

Research Paper

Epidemiology Study on Poisoning in Patients Received Pre-hospital Emergency Services in Ghaemshahr, Iran



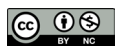
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ABSTRACT

Background Poisoning is an important public health issue and causes high mortality rate each year worldwide. Having epidemiological information can lead to proper planning for its prevention and intervention.

Objective This study aims to investigate the one-year prevalence and causes of poisoning in patients received pre-hospital emergency services in Ghaemshahr, Mazandaran, Iran.

Materials and Methods This is a descriptive cross-sectional study. After reviewing the medical files of 12552 patients collected from the Medical Emergency and Accident Management Center in Ghaemshahr, Iran in 2016, 398 poisoned patients were found. Their data including age, gender, place of residence, agent and cause of poisoning, and received therapeutic interventions were extracted and recorded.

Results Of 398 patients, 17.3% had received treatment; 271 (68.1%) were male and 127 (31.9%) were female. The most common cause of poisoning was abuse (58.1%); 58.3% of the poisonings were caused by the use of medications and the rest were non-medication poisonings. Tramadol (29.6%) was the most common medication that had caused poisoning. Among non-medication poisonings, the most common agent were substances (22.6%) and alcohol (13.1%). The most common route of exposure to poisoning agent (toxins) was by ingestion.

Conclusion Due to the increasing abuse of substances and medications such as tramadol among young people and considering the high prevalence of intentional poisoning in young women, there are a need for psychological support, proper monitoring of medicine distribution, and creating social and recreational opportunities for the young people in Iran.

Extended Abstract

1. Introduction

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oisoning is an important public health issue accounting for a large proportion of referrals to emergency departments, and causes many deaths worldwide each year [1]. The

agent, cause of poisoning, route of exposure to the poisoning agent, time of poisoning, type of poisoning, history of disease and addiction, order of poisoning, final status, medical interventions, counseling, and the used antidotes were extracted and recorded in a checklist. Then, they were entered into SPSS v. 21 software and their mean, standard deviation and frequency were calculated. To analyze the

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true extent of the problem of poisoning in medicine is almost unknown due to the extent and variety of chemicals and methods of poisoning [2]. In the United States, more than four million poisonings occur each year, and 10 % of emergency department patients are poisoned, according to the American Association of Poison Control Centers [3]. According to the World Health Organization, 600 million people fall ill from contaminated food each year [4]. In UK, poisoning is the most common means of suicide in women and the second common means in men [5]. In developing countries, exposure to toxin is one of the most important causes of acute medical illnesses [6] such that intentional poisoning has been the cause of more than 60 % of all deaths caused by poisoning in Asia [7]. According to the Iranian Legal Medicine Organization, about five thousand

people died from food poisoning, drug overdose, and carbon monoxide poisoning in 2016, such that drug overdose had the highest death rate [8]. The present study aims to evaluate the prevalence and causes of poisoning in patients referred to emergency departments in Ghaemshahr, Mazandaran, Iran.

2. Materials and Methods

This is a descriptive cross-sectional study. After reviewing the medical files of 12552 patients collected from the Medical Emergency and Accident Management Center of Ghaemshahr county in 2016, 398 poisoned patients with full available data were identified. Their data including demographic characteristics (age, gender, place of residence) and information about poisoning including the poisoning

Table 1. Prevalence of poisoning in city of Ghaemshahr based on the extracted data

Variable	No. (%)	
Gender	Male	271 (68.1)
	Female	127 (31.9)
Place of residence	Urban areas	305 (76.6)
	Rural areas	93 (23.4)
Type of poisoning	Medication	231 (58.3)
	Non-medication	167 (41.7)
Cause of poisoning	Abuse	231 (58.1)
	Intentional	139 (34.9)
	Unintentional	28 (7)
Route of exposure to poisoning agent	By ingestion	338 (84.9)
	By inhalation	54 (13.6)
	By injection	6 (1.5)
History of disease	Addiction	99 (24.9)
	Mental illness	49 (12.3)
	Other diseases	34 (8.5)
	No disease	216 (54.3)
Time of poisoning	Day	215 (54)
	Night	183 (46)
Antidote use	Naloxone	75 (18.8)
	Atropine	15 (3.8)
	None	308 (77.4)

qualitative variables, chi-square test was used. $P < 0.05$ was considered as the significance level.

3. Results

Out of 398 poisoned patients, 17.3% had received treatment; 271 (68.1%) were male and 127 (31.9%) were female. The lowest and highest prevalence rate of poisoning was belonged to the patients aged < 5 years (0.8%) and 26-35 years (38.7%), respectively. The place of residence of 305 poisoned people was in urban areas and 93 in rural areas. The most common place where poisoning occurred was home. Moreover, 232 (58.3%) were poisoned by medications, where the most common medication was tramadol (29.6%). Among the cases with non-medication poisoning, the most common poisoning agent was substance (22.6%). The most common cause of poisoning was abuse (58.1%) of drugs such as opium, heroin, methadone, as well as alcohol and tramadol. A total of 179 patients (45%) had a history of substance abuse or mental illness. The patients with attempted suicide or intentional poisoning were 54 men and 85 women. Men were more likely to have alcohol poisoning than women. The most common route of exposure to poisoning agent was by ingestion (Table 1).

The services provided to the poisoned people included airway support, oxygenation, arrhythmia therapy, hemodynamic support, seizure treatment, and prevention of secondary complications. The most commonly medications used for treatment were diazepam (5.6%), epinephrine (5.3%), and plasil (2.5%). Antidote or a specific treatment method had been used to treat poisoning in 22.6% of cases.

4. Discussion and Conclusion

The results of the present study revealed the increase of substance abuse and use of medications such as tramadol due to ease of access and the high rate of suicide among young women. Therefore, it is necessary to provide psychological and social support, appropriate monitoring of medication distribution and the performance of pharmacists and physicians, possibility to use toxicology laboratory facilities, easy access to different types of antidotes, and continuous fight against drug dealers. Moreover, the incidence of poisoning should be reduced by creating appropriate social and recreational opportunities for young people. In this regard, specialized training and familiarization of pre-hospital emergency personnel with various substances, medications, and chemicals that are abused and cause poisoning are recommended. It is also necessary to hold appropriate training courses for the parents of children with unintentional poisoning as well as on-the-job training programs on how to take care in case of occupational poisoning. Due to

the higher prevalence of poisoning among young people, it is necessary to provide appropriate programs such as public psychological counseling through the mass media to increase awareness.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Mazandaran University of Medical Science (Code: IR.MAZUMS.REC.95.2509).

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Authors' contributions

Conceptualization: Ebrahim Nasiri; Methodology, software, validation, analysis, investigation, resources: Ebrahim Nasiri and Jamal Rezaei Orimi; Data curation, original draft preparation, editing & review: Jamal Rezaei Orimi, Peyman Talebi, Qasem Mahmoudpour; Visualization, supervision, project administration: All authors.

Conflicts of interest

The authors declare no conflict of interest.

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