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Evaluation of Clinical Symptoms and Associated Factors in the Drug-Induced Toxicity in Patients Referred to Hospital

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Abstract

Today, Drug Problem with the global expansion has become a burden on society due to high drug production, increased purity and low price of these materials. The aim of this study was to investigate the clinical manifestations and factors associated with drug-induced toxicity in patients referred to hospitals in Ardabil city in 2012. This is a descriptive cross-sectional study that has been done on poisoning patients referred to Ardabil city two specialty hospitals in year 2011. Patients' information such as individual characteristics (age, gender, residence place, job and marital status), used drugs, poisoning cause, referral season, history of physical and mental disease and clinical symptoms were obtained from hospitalized patients files. Collected data analyzed using statistical methods in SPSS.19. In this study 282 hospitalized patients were entered. Tramadol with 110 persons (39%) was the most common used drug in poisoning. Majority of patients with 230 patients (81.6%) were male. Most of patients were in age group 20-30 years with 106 cases (37.6%). 244 patients (86.5%) were from urban and most of them with 70 cases (24.8%) had primary education level. Spring season was the most commonly season for referring. 89% of poisoning in patients was informed. Result showed that the poisoning by drugs was the most cause of referring patients to hospital which can be prevented by decrease arbitrary use of drugs and also increasing the awareness level of personnel about care of these patients.

Keywords: Epidemiology, drug toxicity, drug overdose, tramadol.

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Introduction

Today, Drug Problem with the global expansion has become a burden on society due to high drug production, increased purity and low price of these materials (Klaassen., 2007). Addiction can lead to infectious diseases such as AIDS, hepatitis, tuberculosis. Addiction can also lead to social and economic problems and Loss of state assets. Our country for various reasons, cultural and geographic location adjacent to the two largest drug manufacturers has quite critical and acute conditions. Every day, people with addiction caused heavy economical and cultural damage to society.

According to statistics, the second cause of death after accidents in suspicious deaths, were complications of addiction (Hejazi *et al.*, 2009). In some circumstances, the opioid is used as a tool for suicide, which was often seen in youth. According to high mortality rate in poisoning about 48% and also, Iran's young population more than 51.4%, this issue has been important (Farzaneh *et al.*, 2010). Various factors such as age and gender affect drug intoxication. (Pawtowicz *et al.*, 2013) The effects of opioids take place as their impact on specific receptors in the body. These interactions are primarily showing its effects on the central nervous system and respiratory system, cardiovascular system and digestive system. Some of opioid stimulation of the central nervous system can cause to the tremor, myoclonus and even seizures. (Ghazikhansari *et al.*, 2006). The hearts effects had been seen in low doses and its use in respiratory system can be cause to Inhibition of respiratory, pulmonary and non-pulmonary edema, hypoxia and pneumonia (Singh *et al.*, 2011). Currently, the pattern of opioids uses change from Traditional Drugs to chemical drugs which is far more damaging effects. The aim of this study was to investigate the clinical manifestations and factors associated with drug-

induced toxicity in patients referred to two specialty hospitals in Ardabil city in 2012.

Materials and Methods

This was a retrospective cross sectional descriptive study that has been done on 282 hospitalized patients with drug toxicity (Opiates, methadone, crystal, crack, Tramadol, and heroin) referred to Ardabil city two specialty hospitals. Data collection tool was checklist that includes individual characteristics (age, sex, place of residence, occupation, and marital status), type of drug intoxication, the intoxication, history of mental illness and the symptoms. Because of the retrospective nature of the study there is no need to obtain the informed consent from patients. The inclusion criteria was drug intoxication, Hospitalizations for poisoning and Clinical signs of drug toxicity and the exclusion criteria was Toxicity to non-opioid drugs , Exposure to agricultural pesticides, without disease history like liver or any chronic diseases, non-alcohol consumption and history of drug intoxication. Collected data analyzed by statistical methods such as table, graph and chi-square test in SPSS 19 Software. The $p < 0.05$ was considered as significant.

Results

Results showed that Tramadol with 110 (39%) was the most common cause of drug toxicity in patients (figure 1). Most of patients were male (230, 81.6%) and in age group 20-30 years with 106 (37.6%) (Figure 2). 260 (92.2%) of patients were married. Most of patients with 134 (47.5%) were unemployed and 85.6% were in Urban areas. 70 (24.8%) have the elementary school level. Many of patients with 39.7% referred in spring season. 93 patients (33%) have history of mental disease and 40 patients (14%) physical disease (figure 3).

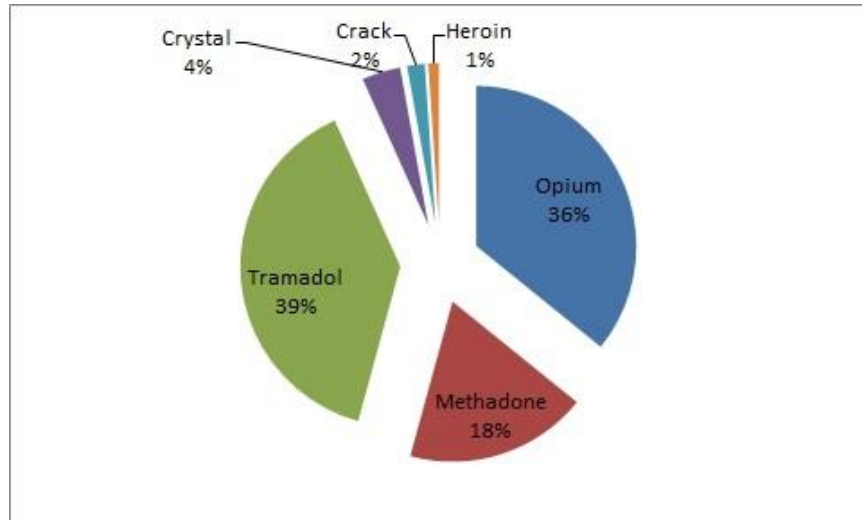


Fig. 1: frequency of used drugs in patients.

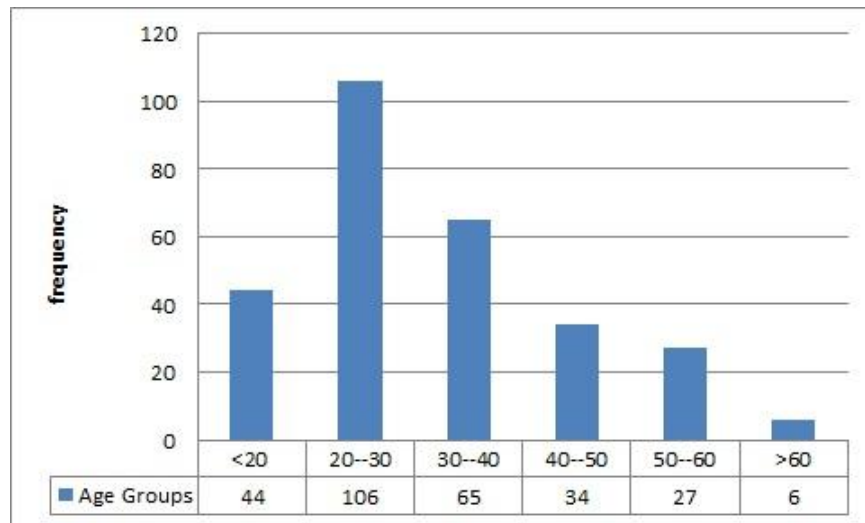


Fig. 2: Age distribution of patients.

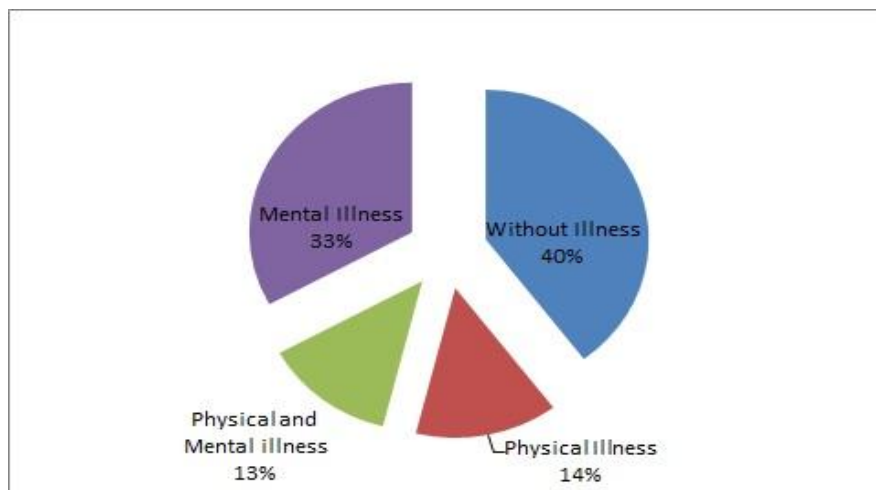


Fig. 3: frequency history of disease in patients.

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Poisoning in 251 patients (89%) was informed and rest of them was not informed. 237 patients (84%) have clinical symptoms. Most of symptoms were seen in consumer's crystal, crack and heroin with 100% and the lowest in methadone groups with 76.9%. The rate of all used drugs in patients with sign were more than in compare to other patients ($p=0.001$) (table 1). Of all patients with clinical symptoms, 88.1% have neurologic symptoms (table 2). Most of Neurologic symptoms

were seen in Heroin and Crack users with 100%. From all patients with clinical symptoms, 43 (18.1%) have Nausea and vomiting and most of these patients were seen in Heroin users (66.6%). From all patients with Cardiovascular symptoms, 11 (4.6%) have HTN and all of them were between Crack users (100%). From all patients with Kidney symptoms, 30 (12.7%) have Urinary Retention and most of these patients were seen in Crack users (40%).

Table 1: frequency of patients with and without signs by type of used drugs.

Drug type	Patients without sign		Patients with sign		p-value
	n	%	n	%	
Opium	17	16.8	84	83.2	0.001
Methadone	12	23.1	40	76.9	0.001
Tramadol	16	14.5	94	85.5	0.001
Crystal	0	0	11	100	-
Crack	0	0	5	100	-
Heroin	0	0	3	100	-
Total	45	16	237	84	0.001

Table 2: Type of Clinical symptoms in study patients.

Clinical Symptoms	Number	Percent
Respiratory symptoms	81	34.2
Neurologic symptoms	209	88.1
Eye symptoms	132	55.7
Gastrointestinal symptoms	144	60.8
Cardiovascular symptoms	39	16.5
Symptoms of kidney	40	16.9

Discussion

One of the most common causes of referred patients to emergency is poisoning which can be cause to serious damages and even death in patients. However, many poisoning are controlled and do not lead to death but have many healthy and economic damages to family of patients and society which is needed for doing other studies in future. Most of poisoning was seen in age group 20-30 which was similar to result of other studies (Pawłowicz *et al.*, 2013, Moghadamnia *et al.*, 2002; Ghazi-khansari *et al.*, 2006; Singh *et al.*, 2011, Turhan *et al.*, 2011). In this study, the mean age of patients was 32 years and in Farzaneh study, the mean age of patients was

34.5 years (Farzaneh *et al.*, 2009). Results showed that poisoning in female and single patients with 18% and 42.6% lower than male and marriage patients; respectively which was different with other studies that can be related to lower rate of opium use and overdoses between females (Zare *et al.*, 2010, Ozkose *et al.*, 2002).

In this study, most of patients were deliberately poisoned which was revealed that the toxicity in this study was opium use not only for suicide but for other use. In Guloglu and *et al.*, study in Turkey more exposure had occurred to suicide and from them one percent due to death (Guloglu *et al.*, 2005). In this study, 120 patients (51%) were poisoned with Tramadol which was the most

commonly used drugs and similar with other studies (Farzaneh., 2009, Shadnia *et al.*, 2008, Spiller *et al.*, 1997). Also, our study results were different from American studies because the rate of Tramadol was use (Marquardt *et al.*, 2005, Clarot *et al.*, 2003). Of patients taking tramadol, 26% have Tension which was lower than other studies rate (Ahmadi *et al.*, 2011). 88.1% of patients have Neurological symptoms such as Restlessness, headache, dizziness or loss of consciousness which was similar to Izard study result and from results it was thought that Tramadol can cause the severe CNS toxicity probably due to the inhibitory effects of Tramadol on monoamine reuptake (Izadi *et al.*, 2011).

In this study, the most common side effect of opioid use as well as poisoning with Tramadol was Neurological symptoms in patients. According to the other studies, respiratory symptoms in Amouei and *et al.*, study and also, decreased level of consciousness, respiratory depression and meiosis in Farnaghi *et al.*, study and suppress respiratory symptoms in Sherman *et al.*, study were the most common symptoms (Amouei *et al.*, 2002, Farnaghi *et al.*, 2012, Sherman *et al.*, 2007). It can be said that the patient's previous abuse of opioids consumption, food intake and other causes were associated with incidence of symptoms.

Conclusion

Results showed that Tramadol use have a main role in poisoning of patients which was related to many factors such as indiscriminate selling drugs and selling drugs without a prescription at pharmacies. In finally, closer supervision on sale Tramadol in pharmacies and reduction its arbitrary, have a program to treat opioid-dependent patients and education training courses to raise awareness on emergency medical personnel with the appropriate initial treatment of patients has been recommended.

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