chi-square test. Median values and non-normally distributed data were analyzed using the Mann-Whitney U test. P values <0.05 were considered statistically significant.

RESULTS

Demographic characteristics, type of intoxication, and clinical course of the patients included in the study are shown in Table 1. In 2023, 282 patients were admitted to the emergency department of our hospital with the diagnosis of DRI. Of these, 60% were women and 40% were men (n=170, n=112, respectively) and there was no statistically significant difference between the numbers of men and women (p=0.156). Fifteen percent of the women were over 50 years of age and 85% were under 50 years of age. this ratio was 55% vs. 45% in men. there was no statistically significant difference between men and women in terms of age distribution (p=0.246, p=0.260, respectively), (Table 1). 77% of the patients used overdose drugs for suicidal purposes and 23% accidentally

Table 1. Demographic characteristics of patients and type of intoxication

	Woman n=170 (%)	Male n=112 (%)	p	Total n=282 (%)	p
≥50	15	0	0.246	29.5	0.246
<50	85	55	0.246	70.5	0.246
Suicide	79	73	0.26	77	0.26
Overdose	21	17	0.26	23	0.26
Intensive care	25	25	**0.003**	25	**0.003**
Service	39	30	**0.003**	100	**0.003**

(n=217, n=65, respectively). There was no statistically significant difference in the type of DRI, total number of males and females and age distribution (p=0.26). While 60% of the patients were hospitalized, 25% were admitted to intensive care unit and 35% to ward (n=70, n=100, respectively). There were statistically significantly more patients admitted to ward (p=0.03).

Drugs causing DRI are shown in Table 2. Nonsteroidal anti-inflammatory drugs (NSAIDs) were the most commonly used drugs (n=63). The second and third most frequently used drugs were selective serotonin reuptake inhibitors (SSRIs) and drugs used in psychiatric diseases such as atypiscotic drugs (APDs) (n=47, n=28, respectively).Drugs used at 10 and below were not shown separately in the table, but were combined and given under the name of other drugs (OD) (n=26). 16 patients were told by their relatives that they were taking medication, but the medication they were taking could not be identified and is shown as undetected drug (TED) in the table (Table 2).

Table 2. Drugs that cause drugs intoxication

Drug	%
PPI	4
AP	10
Antiepileptic	6
SSRI	16
NSAID	22
UDD	5
Antibiotics	5
BDZ	6
Other	9

PPI: Proton pump inhibitors; AP: Antipsychotics; SSRI: Selective serotonin reuptake inhibitors; NSAID: Nonsteroidal anti-inflammatory drugs; UDD: Undetectable drugs; BDZ: Benzodiazepines.

DISCUSSION

The most common cause of intoxication in patients admitted to ED is DRI [4]. the majority of patients admitted to ED with a diagnosis of DRI are women [4].in a study conducted in our country, it was found that 70% of patients admitted to ED with a diagnosis of DRI were women [4].in another study conducted in our country, this rate was found to be 67% [5]. In a study conducted abroad, it was found that the rate of female patients was 50% [6]. The findings of our study were consistent with these studies, the rate of female patients was 60%.

In a study conducted in Turkiye, it was found that 30% of the patients admitted to hospital with the diagnosis of DRI were hospitalized in intensive care and 67% were hospitalized in service [7]. In another study conducted in our country, it was shown that 70% of the patients admitted to ED with the diagnosis of DRI were discharged from ED after treatment, 30% were hospitalized in the service and very few patients were hospitalized in intensive care. In the same study, 82% of the patients were admitted to ED with the diagnosis of DRI due to suicidal intent and 18% due to accidental high dose drug use [4]. In our study, 25% of the patients were admitted to the intensive care unit and 35% to the service. these results in our study are generally compatible with the results of other studies. the higher number of intensive care unit admissions in some studies may be due to the type and amount of the drug used, the time taken for patient to present to the ED and the poor general condition of the patients due to the presence of additional diseases.

In a retrospective study conducted in Turkiye, antidepressants and analgesics were found to be the most commonly used drugs in patients admitted to the ED with a diagnosis of DRI [8]. Another study conducted in Turkiye showed that the most commonly used drugs in patients admitted to the ED with a diagnosis of DRI were NSAIDs and drugs used in psychiatric patients [5]. In another study conducted in Turkiye, antidepressants were found to be the most commonly used drugs causing DRI [9]. In a study conducted abroad, similar to the studies conducted in Turkiye, it was shown that the most commonly used drugs in cases of DRI were psychiatric drugs [10]. In another study conducted abroad, bezodiazepines and opioids were found to be the most commonly used drugs in DRI patients [11]. The results of our study generally supported the studies conducted both in Turkiye and abroad. When evaluated as a single drug type, NSAIDs were the most commonly used drug in cases of DRI, but when evaluated as a drug group, the most commonly used drug group was drugs used in psychiatric diseases such as SSRIs, antipsychotic drugs and benzodiazepines. It is considered as an expected result that the most commonly used drugs in cases of accidental overdose and suicidal DRI are psychiatric drugs used in the treatment of these patients.

Conclusion

The results of our study show that the number of female patients admitted to the ED department of our hospital with a diagnosis of DRI, patients under the age of 50 and suicidal use are higher, and the most commonly used medication in these patients are NSAIDs, SSRIs and antipsychotics as a drug group and drugs used in psychiatric disorders.

Ethics Committee Approval: The Malatya Training and Research Education Planning Ethics Committee granted approval for this study (date: 13.06.2024, number: 244625678).

Informed Consent: Written informed consents were obtained from patients who participated in this study.

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