

Studying the Relationship Between Age, Gender and Other Demographic Factors with the Type of Agent Used for Self-Poisoning at a Poisoning Referral Center in North West Iran

Kuzey Batı İran'da Bir Zehirlenme Referans Merkezinde Kendini Zehirlenmek için Kullanılan Ajan Tipi ile Yaş, Cinsiyet ve Diğer Demografik Faktörlerin İlişkisinin Araştırılması

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Abstract

Objective: Poisoning is one of the leading causes of morbidity and mortality worldwide and is one of the preferred means of committing suicide in Iran. The objective was to examine the demographic differences relating to the choice of suicidal methods among patients referred to two referral centers providing emergency services in North West Iran.

Materials and Methods: This was a prospective study and included all patients with a confirmed or suspected poisoning diagnosis referred to Imam Reza hospital and Sina hospital of Tabriz city (two referral hospitals of North West Iran) from September 2009 until March 2010. The study factors were: age, gender, employment status, marital status and level of education.

Results: Of the studied cases, 66% were male and 34% female. The three most common causes of poisoning were opioids, benzodiazepines (BZD) and blockers. A significant statistical relationship ($p < 0.05$) was noted between the type of poison and patient age, gender, occupation, level of education and marital status. In conclusion, it seemed that males were more prone to commit suicide with alcohol and opioids than females. The MDs (Medicine Doctors) used BZD more than others and the employed patients used more opioids and alcohol compared to the unemployed.

Conclusion: It is recommended that further studies should be carried out in order to generalize the results in different and larger communities and develop a specific ED (Emergency Department) service provision for a better and quicker approach to patients intending to commit suicide when the type of poisoning drug used is unknown. (*JAEM 2011; 10: 100-2*)

Key words: Drug, suicide, demographic factors

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Özet

Amaç: Zehirlenme dünya çapında morbidite ve mortalitenin önde gelen nedenlerinden biridir ve İran'da intihar etmek için tercih edilen yollardan biridir. Amaç Kuzey Batı İran'da acil servis sağlayan iki referans merkezine sevk edilen hastalar arasında intihar metodunun seçimi ile ilişkili demografik farklılıkları araştırmaktır.

Gereç ve Yöntemler: Bu prospektif bir çalışmaydı ve Tebriz şehrindeki İmam Reza Hastanesi ve Sina Hastanesine (Kuzey Batı İran'ın iki referans hastanesi) Eylül 2009'dan Mart 2010'a kadar sevk edilen doğrulanmış veya şüpheli zehirlenme tanısı olan bütün hastaları kapsadı. Çalışma faktörleri şunlardı: yaş, cinsiyet, istihdam durumu, evlilik durumu ve eğitim düzeyi.

Bulgular: Çalışılan olguların %66'sı erkek ve %34'ü kadındı. Zehirlenmenin en yaygın üç nedeni opioidler, benzodiazepinler (BZD) ve blokerlerdi. Zehirin tipi ile hastanın yaşı, cinsiyeti, mesleği, eğitim düzeyi ve evlilik durumu arasında istatistiksel olarak anlamlı bir ilişki ($p < 0.05$) gösterildi. Sonuç olarak, erkekler kadınlara göre alkol ve opioidler ile intihar etmeye daha eğilimli görüldü. Tıp doktorları benzodiazepinleri diğerlerinden daha fazla kullanmıştı ve çalışan hastalar işsizlerle kıyaslandığında daha çok opioid ve alkol kullanmıştı.

Sonuç: Sonuçların farklı ve daha büyük topluluklara genellenmesi için daha ileri çalışmalar yapılması ve zehirlenmek için kullanılan ilacın tipi bilinmediğinde intihar etmeye teşebbüs etmiş hastaya daha iyi ve daha hızlı bir yaklaşım için özgün acil servis önlemleri geliştirilmesi önerilir. (*JAEM 2011; 10: 100-2*)

Anahtar kelimeler: İlaç, intihar, demografik faktörler

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Introduction

Each year, a large number of people are exposed to different poisons and are hospitalized all over the world, exhausting a substantial share of health resources. Self-poisoning is one of the commonest acute medical presentations in Iran. Studies conducted in

different parts of Iran including Tehran, Mashhad and Babol, all point to the high prevalence of poisoning due to drugs and chemicals. The exact number of the poisoning cases is hard to determine, but the statistical analysis on the reports sent from reference poisoning hospitals and other poison centers, suggest that 70-90% of severe poisoning cases are first brought to Emergency Department (ED) (1, 2). These statistics however, do not represent all poisoning cases.

Poison is a substance capable of producing damage or dysfunction in the body by its chemical activity. Poisoning can be determined as non-intentional or accidental exposure to toxins, intentional poisoning, and drug overdose and drug hypersensitivity. Toxins enter the body through different routes such as oral, injection and inhalation and produce local and general effects. Patients trying to suicide use different methods and different type of drugs and poisons and it seems like there is a connection between the choice of drug and the patient's intention and his understanding and knowledge of drugs. Due to easy access to drugs, the most common type of intoxication is drug poisoning (3-5). Regarding that nowadays drugs such as benzodiazepines (BZDs), Tricyclic antidepressants (TCAs), other antidepressants, antihypertensives and etc are available in the community and many are aware of the functions and the composition of drugs, because of the increasing level of education and advances in the technology, therefore they choose the drug with awareness. While over-the-counter availability and prescribing patterns may influence trends in substances used in overdose, these may also be related to clinical characteristics of patients (6).

Poisoning due to drugs and chemicals is influenced to a large extent by the population's socioeconomic and cultural status. Studying demographic differences in suicidal behavior is important in developing a specific service provisions in EDs. Taking the past researches into consideration and assuming that to our knowledge not much research has been done on the possibility of a existing correlation between the demographic and socio economic factors and the type of poisoning as self-harm and suicide, we aimed to identify these characteristics associated with attempted suicide in 2 referral centers in North West Iran, providing emergency services. For if we find a meaningful connection between the choice of the drug and the demographic factors when not knowing the drug used for poisoning, we can to a good extend according to the statistics propound the possibility of a certain drug by guess. The field for toxicological analysis of the samples would also become narrower in diagnosis and therefore a quicker approach to patients would be possible.

Materials and Methods

This was a prospective descriptive study. In this study all patients presenting with poisoning to Imam Reza hospital and Sina hospital of Tabriz city (two referral hospitals of North West Iran) from September 2009 until March 2010 were included. All the patients, either admitted in the wards or brought to Emergency Department (ED) entered the study.

Self-poisoning was defined as deliberate or accidental ingestion of a drug or drugs in doses above the prescribed dose or ingestion with the purpose of intentional self-harm and suicide.

The drugs confirmed as the poisoning drug in ED were classified into BZD, TCA, Phenobarbitals, acetaminophen, opioids, phencyclidine, alcohol and amphetamine. Information such as age, gender, educational level and marital status were recorded in checklists for further evaluations. All the acquired data, were entered in SPSS.15 software and were analyzed and compared together with descriptive statistical methods and Student t-test. Laboratory toxicological confirmation was obtained where clinically indicated. Patients' confidentiality and research ethics were considered in all stages of the study.

Results

Total of 200 patients were entered in the study. Among all poisoning exposure cases, males were more dominant. The overall male to female ratio was 1.94 (66% vs 34%). The mean age was 33.42.

Toxic agents most commonly used were drugs, opioids being the most frequent drug presented within this category accounting for 25% of drugs, followed by benzodiazepines (22.7%) and blockers as hypertensive drugs were in 3rd place (15.9%).

The majority of patients attempting suicide were married (52%), 42% single and the rest were divorced. The housewives had the highest suicide rate in the study with 23.4% of all cases. The marital status also showed a relationship with the poisoning drug, the divorced cases use opioids more than the married and single patients ($p=0$, $\chi^2=52.41$) Bachelors took BZD and consumed alcohol for poisoning. The uneducated patients were poisoned by opioids. MDs used BZD and blockers as the poisoning agent.

A significant statistical relationship was noted between the type of poison and the level of education ($p=0$, $\chi^2=92.95$).

A gender specific relation was also found, where it seemed that male are more prone to suicidal poisoning with opioids than females ($p=0$ and $\chi^2=4.32$).

The occupation of the patient also had a relationship with the drug used for poisoning, the MDs used BZD more than others and the employed patients used more opioids and alcohol comparing to the unemployed ($p=0$, $\chi^2=194.22$).

Discussion

The general increase in availability of drugs of all kinds and specifically the increase in potentially lethal drugs, drugs have been the most common cause of poisoning (7).

Poisoning is still a common cause of emergency visits and hospital admission in many parts of the world (1, 2). Despite the wealth of studies investigating methods of committing suicide, very few studies have been undertaken in which the focus has been placed on the poisoning demographics and our purpose was investigating the emergency department (ED) poisonings conducted to characterize poisoning demographics trends in substances used for self-poisoning and the influence of age, gender, level of education, occupation and marital status on the substances used. Because of the same cultural beliefs and same overall socioeconomic level of north-west Iran with her neighboring countries Azerbaijan, Turkey and Armenia, the results can be extended and taken into consideration in these countries.

Our study demonstrated that men had higher suicidal intent than women. These findings were concomitant with Mahmoudi et al. and Shadnia et al. and many other studies (3, 4, 8-10).

This study revealed that the majority of poisoning cases were due to opioids, following BZD. Our findings were in compliance with 21's study. But many other reviewed studies noted different type of poison as the leading cause of poisoning, which illustrates the fact that poisoning patterns are based on cultural and geographical factors as well as the availability of certain drugs in different parts of the world. The main causes of self-poisoning (either accidental or intentional) differ in various part of Iran as well. In Tehran, Mashhad, and Babol, for example, tranquilizers (diazepam) have been found to be the most common causes of drug-related poisoning. The majority of poisoning cases are due to Fertilizers and pesticides in Gilan, north-

hern Iran (11). The prevention and treatment of poisoning due to opioids should merit high priority in the health care of the indigeno-us population of Tabriz.

A significant statistical relationship ($p < 0.05$) was noted between the type of poison and patient's age, gender, occupation, level of education and marital status.

A significant relationship was noted between the type of poisoning and patient's level of education ($P = 0$, $\chi^2 = 4.32$). Poisoning was more common with benzodiazepines (BZD) and alcohol in bachelors, with opiates in the uneducated and BZD and blockers in MDs.

It was seen that male were more prone to use opioids and alcohol compared with their female counterparts. These results correspond to those reported by Aghanwa (12).

Our results also show that divorced cases used opioids more than the married and single patients. These results provide supporting evidence that poisoning with illicit drugs and opioids remains a serious healthcare issue that raises treatment costs by increasing both the rate of hospitalization and hospital length of stay.

This study further revealed a notable relationship between the type of poisoning and patient's occupation ($p = 0$, $\chi^2 = 194.22$). Higher rate of poisoning with alcohol and opioids was seen in employed workers compared to the unemployed, and MDs used more BZD. Sobhani et al. reported that poisoning was more common with opiates and tranquilizers in employed workers, with alcohol in the unemployed and organophosphorous com-pounds in farmers (9). But Oei et al. investigated the relation between the type of drug and the dosage used for suicide with the personality, age, gender, marital status, occupation and the method used for suicide, and no relation was found (13).

It seems that factors such as patient's age, gender, occupation, level of education and his/her marital status can indicate the type of poisoning in Tabriz and emergency medical physicians can use this information as a guide for quicker approach to patient and decreasing the mortality and morbidity caused by poisoning. And further studies should be carried out on this field.

Conflict of Interest

No conflict of interest was declared by the authors.

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