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Evaluation of the Frequency of Stimulant and Opioid Abuse in the Poisoned Cases Referred To Hospitals in Ardabil, Iran

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ABSTRACT

Introduction:
Poisoning with acute opioids and stimulant is the most common causes of emergency visits, and its early detection and treatment is of utmost importance. The present study aimed to evaluate the frequency of opioid and stimulant use in poisoned cases.

Materials and Methods:
This cross-sectional descriptive study was conducted on 255 cases with acute opioids and stimulant poisoning.

Results:
Out of all patients, 7(2.7%) patients died due to severe complications. Moreover, 72.2% of patients were male, and the majority of cases (86.87%) were urban residents. The leading cause of poisoning was suicide (65.1%), and 34.9% of patients had accidental poisoning. The mean age of patients was 36.26 years. Tramadol, methadone, and opium with 29.4%, 23.9%, and 23.5% were the most used opioids for poisoning, respectively.

Conclusion:
As evidenced by the obtained results, tramadol poisoning is the most common poisoning in patients referring to hospital emergence. Nevertheless, tramadol use and availability need to be prevented and controlled; moreover, the awareness of health system providers should be raised about the care of these patients.

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Introduction

Poisoning occurs when the body absorbs a substance through the mouth, breathe, mucosa, or blood vessels, leading to several life-threatening symptoms which can affect the whole body (1). There are different types of poisoning ranging from mild to severe. Poisoning can be either accidental, which occurs mainly at an early or old age, or intentional (deliberate) to commit suicide or poisoning. The majority of deliberate poisonings occur in developing countries, leading to death due to high toxicity and lack of available medical facilities (2).

Poisoning is one of the major public health problems and one of the leading causes of emergency visits. The timely diagnosis of poisoning and its proper treatment is vital, and a thorough knowledge of the overall pattern of poisoning in each geographic region can be of great help to health system providers in this condition (3). Poisoning is one of the most treatable problems, and its early treatment can significantly reduce mortality (4). The opioid epidemic is on the rise across the globe, especially in developing countries. Acute poisoning is one of the most deplorable side effects of substance abuse (5).

In some patients, opioids are used with a suicidal purpose which is often observed among the youth, and it is noteworthy that the younger generation constitutes 51.4% of Iran's population. In a study conducted in Loghman Hospital in Tehran, the mortality rate attributed to poisoning was 1% (6).

In the mentioned study, they also showed that although the rate of suicide in Iran is lower than that in western countries, self-poisoning was more than the population growth rate; moreover, drug abuse changed the gender pattern of poisoning (7).

In light of the aforementioned issues, the present study aimed to investigate the frequency of stimulant and opioid use in poisoned cases referred to a hospital in Ardabil, Iran.

Materials and Methods

Study design and participants

This cross-sectional descriptive study was conducted on 255 poisoned patients who were referred to hospitals in Ardabil and were selected by the census method from December 2018 to the end of November 2019.

Data collection

Data were collected by a checklist, including personal characteristics (age, gender, marital status, job, and place of residence), type of drug (cause of poisoning), motivation to use (causes of tendency), method of use (smoking, eating, drinking, other methods), the history of the disease, the length of hospitalization, and the result of treatment (clearance, dispatch, death). After obtaining patients' consent, the data were collected by referring to patients' files and also obtaining a history of poisoning by interviewing patients or their companions.

Ethical approved

The present study was approved by the Ethics Committee of Ardabil University of Medical Science and registered with the code IR.ARUMS.REC.1396.636.

Statistical analysis

Collected data were analyzed in SPSS (version 20) using descriptive and analytical statistical methods in the form of tables, graphs, and statistical indices.

Results

A total of 255 patients were included in the current study. The mean age of all patients was 36.26 years (age range: 15-88). The age groups of 20-30 (34.9%) and under 20 years (7.8%) had the highest and lowest frequency. In terms of gender, 184 (72.2%) patients were male, and 71(27.8%) were female.

Men were about 2.6 times more likely to be poisoned than women. Out of the total number of patients, 112 (43.9%) cases were single, 119 (46.7%) subjects were unemployed, 54 (21.2%) participants were illiterate, and 220 (86.3%) cases were urban residents (Table 1).

Table 1: Demographic data on patients

Variables		**No.**	**%**
Age groups	<20	20	7.8
	20-30	89	34.9
	30-40	60	23.5
	40-50	33	13.2
	50-60	31	12.2
	>60	22	8.6
Gender	Male	184	72.2
	Female	71	27.8
Marital status	Single	112	43.9
	Married	143	56.1
Residence place	Urban	220	86.3
	Rural	35	13.7
Job status	Unemployed	119	46.7
	Employed	38	14.9
	Freelancer	98	38.4
Education level	Illiterate	54	21.2
	Diploma and lower	118	46.3
	Undergraduate or post-graduate education	83	32.6

Furthermore, out of the total patients, 58 (22.7%) cases had a physical illness, and 31 (12.2%) subjects had a mental illness. Patients were hospitalized 1-8 times, with an average of 1.67 hospital admissions, and the highest frequency was related to patients in the first time of admission with 174 (68.2%) cases. Moreover, 53 (20.8%) patients had a previous history of drug and stimulant poisoning.

Regarding the type of substance (the cause of poisoning), the most common poisoning agents were tramadol (33.2%) and opium (45.1%) in men and women, respectively. In general, among all patients, tramadol poisoning was the most prevalent (29.4%). The difference between both genders in terms of used poisoning agents was statistically significant (Figure1).

In terms of the type of poisoning (intentional/ unintentional), most poisonings (65.1%) were intentional, and 34.9% were accidental. The highest and lowest rates of poisoning were reported in summer (33.7%) and spring (15.7%). In terms of method of use, most patients with poisoning used the cooling method (30.6%) (Table 2).

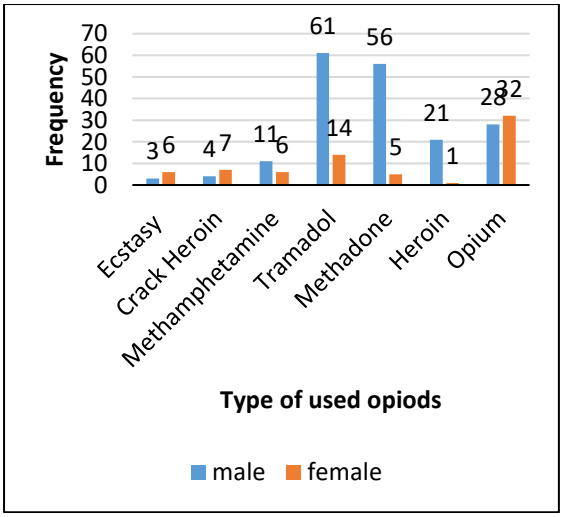

Figure 1: Frequency of type of used opioids by gender in poisoned patients

Table 2: Frequency of used methods of opioids and stimulants in studied patients

Used Methods	**n**	**%**
Cooling	78	30.6
Eating	76	29.8
Drinking	53	20.8
Others	48	18.8
Total	255	100

In terms of treatment results, 247 (96.9%) patients were discharged in good general condition, and 7 (2.74%) patients died due to severe complications (Figure 2).

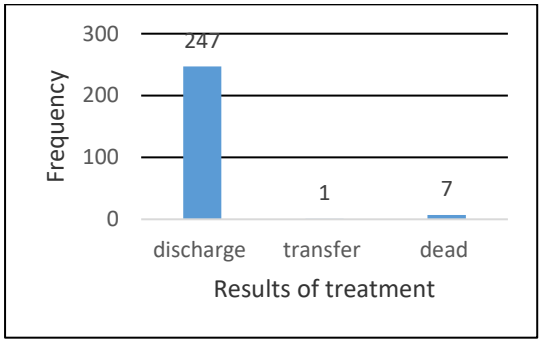

Fig 2: Frequency of final result of treatment among studied patients

Discussion

The mean age of all poisoned patients was 36.3 years, and most of them (58.4%) were in the age group of 20-40, and these results are almost in line with the findings of studies conducted in Iran and abroad (4,6,8-16). In terms of gender, the majority of patients (72.2%) were male, and the rate of poisoning in men was 2.6 times more than that in women, which was almost the same as in other studies (4,8,10,17,18).

Nevertheless, in the studies by Farzaneh et al. and Dark et al., males and females were equal in number, and in the study by Fazlullah and a study performed in Turkey, most of the patients were women (4,9,19-20). The number of women was lower in the current study since the study was conducted on drug and stimulant poisoning, and there is a decreased likelihood of substance and overdose among women in our society. In terms of marital status, 43.9% of cases were single, and 56.1% of subjects were married. In the studies conducted by Ozkose et al., in Turkey and Ahmadi et al., in Iran, the most of subjects were single which can be related to many socio-economic, social, and mental health problems in each society (10,19).

In terms of job status, 46.7% of cases were unemployed, 14.9% of subjects were employees, and 38.4% of participants had a non-governmental job, and the results of the current study were consistent with the studies by Mahmoudi et al. and Rahimi Mogharr et al. (8,18). In the study by Mahmoudi et al., unemployment was the most common cause of drug addiction (42.98%); therefore, the necessary conditions must be provided for the employment of young people for the reduction of substance use (8).

In terms of educational status, 21.2% of patients were illiterate, and the present results are almost in line with the findings of the study by Mahmoudi et al. (8), who reported that 24% of patients were illiterate. In the study by Malekshahi (21), 6.5% of cases were illiterate, and the rest were literate. The results showed that the prevalence of substance and stimulant poisoning has increased among educated people. This can be ascribed to an increase in community knowledge about the euphoria effects of these drugs.

In accordance with the studies by Mahmoudi et al. (8), Farzaneh (4), and Dunn (22), In the current research, the majority of patients (86.87%) lived in urban areas. According to previous studies, the higher ratio of urban to rural poisoners can be ascribed to the higher availability of opiates in cities. In this regard, some patients approved drug trafficking as an easy and lucrative job, especially in cities (23-26). Furthermore, 22.7% of patients were inflicted with a physical illness, and 12.2% of cases had a mental illness, while in the study by Etemad, 14% of patients had a physical disease, and 33% had a mental illness (25).

In the current study, 20.8% of patients had a previous history of substance and stimulant poisoning, while in the study by Rahimi Moghar (18), 50% of cases had a previous history of poisoning. This value was reported as 59%, 59%, and 35.6% in studies conducted in the UK (27), Russia (28), and by Kelly, respectively (22). In the study by Dark (9), two-thirds of patients had a previous history of poisoning at least for once, and the average number of poisonings was three. A study in Switzerland reported that people with acute opioid poisoning had been poisoned many times before (29).

Therefore, according to the present study, the frequency of the previous poisoning was lower than other studies, which can be related to cultural, social, and religious issues in Ardabil province. In this study, 29.41% of patients were poisoned with

tramadol as the most commonly used poisoning substance. In the studies by Farzaneh (4) and Etemad (25), most of the poisonings were related to excessive consumption of tramadol. Nevertheless, in the study of Mahmoudi et al. (8), opium was most common, while in the research conducted by Karbakhsh (17), the most common cause of poisoning was heroin.

The comparison of the results of this research with those obtained in previous studies by Farzaneh and Etemad pointed out that tramadol could poison people more than other drugs and stimulants due to its availability in pharmacies without a prescription. In agreement with previous studies, most of the refereed patients (65.1%) were motivated to use drugs and stimulants (4,10,30-31). In this study, the poisoning of most cases was intentional since they used drugs and stimulants, and this poisoning occurs as a result of overuse and not for suicide. In terms of seasonal distribution, the highest and lowest rates of poisoning were reported in summer (33.7%) and spring (15.7%), while in the study by Etemad (25), the highest and lowest rates of poisoning were related to the spring (39.7%) and the autumn (14.9%). In this study, the most common method of substance use was the cooling method (30.6%), oral digestion (29.8%), drinking (20.8%), and other methods (18.8%). The results of the current study were consistent with those obtained in the study by Mahmoudi et al. (8). A higher percentage of the cooling method (78%) in the study by Mahmoudi can be attributed to the fact that the most consumed substance was opium, and most opium users tend to use the cooling method as the easiest and most common method. Based on the study by Ahmadi (10), most consumers (99.4%) used the oral method, and only 0.6% of them used the injectable method. This inconsistency is due to the fact that the study by Ahmadi was carried out on people with tramadol poisoning, and the most common way to use tramadol is through oral digestion.

In this study, 96.9% of patients were discharged in a good general condition, 1 (0.4%) person was sent to more equipped centers. 2.7% of cases died due to severe drug and stimulant poisoning. This study indicated that the mortality rate due to poisoning with these substances was lower than the study conducted in Turkey (30). Nevertheless, the mortality rate was in agreement with the results of the studies by Farzaneh and Etemad conducted in the same province and the study by Ahmadi (4,10,25), which took place in Kermanshah. These findings suggest that most patients were consciously using drugs and left the hospital with personal consent.

Conclusion

As evidenced by the results of the present study, tramadol poisoning is one of the most common poisonings observed in the cases referred to hospital emergencies. More measures need to be taken to prevent tramadol consumption and raise treatment personnel awareness about rescue operations. Furthermore, considering that the use of tramadol is more toxic than other drugs and stimulants, it is better to have primary control over the unregulated and over-the-counter sales of this drug in pharmacies.

Conflicts of interest

The authors declare that they have no conflict of interest.

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