

Evaluation of Patients Presenting to the Emergency Department with Suicidal Drug Poisoning

Behçet Varışlı^{1*}, Canan Akman², Sinan Yıldırım¹, Kenan Ataç¹, Okan Çakır¹

¹Department of Emergency Medicine, Mehmet Akif Ersoy State Hospital, Çanakkale, Turkey. Turkey

²Department of Emergency Medicine, Fakulty of Medicine, Onsekiz Mart University, Çanakkale, Turkey

Article History

Received 04 Feb 2022

Accepted 08 Nov 2022

Published Online 30 Jan 2023

*Corresponding Author

Behçet Varışlı

Department of Emergency Medicine

Mehmet Akif Ersoy State Hospital,

Çanakkale, Turkey.

Phone: +90 5308204599

E-mail: drbehcetvarisli@gmail.com

DOI:10.56766/ntms.1068492

Authors' ORCIDs

Behçet Varışlı

<http://orcid.org/0000-0002-2346-1112>

Canan Akman

<http://orcid.org/0000-0002-3427-5649>

Sinan Yıldırım

<http://orcid.org/0000-0001-8191-168X>

Kenan Ataç

<http://orcid.org/0000-0003-4170-1009>

Okan Çakır

<http://orcid.org/0000-0001-9250-1555>



Content of this journal is licensed under a Creative Commons Attribution 4.0 International License.

Abstract: Intoxications constitute 1-2 % of emergency service applications. The most common cause of poisoning is suicide attempts. Of these attempts, 95 % are done by using drugs. We aimed to contribute to the literature by investigating the diagnosis, treatment, prognosis, and demographic data of patients admitted to the emergency department due to drug intoxication. Patients over 18 with complete data on patient files and the hospital automation system between October 1st, 2017 and October 1st, 2018 were included in the study, whereas patients under 18 years of age and those with incomplete data were excluded. A total of 126 patients presented to the emergency department with drug poisoning. The mean age of patients was 33.58±13.58 years. The female-male ratio was determined as 1.93. One out of 126 patients was intubated and referred to the intensive care unit (ICU). Seventy-six of the admitted patients (60 %) were hospitalized for inpatient treatment and follow-up, while 49 (39 %) were cared in the emergency department. Multiple drugs were the most common cause of poisoning. The highest time interval for drug-intoxicated emergency department admissions was between 18:00 and 24:00. Of the patients, 86 were previously treated for a psychiatric illness. The psychiatric consultation rate was significantly higher in hospitalized patients. Admissions to drug intoxication clinics due to suicide attempts are predominantly composed of women. Application hours are generally during the intensive admission periods of the emergency department. Arrangements should be made for both general medical care and psychiatric treatment of suicidal drug poisoning cases in emergency service applications. © 2023 NTMS.

Keywords: Healthcare Professionals; Anxiety; Hospital Support Staff; Pandemic.

1. Introduction

Drug intoxications may be associated with accidental or suicidal ingestion of toxic agents. In both cases, emergency treatment includes administration of the

relevant antidote and gastric decontamination. If necessary, patients are followed up in wards and intensive care units¹.

Studies in the United States have reported 2.3 million cases of acute intoxication per year²⁻⁴. In Turkey, the annual number of patients admitted due to acute intoxications is estimated at around 150,000⁵. Admission rates due to intoxication vary between 0.46 % and 1.57 % among all emergency departments⁶. Although intoxications come with different agents, they are primarily associated with the use of medical drugs¹.

In this study, we aimed to evaluate the demographic and clinical prognoses of patients who applied to the emergency department with drug intoxication.

2. Material and Methods

The study was conducted with retrospective data collected from patients admitted to our emergency department due to drug intoxication between October 1st, 2017 and October 1st, 2018, a hospital with an average 600 daily and 220,000 annual admissions.

Ethics committee approval was obtained from the ethics committee of Çanakkale Onsekiz Mart University (numbered 2019/02, dated 16/01/2019).

We included patients over 18 who had complete data in patient files and the hospital automation system between October 1st, 2017 and October 1st, 2018.

The patients' data were collected from the hospital automation system and patient files, and were recorded on a data collection form.

The demographic characteristics, admission time and history associated with psychiatric diseases of patients who applied to the emergency department with drug intoxication were extracted.

2.1. Statistical Analysis

Statistical analysis was performed using SPSS 23.0 for Windows® statistical program (IBM Inc. Chicago, IL, USA). Continuous variables with normal distribution were expressed as mean \pm standard deviation (SD), skewed data were reported as median (minimum-maximum), and categorical variables were described as numbers and percentages. For continuous variables, Mann-Whitney U-test was used in the groups with skewed distribution, whereas Student's t-test was used in the groups with normal distribution to determine the significance between the group means. Pearson's Chi-Square and Fisher's Exact Test were used to test the significance between categorical variables. All p-values were reported as two ways. A p-value of <0.05 was considered significant.

3. Results

A total of 225,859 patients were admitted to the emergency department between October 1st, 2017 and October 1st, 2018. Of these, 126 patients presented to the emergency department with drug poisoning. The mean age of patients was 34 \pm 14 years ranging from 18 to 92. There were 83 females with a female/male ratio of 1.93. One out of 126 patients was intubated and referred to the intensive care unit (ICU) and died.

Seventy-six of the admitted patients (6 0%) were hospitalized for inpatient treatment and follow-up, while 49 (39 %) were cared in the emergency department. One patient left the inpatient service and two the emergency department without doctors' approval. Multiple drugs had the highest frequency among causes of drug intoxication, whereas paracetamol and other analgesics were identified as the active substance and the drug groups, respectively, with the highest frequency in the single drug intoxications (Table 1).

Table 1: Frequency of drug groups.

	Number (n)	Percent (%)
Multiple drugs	53	42.1
Analgesics	31	24.6
Antidepressants	13	10.3
Antibiotics	11	8.7
Antipsychotics	5	3.9
Other	13	10.3

Drug poisonings occurred most frequently in November. The drug intoxication frequency was significantly higher in winter than summer (Figure 1).

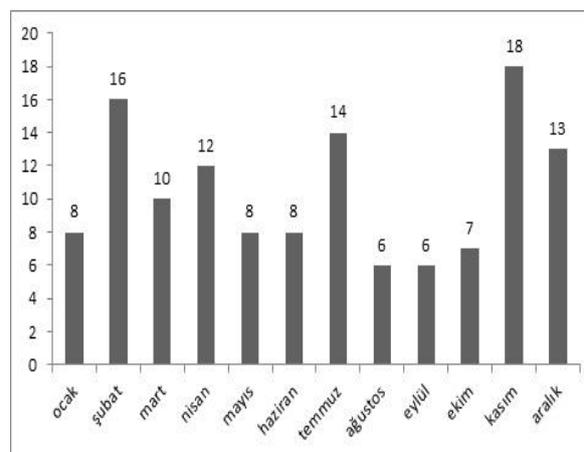


Figure 1: Distribution of the number of cases by months.

The highest application time interval was the six hours between 18:00-24:00 at a rate of 61% (Figure 2).

The patients were examined in terms of psychiatric disease histories. Eighty-six of 126 patients were previously treated for a psychiatric illness (68 %). Eighty-two patients had abnormal psychiatric findings and received psychiatric consultation. The rate of requesting psychiatric consultation was significantly higher in patients with a history of a psychiatric illness than in those without ($p = 0.015$). The rate of psychiatric consultation in hospitalized patients was significantly higher than discharges from the emergency department ($p < 0.001$).

Recurrent emergency service applications within 24 hours of patients who applied to the emergency department with drug intoxication were examined. The rate of recurrent hospital admissions was higher in patients discharged without consulting the psychiatry department (60%), with a statistically insignificant difference ($p = 0.083$) (Table 2).

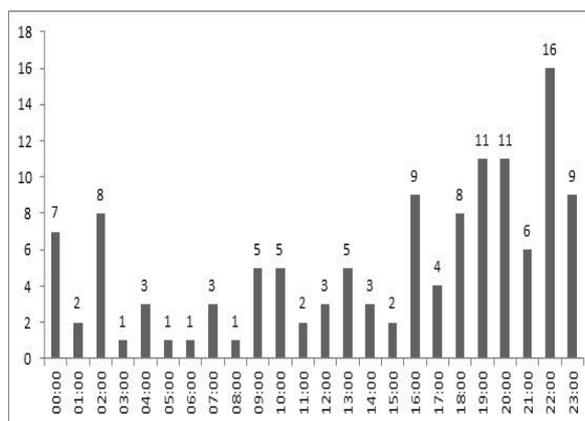


Figure 2: Distribution of the number of cases according to the hours of admissions.

Table 2: Comparison of patients consulted and not consulted to the psychiatry department.

		Patients consulted to the psychiatry department (n: 82)	Patients not consulted to the psychiatry department (n: 44)	
	Age	35.29±14.46	30.39±11.24	0.045
Gender	Female (n = 83)	52 (62.7 %)	31 (37.3 %)	0.427
	Male (n = 43)	30 (69.8 %)	13 (31.2 %)	
History of a Psychiatric Treatment	Yes (n: 86)	62 (72.1 %)	24 (27.9 %)	0.015
	No (n = 40)	20 (50.0 %)	20 (50.0 %)	
Hospitalization in any Department	Yes (n = 77)	62 (80.5 %)	15 (19.5 %)	<0.001
	No (n = 49)	20 (40.8 %)	29 (59.2 %)	
Recurrent Admissions	Yes (n = 10)	4 (40.0 %)	6 (60.0 %)	0.083
	No (n = 116)	78 (15.5 %)	38 (84.5 %)	

4. Discussion

As in all the world, the frequency of suicide attempts and suicide deaths are increasing every year in Turkey. International literature has reported that the most common methods of suicide attempts resulting in death include hanging and firearms in males, whereas drug/substance intake in females⁷⁻¹⁰. The literature studies reported a higher number of females than males involved in suicide attempts^{6, 11-14}. The present study reported a higher rate of female gender (65.9 %) among cases of intoxication than that of male gender.

Literature studies have reported a mean age range of 25 to 30 years. In our study, the mean age was 33.58±13.58 years, which was higher than in the literature studies^{6, 13-16}.

In various countries, intoxications have been associated with different agents, most often with the use of medical drugs.¹ In Turkey, antidepressants and analgesics usually rank first among the agents causing intoxication^{6, 11, 12, 15, 17}. Drug intoxications may be associated with the ingestion of a single drug, as well as of multiple drug^{5, 14, 18}. In our study, in accordance with other studies, drug intoxications were most commonly associated with ingestion of multiple drugs. In addition, analgesic agents ranked first among the drug groups causing intoxication.

In the present study, the majority of cases of intoxication were admitted to the emergency department in the winter months. In contrast to our study, studies conducted in Turkey¹⁹⁻²¹ and abroad^{22, 23}, examining the seasonal distribution of patients admitted due to intoxication, reported the highest frequency of patient admissions in the spring and summer months.

In a study conducted in Turkey, 64.4 % of patients were transferred to the ward and 33.3 % were discharged with recovery without complication¹⁵. The rate of inpatients due to acute intoxications in intensive care units varies between 3.4 and 13.8 %^{24, 25}. In our study, of all patients, 76 (60.3 %) were hospitalized in the ward and 1 (0.8 %) in the intensive care unit, while 49 (38.9 %) were treated in the emergency department.

In our study, 1 patient (0.8 %) had mortality due to intoxication. In addition, Taş et al. reported a mortality rate of 0 %²⁶. This rate was 0.92 %, 0.31 % and 10 % in the studies of Özayar et al.⁶ and Yağan et al.²⁷ respectively.

In our study, 68.3 % of the patients had a history of a psychiatric disease and 7.9 % had a history of a similar suicide attempt. In a study conducted in Turkey, 35.3 % of the patients had a history of a psychiatric disorder¹².

Psychosocial status of the patients can be neglected when trying to provide the best possible medical care in emergency departments. Another shortcoming is the lack of referral to the necessary psychosocial support following medical treatment for suicide attempts in emergency departments. A timely psychotherapeutic intervention following medical care is an approach that provides easy and quick beneficial results in these patients. Some studies have reported that 7 to 10 % of adolescents have a history of a suicide attempt, of which about 2 to 3 % received medical care, and less than 50 % were referred to psychotherapy following medical care in emergency departments, of which the majority discontinued psychotherapy²⁸. Therefore, it is also important to perform psychiatric evaluation of patients admitted to the emergency department due to a known suicide attempt. In our study, 34.9 % of the patients were not consulted to the psychiatry department.

An admission to the emergency department following an incomplete suicide attempt has been reported to be an important factor that increases the likelihood of a subsequent fatal suicide attempt²⁹. In this respect, suicide attempts are more important than completed suicides. This is because 10 to 20 times more suicide attempts occur for each completed suicide.¹⁰ Not only those who have a psychiatric problem, but also those who are defined as 'normal' in psychiatric terms may have suicidal behavior¹⁰. In our study, 7.9 % of the patients attempted suicide again within a year. Drug intoxications continue to be a growing problem for physicians working in emergency departments in Turkey as well as in the world. The incidence of drug intoxications was higher in patients who had previously applied to psychiatry outpatient clinics than those who had not. Our study highlighted the shortcomings of physicians in emergency departments in referring this patient group to the psychiatry department. Adequate psychosocial support is important in patients who come to prevent recurrent suicide attempts.

5. Conclusions

Women are remarkably high in attempted suicide cases admitted to the emergency department with drug intoxication. Application hours are during intensive admission hours of emergency departments. Arrangements should be made for both general medical care and psychiatric treatment of suicidal drug poisoning cases in emergency services.

Limitations of the Study

Our study has some limitations, including a regional retrospective study design, a relatively low number of patients, and a one-year follow-up for recurrent admissions.

Acknowledgement

None.

Conflict of Interests

The authors declare no conflict of interest.

Financial Support

The authors have no commercial associations or sources of support that might pose a conflict of interest.

Author Contributions

Conceived and designed the experiments; B.V., C.A., S.Y., K.A, O.Ç. Analyzed and interpreted the data; B.V., K.A, O.Ç. Contributed reagents, materials, analysis tools or data; B.V., C.A, S.Y., K.A, O.Ç. Wrote the paper; B.V., C.A, S.Y.

Ethical Approval

Ethics committee approval was obtained from the local ethics committee of the tertiary health center (Degree date/no: 16.01.2019/ 2019-02).

Data sharing statement

Data and statistical analysis plan will be shared if requested.

Consent to participate

Consent was obtained from all patients for the use of data under ethical conditions.

Informed Statement

Informed consent forms were obtained from all patients the patient data could be used in the retrospective studies.

Presentation(s) or Awards at a Meeting

Oral Presentation (I. Ulusal Acil Tıpta Toksikoloji Sempozyumu, İstanbul, 14-15 December 2018).

References

1. Müller D, Desel H. Common causes of poisoning: etiology, diagnosis and treatment. *Dtsch Arztebl Int.* 2013; 110(41):690-700.
2. Bronstein AC, Spyker DA, Cantilena LR, Jr. et al. 2010 Annual Report of the American Association of Poison Control Centers' National Poison Data System: 28th Annual Report. *Clin Toxicol.* 2011; 49(10):910-41.
3. Dart RC, Bronstein AC, Spyker DA, et al. Poisoning in the United States: 2012 emergency medicine report of the National Poison Data System. *Ann Emerg Med.* 2015; 65(4):416-22.
4. Friedman LS, Krajewski A, Vannoy E, et al. The association between US Poison Center assistance and length of stay and hospital charges. *Clin Toxicol.* 2014; 52(3):198-206.
5. Pekdemir M, Yıldız M, Durukan P, et al. Acil servise başvuran erişkin zehirlenme olgularının prospektif olarak incelenmesi. *Toksikoloji Dergisi.* 2004; 2:41-48.
6. Ozayar E, Degerli S, Gulec H, et al. Retrospective Analysis of Intoxication Cases in the ICU. *Youn Bakm Derg.* 2011; 2(3):59-62.
7. De Koning E, Piette MH. A retrospective study of murder–suicide at the Forensic Institute of Ghent University, Belgium: 1935-2010. *Med Sci Law.* 2014; 54(2):88-98.
8. Sena-Ferreira N, Pessoa VF, Boechat-Barros R, et al. Risk factors associated with suicides in Palmas in the state of Tocantins, Brazil, between 2006 and 2009 investigated by psycho-social autopsy. *Cienc Saude Colet.* 2014; 19(1):115-26.

9. Bilici M, Bekaroğlu M, Hocaoğlu Ç, et al. Incidence of completed and attempted suicide in Trabzon, Turkey. *Crisis*. 2002; 23(1):3-10.
10. Teti GL, Rebok F, Rojas SM, et al. Systematic review of risk factors for suicide and suicide attempt among psychiatric patients in Latin America and Caribbean. *Rev Panam Salud Pública*. 2014; 36:124-33.
11. Duran M, Uludag O, Yuzkat N. The analysis of adult intoxication cases seen in Adıyaman Region and treated in intensive care unit. *Med Sci Discov*. 2016; 3(2):71-5.
12. Köse I, Zincircioğlu Ç, Nimet Ş, Y et al. Yoğun bakım ünitemize kabul edilen zehirlenme olgularının bir yıllık geriye dönük incelemesi ve mortaliteyle ilişkili faktörlerin değerlendirilmesi. *Tepecik Eit Dergisi*. 2015; 25(1):28-32.
13. Özdemir R, Bayrakçı BZ. Zehirlenmeler ve Hacettepe deneyimi. *Katkı Ped Derg*. 2009; 31:47-87.
14. Özhasenekler RA, Karaman H, Kavak GÖ, et al. Özkıyım amaçlı ilaç intoksikasyonlu hastalarımızın demografik özellikleri, glaskow koma skalası ve revize travma skoru'nun mortalite ile ilişkisi. *Akad Acil Tıp Derg*. 2012; 11(4):200-203.
15. Dağlı R, Kocaoğlu N, Bayır H, et al. Yoğun bakım servismizdeki intoksikasyon vakalarının incelenmesi. *Muğla Sıtkı Koçman Üniversitesi Tıp Dergisi*. 2016; 3(1):17-20.
16. Muhammedoğlu N, Başaranoğlu G, Gül YG, et al. Yeni açılan yoğun bakım ünitemize gelen suisid ve intoksikasyon vakalarının değerlendirilmesi. *Haseki Tıp Bült*. 2014; 52(3):153-57.
17. Özdemir A, Şen A, Erdivanlı B, et al. Intoxication Cases in an Intensive Care Unit. *J Turgut Ozal Med Cent*. 2015; 22(4):218-20.
18. Karcıoğlu Ö, Demirel Y, Esener Z, et al. Acil serviste ilaç ile zehirlenmeler: Bir yıllık olgu serisi. *Acil Tıp Dergisi*. 2002; 2(2):26-33.
19. Baydin A, Yardan T, Aygun D, et al. Retrospective evaluation of emergency service patients with poisoning: a 3-year study. *Adv Ther*. 2005; 22(6):650-58.
20. Satar S, Seydaoglu G. Analysis of acute adult poisoning in a 6-year period and factors affecting the hospital stay. *Adv Ther*. 2005; 22(2):137-47.
21. Tüfekçi IB, Curgunlu A, Şirin F. Characteristics of acute adult poisoning cases admitted to a university hospital in Istanbul. *Human Exp Toxicol*. 2004; 23(7):347-51.
22. Miguel-Bouzas D, Carlos J, Castro-Tubío E, et al. Epidemiological study of acute poisoning cases treated at a Galician hospital between 2005 and 2008. *Adicciones*. 2012; 24(3):239-46.
23. Islambulchilar M, Islambulchilar Z, Kargar-Maher M. Acute adult poisoning cases admitted to a university hospital in Tabriz, Iran. *Human Exp Toxicol*. 2009; 28(4):185-90.
24. Heyerdahl F, Bjornas MA, Hovda KE, et al. Acute poisonings treated in hospitals in Oslo: a one-year prospective study II: clinical outcome. *Clin Toxicol*. 2008; 46(1):42-49.
25. Lam SM, Lau ACW, Yan WW. Over 8 years experience on severe acute poisoning requiring intensive care in Hong Kong, China. *Human Exp Toxicol*. 2010; 29(9):757-65.
26. Tas N, Yagan O, Demir EY. Retrospective analysis of the intoxication cases followed in an intensive care unit. *J Exp Clin Med*. 2015; 32(2):51-54.
27. Yağan Ö, Akan B, Erdem D, Albayrak D, Bilal B, Göğüş N. The retrospective analysis of the acute poisoning cases applying to the emergency unit in one year. *Med Bul Sisli Etfal Hosp*. 2009; 43(2):60-64.
28. Rotheram-Borus MJ, Piacentini J, Cantwell C, et al. The 18-month impact of an emergency room intervention for adolescent female suicide attempters. *J Consult Clin Psychol*. 2000; 68(6):1081-93.
29. Ryan J, Rushdy A, Perez-Avila C, et al. Suicide rate following attendance at an accident and emergency department with deliberate self harm. *J Accid Emerg Med*. 1996; 13(2):101-104.