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Acute Poisoning by Drug and Pesticide

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Abstract: The concept behind this study is to find out the prevalence and reasons for acute poisoning in the emergency unit of 5th Azar hospital in Gorgan which is the main department in the town. This study was a cross-sectional descriptive study, the sample population were all the patients with acute poisoning either intentionally or accidentally whom admitted to the emergency unit of the hospital during period of one year. This research was implemented using a questionnaires which was filled either by the patients themselves or by those accompany them. The collected data were analyzed using the proper statistical tests. We conclude that the pre-university students are the main age group, drugs and pesticides are major types for either accidental or acute deliberate self-poising.

Key words: Acute poisoning, poison, self-deliberate poisoning, accidental poisoning

INTRODUCTION

Acute poisoning with various chemical have been increased due to easily availability and their wide distribution. Drugs and pesticides are among the major chemical causing the acute intoxication. Death due to self-poisoning with drugs and pesticide are the important factors for morbidity and mortality (Blank *et al.*, 1995; Wesseling *et al.*, 1993).

The production of many chemical compounds used as various chemical such as pesticide, intoxication with therapeutic and illicit drug substances and deliberate drug overdose are among the fatal cases whom referred to the emergency unit of many hospitals and clinics (Gunnell *et al.*, 2004; Vermes *et al.*, 2003).

Organophosphate compound are the main substance present in the pesticide which are used routinely (Garcia, 1998). The inadequate general knowledge, about how to use and disregarding safety measure all contribute to the acute poisoning. The high rate of acute poisoning consist of those subjects with deliberate self-poisoning with either pesticides, or drugs which are easily prescribed (Iain *et al.*, 1998; Oliver *et al.*, 2004; Keifer *et al.*, 1996).

Suicide is among the main reasons of the mortality all over the world, so many people commit suicide through taking either drugs or other toxins such as pesticide. This present research project was set-up to assess the basis for the acute poisoning in this region.

MATERIALS AND METHODS

This research was a cross-sectional descriptive study which was carried out during 2002, on all of the acute toxicated subjects referred to the 5th Azar hospital in Gorgan the center of Golestan province in the north of Iran which is located in the South-east of Caspian Sea.

This hospital is the main site of admission of toxicated persons. This research was implemented using a questionnaires which was filled either by the patients themselves or by the their guardian accompanying them to the hospital. In this study the demographic characteristics of the 75 acute poisoned persons was recorded. Type of toxin, whether it was deliberate self-poisoning, or accidental, occupational was also noted. The type of poisons, caused the toxication were, drugs, pesticide, opoides. The employment status and the education level of subject was also recorded also they were not the main aims of this study.

RESULTS

The results from this investigation indicated that as whole the rate of toxication in women was higher than men (Table 1).

The highest rate of poisoned subjects are among the age group 14-19 years (Table 1). This finding is some how similar to a study in USA (Shepherd *et al.*, 1998). The

findings of this research show that drugs are among the widely used toxin. The age group of 40-49 years had the minimum rate of toxicated persons. According to the occupation the highest rate of toxicated subjects are among the housewives (Table 1).

The pre-university youth include the highest rate of deliberate self poisoning and the lowest rate of suicide was among the university graduated subjects (Table 2) on the accidental poisoning the highest rate belong to the group of people without any education and the lowest rate of toxication was among the university graduated subjects (Table 2).

The result from this study indicated that 74.9% of all toxicated persons toxicated themselves deliberately to attempt suicide and 25% of the subject had an accidental toxication (Table 2). These finding are nearly similar to a study in the Brazil, which indicate that from a total of 475 reports of poisoning 203 cases were suicide attempts (Garcia, 1998; Recena *et al.*, 2006).

Various types of toxins consumed in this study were, drugs, pesticides, opioids.

The other studies also indicate that drugs and pesticides were among the toxins made the poisoning.

Among the toxins that caused the toxication, drugs with 61.3% caused the highest rate of toxication. Pesticide

Table 1: The status of toxicated subjects according to the gender, age limitation and occupation

Characteristics			No.	Poisoned (%)
Gender	Men		32	42.6
	Women	Pregnant	5	6.0
		Lactating	4	5.0
		Other	34	45.3
Age (year)	Total women		43	57.3
	14-19		37	49.3
	20-29		20	26.6
	30-39		11	14.6
	40-49		7	9.0
Occupation	Housewife		30	40.0
	Clerk		13	17.3
	Student		14	18.7
	Land worker		9	12.0
	Others		9	12.0

Table 2: The relation between the rate of deliberate and accidental poisoning with the level of education

Characteristics			No.	Percentage
Deliberate self-poisoning	Education	Uneducated	6	8.0
		Primary student	4	5.3
		Secondary student	9	12.0
		High-school student	10	13.3
		Pre-university student	25	33.3
		University graduated	2	2.6
Accidental poisoning	Education	Uneducated	8	10.6
		Primary student	3	4.0
		Secondary student	3	4.0
		High-school student	2	2.6
		Pre-university student	2	2.6
		University graduated	1	1.3

Table 3: Different toxins consumed in the acute toxication as whole

Poisons	Number	Percentage
Drugs	46	61.3
Pesticides	23	30.6
opioids	6	8.0

Table 4: The rate of different toxins and drugs consumed in deliberate self-poisoning

Drugs	Pesticides	Opioids
72.1%	22.7%	5.2%

with 30.6% and opioid with 8% coming next (Table 3). Drugs with 72.1% are the most important chemical substance, used for deliberate self poisoning in this region, pesticide and opioids with 22.7 and 5.2%, respectively (Table 4).

Drugs and pesticides also were the main toxins, in accidental poisoning in this study.

DISCUSSION

The results from this investigation indicate that as whole the scale of toxication in women was higher than men, these finding is partly similar to study in China during 2005. In the Chinese study the toxicated female and male were 68.5 and 32.5%, respectively (Jevaratnam, 1990). In this study 57.3 and 42.6% of poisoning belong to women and men respectively. The age limit of 14-19 years in this study contain the highest rate of toxication. Drugs (61.3%) and pesticides (30.6%) were the main substances of toxication in this study. Studies in other part of the world indicate that drugs are the substance which is mainly was the cause for toxication (Oliver *et al.*, 2004; Rynestad and Fagerhaug, 2004).

In a study in Turkey it is indicated that drugs were the most frequent cause of poisoning (59%), pesticide were the second (26.4%). It is very important to note that drugs were also the main substance which was used for deliberate self poisoning in this study (72.1%) and pesticide 22.7%, which is in agreement to the other studies (Blank *et al.*, 1995; Gummel *et al.*, 2004; Vermes *et al.*, 2003). The highest rate of toxication belong to the age group of 40-49 years of age. Some study also indicated that the age group is also play an important role in toxication. In a study in Brazil it is indicated that the majority of the poisoning occurred with men ranging in age from 15-49 years of age (Garsia, 1998; Vergara and Fuortes, 1998).

In this study the minimum age for toxicated subjects were 14 years of age. According to this study, the age limit of 14-19 year was considered to be a very critical age, In the Chinese study the age limit of 16-42 years of age was reported to be a very critical (Jevaratnam, 1990). In other study which was carried out in a Dutch University hospital the highest rate of intoxication among male and female poisoned subjects belong to the age group under

40 years of age and also it is indicated that 74% of intoxicated persons presented to the hospital were the subjects with age under 40 years of age which intoxicated by drugs (Vermes *et al.*, 2003).

In this study, the type of toxins which was mainly the cause of accidental and deliberate self poisoning were the drugs, pesticides and opoide. In studies about the rate of acute toxication indicated that the drugs and pesticides are among the major substances for acute intoxication (Gauvin *et al.*, 2001; Borna *et al.*, 2001; Yang, 2005; Garcia, 1998). Acute intoxication and the main factor causing that which is drugs is a becoming a big problems world-wide. In an study in Australia, it is shown that more than 50% of poisoning are due to drug consumption (Yang *et al.*, 2005). In another study in USA the drugs are responsible for 68% of all acute intoxication which was led to death (Buckley *et al.*, 1995).

It can be concluded from this study that, the major type of agents involved in the acute poisoning were drugs, pesticides which both are readily available. Most suicide attempt occur consuming either of these agents. The availability of so many drugs particularly might be related to the high rate of deliberate self poisoning in this study by the young people and especially women which are more susceptible to commit suicide. Providing satisfactory public education on the disadvantages of acute poisoning and elaborating on the risk factors involved in such abnormalities it may reduce, the scale of acute poisoning. Further studies are required to assess the type of drugs and the chemicals caused the acute toxications in this region.

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