ORIGINAL ARTICLE

An Investigation of the Clinical Signs, and Frequency of Street Drug Poisoning in Patients Referred to Razi Hospital of Ahvaz City, 2008-2013

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Abstract

Background: Drug abuse is one of the major socio-medical problems of our time with a global scope. Abusing street drugs is on the rise among adults and is considered as a public health concern. In addition, limited studies are available in this regard. The aim of this study was to investigate the frequency of street drug poisoning in the Razi Hospital of Ahvaz in Iran during 2008-2013.
Methods: This is an epidemiological cross-sectional study based on hospital information. All admitted cases with street drug poisoning were included during 2008 to 2013 (70 patients). Data were analyzed by SPSS software using descriptive statistics and Chi-square.
Results: In the current study, out of 70 cases aged 13-53 years old, the highest frequency of abusers was related to 30 years of age, and male/female ratio was 4 to 1. Among the drugs used, methamphetamine accounted for the highest rate. In this study, 55.7% of the cases needed to be admitted to the intensive care unit and 2 deaths were observed. The most common symptom among poisoned patients includes loss of consciousness and the least common symptom is respiratory distress.
Conclusion: According to the results, it can be concluded that the poisoning will be rarely fatal in case of dangerous exposure, if they are under supervision of emergency medical attentions, including the careful management of airways and respiratory failure, hypotension monitoring, seizure and impaired management of body temperature.

Keywords: Addiction, Drug Abuse, Methamphetamine, Marijuana, Poisoning.

INTRODUCTION

Drug abuse and respective large and unpleasant complications are of the most important mental concerns and the worst social damages (1, 2). Statistics on drug addiction indicate that there are more than a billion drug abusers around the world and these statistics are on the rise (3, 4). According to the United Nations, Iran has the highest crime rates related to opioid use in the world, given the geographical location and the common border of nearly 2,000 kilometers with Afghanistan and Pakistan, where over 3,500 tons of narcotics are produced annually (5). Available statistics show that 16% of Iranian addicts are under 19 years of age, and 28% of them are addicted between the ages of 20 and 24 years (6). Marijuana is the most widespread illegal drug around the world and the most commonly misused substance, and majority of abusers know it as a harmless substance. The marijuana contains the active ingredient of tetrahydrocannabinol (THC) (7) and is classified as a natural hallucinogenic drug, inducing transient psychotic-like symptoms in addition to the risk of dependence and _____

undeniable physical harm(8). The high prevalence of other psychiatric disorders has been reported among users of this substance (9, 10). Unfortunately, there has been an incremental trend in consumption of this drug in recent years and so an increase in the poisoning of amphetamine compounds, including its crystalline derivatives known as Shishe (methamphetamine) in Iran (11-14).

Amphetamines are substances that promote the mood, activity, consciousness, awareness and stimulation of the central nervous system (15). Benzedrine, methamphetamine hydrochloride (Methedrine), and methylphenidate (Ritalin) are consumed for weight control, narcolepsy, increasing performance and attention-deficit hyperactivity disorder. Methamphetamine acts chemically similar to epinephrine and norepinephrine, has a stimulatory effect on the central nervous system and affects the dopamine or serotonin system (16). Today, methamphetamine consumption has increased considerably in the world. Most of the methamphetamine users in the United States are 18 to 25-year-old males who have high-risk sexual activities or unprotected sexual relationship (17, 18). The purpose of this study was to _____

investigate the correlation of age, sex, marital status, post-use symptoms, hospitalization time, hospital-acquired symptoms and mortality due to street drug abuse in order to understand the importance of detection, early treatment and control of symptoms and complications. Thus, the results of this study can be effective in raising the awareness of high-risk people about the risks of drug abuse, and education and culture-building of community members and families in the non-abuse of street drugs and ultimately in reducing complications and mortality from abuse of these drugs.

In this study, we evaluated records of poisoned patients with street drugs referred to Razi hospital in years 2008-2013.

METHODS

Sampling

This is an epidemiological cross-sectional study based on hospital information and human-based research community. This study was performed on all patients who were referred to the Emergency Department of Razi Hospital from 20 March 2008 to 21 March 2013. The study was approved by the Research Ethics Committee of Ahvaz Jundishapur University of Medical Science (IR.AJUMS.REC.1392.08). All cases of street drug poisoning referred to Razi Hospital of Ahvaz City were included. History taking, clinical experiments, chemical measurements, toxicology of street (sympathetic) drugs, street abusing detection and street drug poisoning were performed for all the patients.

Data collection

The samples were collected through a review of hospital records in the Archives of Razi Hospital of Ahvaz affiliated with Ahvaz Jundishapur University of Medical Sciences. Information in the records included gender, age, marital status, types of drug, first indication after usage, duration of hospitalization, need for admission to ICU, mortality rate, history of drug addiction, history of hospitalization, hospital-acquired symptoms, and complications and diagnostic and therapeutic measures of this disease.

Statistical analysis

Independent t-test and Chi-square tests were used to analyze the data and to determine the quantitative and qualitative correlation between variables, respectively (19). The significance level for the tests was 0.05 and the analysis was performed using 16 SPSS software.

RESULTS

In this study, we reviewed all of 70 individuals of street drug poisoning referred to Razi Hospital of Ahvaz City during 2008-2013. All the target variables were reviewed and the results were reported in the following Tables 1 and 2.

According to the results, among 70 subjects, 15 (21.4%) cases were aged 13 to 25 years, 47 (67.2%) 26 to 45 years and 8 (11.4%) of them were above 45 years old. The highest number of abusers was 30 years old, and the lowest number of people involved were in the age range of 15 to 18 and 50 to 53 years. In general, the most prevalent abused drug was methamphetamine, while marijuana had the lowest levels of abusing (85.7% *vs* 14.3%, P<0.05).

On the other hand, the highest use of methamphetamine was reported in the age range of 26 to 45 years in people but there was no history of marijuana abuse in those with age range of 13 to 55 years. Based on the results, there was no statistically significant association between age and the type of drug (P value: 0.13). In this study, among 70 cases of street drug poisoning in the Archives of Razi Hospital, 65 subjects were in the male group (92.9%) and 5 subjects were in the female group (7.1%). The relationship between gender and the type of drug was not significant (P value: 0.08). Among 70 individuals of methamphetamine and marijuana poisoning, 52 cases were single and 18 cases were married and the P value between those variables was 0.21. The study showed that 32 cases in methamphetamine group and 6 cases in marijuana group had history of addiction and between these two variables, there was no significant relationship (P value: 0.69). The study results showed that 48 subjects of 70 poisoning patients of street drugs had history of hospitalization and that there was no significant association between history of hospitalization and type of drugs (P value: 0.11).

According to the study, among admitted patients due to poisoning with street drugs, the maximum duration of

Table 1. Demographic factors of 70 poisoned patients with street drugs.

Variable	Methamphetamine (n= 60) Frequency/Percentage (%)	Marijuana (n= 10) Frequency/Percentage (%)
Male	57 (95%)	8 (80%)
Female	3 (5%)	2 (20%)
Age range (<25)	13 (21.7%)	2 (20%)
Age range (25-45)	42 (70%)	5 (50%)
Age range (>45)	5 (8.3%)	3 (30%)
Single	43 (71.6%)	9 (90%)
Married	17 (28.4%)	1 (10%)
History of addiction	32 (53.3%)	6 (60%)
History of hospitalization	39 (65%)	9 (90%)

Table 2. Clinical features of 70 poisoned patients with street drugs.

Variable	Type of drug	
	Methamphetamine (n= 60) Frequency/Percentage (%)	Marijuana (n= 10) Frequency/Percentage (%)
Onset of symptoms within first 6 hours of admission	38 (63%)	8 (80%)
Onset of symptoms within first 6-12 hours of admission	12 (20%)	0
Duration of hospitalization for 24-48 hours	25 (41.7%)	0
Duration of hospitalization for 48-72 hours	35 (58.3%)	5 (50%)
Duration of hospitalization over 72 hours	0	5 (50%)
Need for ICU admission	30 (50%)	9 (90%)
Mortality rate	1 (1.6%)	1 (10%)
Toxicity symptoms:	23 (38.3%)	4 (40%)
Loss of consciousness	10 (16.7%)	1 (10%)
Agitation	4 (6.7%)	2 (20%)
Delusion & hallucination Seizure	14 (23.3%)	0
Abdomen pain & vomit	9 (15%)	3 (30%)
Respiratory distress	0	0

hospitalization was 48-72 hours and the least amount of need for ICU admission was 24-48 hours. Statistically, analyses showed a significant relationship between duration of hospitalization and type of drugs (P< 0.001). Most of the symptoms were manifested in the interval under 6 hours, which also involved methamphetamine users. However, in the marijuana abusers, the symptoms also appeared to be less than 6 hours, and the most sign in methamphetamine and marijuana users was the loss of consciousness (38.6%). Most of the people who needed to be admitted to the ICU were 30 years old and marijuana users were 1.8 times more likely methamphetamine users; additionally, there was a significant relationship between ICU admission and type of drugs (P< 0.01). During the hospitalization, some people with street drug poisoning were suffering from symptoms such as agitation 11 (15.7%) cases, delusion and hallucination 6 (8.6%) cases, seizure 14 (20%) cases, abdomen pain and vomit 12 (17.1%) cases; 1 case of enterotomy was also observed but there was no significant association between those toxicity symptoms and type of drugs (P value: 0.24). Based on the results, among 70 patients, mortality rate was 2.8% and there was no significant between this variable and type of drugs (P value: 0.14).

DISCUSSION

According to the results of this study, if people with street drug poisoning do not refer to treatment centers or are misdiagnosed due to wrong history taking, they will unfortunately be accompanied by deadly consequences.

In this study, 70 cases of street drug poisoning were reviewed and it was estimated that most street drug users were in the age of 30 to 40 years (27% of community). However, a study in the United States (1997) reported that the highest rate of drug abuse was in the age group of 18- 25 years old, followed by the age group of 12-17 years old, meaning the main abusers were in the age range of 12 and 25 years. Hence, these two studies are inconsistent that can be _____

attributed to cultural, economic, and social contexts (20, 21). In a study carried out in Iran during 2007 and 2008 on 311 corpses of the addicts who had referred to the Legal Medicine Organization of Tehran, Daneshparvar et al. found that the average age of the cases was 31.39 years old and the youngest and oldest addicts were 17 and 49, respectively (22). This study has presented similar results concerning the data mentioned in the research that in turn shows the data accuracy on one hand. On the other hand, the important point in Iran is the age of using street drugs and based on our results it is obvious that the street drugs consumers were in the age range of 26-45 years who constitute the active population of the society.

In terms of gender distribution in the population under study, 92.9% men and 7.1% women had drug abuse, which was higher in men than in women. In a study in 2003 in the United States, the rate of street drug abuse in men was twice higher than that of women (23), but the difference between the two genders was lower at an early age; therefore, no difference was seen between the two genders aged 12-17 years (20). In the study of Daneshparvar et al. on corpses of the addicts, they found that the number of male and female addicts were 300 (96.5%) and the gender of 6 cases (1.9%) was unknown (22). In these studies, men tend to be more abusive with street drugs than women and these studies are consistent in this regard.

Based on the results, the marital status of the 70 individuals reviewed in our study was as follows: 43 (71.6%) were single and 17 (28.4%) married among methamphetamine users and 9 (90%) were single and 1 (10%) married in marijuana users.

In the research carried out on 120 self-introduced addicts referred to addiction clinic of Gorgan Fifth Azar Hospital in 2014, Qorbani et al. found that 38 cases (31.7%) were single, 78 cases (65%) married, 3 cases (2.5%) divorced and 1 case (0.8%) was with a spouse decease (24). Hence, the results of this study are inconsistent with the results of our research.

According to Daneshparvar et al. study in Tehran, the number of individuals whose marital status were single, married, divorce, deceased spouse and unknown was as follows: 141 cases (45.3%), 81 cases (26%), 21 cases (6.8%), 1 case (0.3%) and 67 cases (21.5%), respectively (22). The results of this study showed that the addict population mostly consists of single individuals which are consistent with our results.

In this study, 2 deaths were seen, but 68 others were able to recover quickly with supportive care and necessary measures. In a study in Denmark (2007), the mortality rate from street drug poisoning was reported to be 1.5% in their study center (25). In the study of Rahmani et al. in Razi Hospital of Ahvaz between 2008 and 2013 on 63 subjects with Iranian crack addicts poisoning who most of them had used another substance including methamphetamine, opium, marijuana, methadone and heroine along with crack, the mortality rate observed was 6.3% that can be considered high compared with mortality rates found in our study (2). In a systematic review of cohort studies on mortality among amphetamine users, Singleton et al. found that the estimated crude mortality rates were 0 in Australia and 2.95 in Thailand and standardized mortality ratios were 6.22 overall – males: 5.87, females: 7.84 – in Czech Republic (15). According to the results, it can be concluded that the poisoning will be rarely fatal in case of dangerous exposure, if they are under supervision of emergency medical attentions, including the careful management of airways and respiratory failure, hypotension monitoring, seizure and impaired management of body temperature, prolonging the lifespan of poisonous patients who refer to the hospital alive.

Of the 70 cases studied, 85% used amphetamines and 14% marijuana. In a study at Poison Ward in the Loghman-Hakim Hospital of Tehran in 2005, it was found that 9% of drug abuse cases were related to amphetamines and this rate increased to 4.6% compared to the previous year (26). In an examination on 13 pacific and East Asian nations, Kozel et al. discovered that the amphetamine-type stimulants (ATS) drugs, methamphetamine, ecstasy, alongside heroin and opium, and cannabis are presently the drugs which are dominantly abused. Among these 13 nations, all of them gave accounts on abusing methamphetamine. The entire nations – except for Malaysia, Philippines, and Singapore – announced that tendency to abusing methamphetamine as well as ecstasy has been increasing in 2006. Moreover, 8 nations (including Cambodia, China, Indonesia, Japan, Lao PDR, Myanmar, Thailand, and Vietnam) reported an increment within the latest 3-year time span (27). These studies are in agreement with the type of drug use; so, methamphetamine has the highest rate of drug abuse.

In this study, among admitted patients due to street drug poisoning, 40 cases showed no complication during hospitalization. On the other hand, the main symptom in some other patients admitted to this study was the loss of consciousness, which is known as a somatic phenomenon. In a study at San Francisco Hospital on people who abused amphetamines and some other drugs, the seizure was seen as the main complication independent of the type of abuse and history of drug use. Moreover, in a study in Germany, the seizure was the most common complication from cannabinoids (10). The reason why the results of this study are inconsistent with the above studies is that the patients referring with loss of consciousness had used drugs such as opium, methadone and clonazepam and so on simultaneously with street drugs.

On the other hand, seizure was the most common complication of methamphetamine poisoning, and agitation was the most commonly observed complication in marijuana. In a study in the USA (1988) on 127 adult patients with amphetamines poisoning, the most common symptoms were neurological disorders, agitation, suicidal tendencies, hallucinations, delirium and confusion; the incidence rate of seizure was also reported to be 3% (10, 17).

Some of the limitations of this study include diagnosis of patients based on history and clinical examination, short observation and lack of follow-up regarding patients who are not transferred to the hospital, leading to an underestimation of the prevalence of poisoning. Consequently, we are not able to generalize these outcomes to all street drugs consumers in the general population.

CONCLUSION

According to the results of the study, it can be concluded that death can be prevented by supportive care and necessary quick measures. The symptoms of amphetamine poisoning can be confused with those with similar symptoms, such as meningitis and cerebral hemorrhage. Hence, recognizing the signs and symptoms of this type of poisoning can lead to timely treatment and prevent serious complications. Therefore, health care personnel should be familiar with the signs and symptoms of street drug poisoning and should consider this poisoning among the patients referred to the emergency department with these symptoms.

ACKNOWLEDGEMENT

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