A Study on Clinical Profile of Patients with Acute Poisoning

Mukul Joshi*, Divyeshkumar V. Patel**

Abstract :

Introduction : Periodic clinical and epidemiological studies are necessary to understand the pattern of poisoning in society. These studies are useful for planning of providing good and fast health care facilities to reduce poisoning related mortality. This study was designed to evaluate the pattern & outcome of acute poisoning cases in a tertiary care hospital at Ahmedabad. **Material and Methods:** This study was conducted at a tertiary care hospital at Ahmedabad. 120 patients admitted at hospital from Nov-2010 to Nov-2011 were studied. Patients' data were obtained from medical records and were documented in a pre-structured proforma. **Results :** Most of the patients were from the age group of 20 - 29 years (56 %) followed by 30-39 years (20.8%). Males (54.4%) predominated females (46.6%). Out of all subjects, 55.8% belonged to middle socioeconomic class, whereas only 8.3% were from high socioeconomic class. Out of all patients, 64% were from illiterate class and 36% were literate. Suicide (80%) was the most common nature of poisoning. Organophosphate compounds (25.8%) were the most commonly used poison. Mortality was found to be 15.8% and was mainly related to organophosphate compounds. **Conclusion :** Poisoning is more common in young males so they should be emotionally supported in stressful circumstances. Mortality was found to be higher in cases of organophosphate poisoning. Easy availability of this compound should be checked. Early care in tertiary care centre may help to reduce mortality in India.

Key words : Organophosphate compound, Pattern and outcome, Poisoning

Introduction :

Poisoning, both accidental and intentional, is a significant contributor to mortality and morbidity throughout the world. According to WHO, approximately three million acute cases with 2, 20,000 deaths occur annually.[1, 2] Out of this, 90% of fatal poisoning occurs in developing countries. The occupational poisoning due to pesticides is also common in developing countries, due to unsafe practices, illiteracy, ignorance and lack of protective clothing. It is estimated that half a million population die every year as a result of pesticides poisoning. [3]

Some hospital based studies and health surveillance have clearly indicated the increasing incidence of poisoning due to pesticides and drugs. [2] The pattern of poison varies from region to region depending on factors like geography, accessibility and availability of poison, socioeconomic condition, cultural and religious influence. In India, majority of population is employed in agriculture. Poisoning due to pesticides is more common. [4] Second to pesticides, drugs were shown to be the more common agents in poisoning in India. Poisoning is the most leading cause of unnatural morbidity and mortality in India. As suicidal poisoning is more common in young adults, it is a great physical and economical loss to our society. Periodic epidemiological and clinical studies are necessary to understand the pattern of poisoning in each region. It is important to know the nature and the severity of poisoning in order to take proper preventive measures. Studies of this nature will be useful in planning and managing critically ill acute poisoning cases. [5] This study was designed to assess the clinical pattern of poisoning in a tertiary care hospital of Ahmedabad.

Material and Methods :

The prospective study comprises of 120 cases of acute poisoning admitted at Civil Hospital, Ahmedabad from November 2010 to November 2011. Data regarding the age, gender, religion, socio-economic class, marital status, literacy, domicile, poisonous agent and route of exposure were collected according to the history given by patient or their relatives. Patients with idiosyncratic or adverse reaction to prescribed drug and food poisoning were excluded from the study. The nature of

* Assistant Professor, Department of Medicine, GCS Medical College Hospital & Research Centre, Ahmedabad, Gujarat, India
** Consultant Physician, Ahmedabad, Gujarat, India.
Correspondence: drmukul008@gmail.com

the poison involved was determined from the circumstantial evidence, reliable history, presentation of remaining stuff/container from which the poison had been consumed and suggestive clinical features. A complete history, general examination and systematic examination were carried out in each case. In examination, particular emphasis was given on vital signs, smell from mouth/vomitus/clothes, type of breathing, pupillary size and reaction to light. Local examination was carried out in snake bite, scorpion sting and corrosive poisoning.

Following investigations were carried out in all patients:

a. Stomach wash sample (except corrosive poisoning and reptile bite)
b. Random blood sugar
c. Renal function test with electrolytes
d. Liver function tests with enzymes
e. Chest X Ray PA view
f. Electrocardiogram

Treatment was given specific to the cases and outcome was observed. Post mortem examination was carried out in 19 cases. Ethical approval was taken from Institutional Ethics Committee.

Results :

120 cases of Acute Poisoning admitted at our hospital from November 2010 to November 2011 were studied. Majority of poisoning cases were between 20-29 years of age (56%) followed by 30-39 years of age (20.8%). [6] It might be due to the fact that 20-29 years of age is the determining factor of the life in terms of studies, services, marriage and other settlement factors.

Male cases (54.4%) were more than females (46.6%) with male to female ratio being 1.14:1. This is because males are more often exposed to financial and occupational stress in day to day life. More than half of the cases (55.8%) belonged to middle socio economic class while 35.9% cases were from poor socio-economic class and only 8.3% cases belonged to high socio economic class. The middle and poor socio economic classes are more vulnerable due to the fact that they are under more financial stress. In present study, majority were from Hindu religion (94.2%). Muslims and Sikh were 3.3% and 2.5% respectively. Hindu predominance may be due to the fact that major population is of Hindu religion in our region.

Majority of the cases (72%) were from rural area and 28% cases were from urban area because rural population is more exposed to insecticides in agricultural field and there is frequent inhabitation of poisonous reptiles in unhealthy and hilly rural areas. The incidence of poisoning was also more in illiterates (64%) than the literates (36%). Predominance of the illiterate group may be due to the fact that they have lack of knowledge to solve their problems with financial and adjustment related stress.

In the present study, organophosphate compounds (25.8%) were the most commonly used poison. It is due to abundant use of organophosphate compounds as insecticides, and being less costly and easily available. (Table 1)

Table 1 : Distribution of different types of poisoning cases in the study

Poison	No. of Cases	Percentage (%)
Organophosphate & Compounds	31	25.8
Corrosives	21	17.5
Snake Bite	15	12.4
Scorpion Sting	4	3.3
Rat Poison	10	8.3
Alcohol	8	6.5
Kerosene	3	2.4
Phenyl	5	4.1
Drugs	12	10
Benzodiazepines	4	3.2
Unknown poison	7	6.5
Total	120	100

In the present study majority of the cases were married (78%), may be due to the fact that they are exposed to more number of stress factors like marital discord and family problems etc. Suicide (80%) was the most common nature of poisoning whereas accidental cases were 15.8% and homicidal cases were 2.4%. An

increase in number of suicidal cases may be due to many factors such as increase in unemployment, urbanization, breakup in family support system, economic instability, failure of love affairs etc., along with a general belief that poison terminates life with minimal suffering. It was observed that family problems (33.3%) were the leading stress factor. Other stress factors of poisoning were marital discord (18.3%), financial difficulty (12.5%), love quarrels /failure (12.5%), occupation related (11.6%) and others (3.3%).

Mortality was found to be 15.8%. Maximum mortality was related to organophosphate compounds which may also be due to higher number of organophosphate compound poisoning cases, uncontrolled sale and availability of highly toxic organophosphate compounds used in agricultural field.

Table 2 : Types of poison and related mortality

Poison	Cases	Expired	Percentage (%)
Organophosphate & compounds	31	13	41.9
Corrosives	21	3	14.2
Snake bite	15	2	13.3
Scorpion Sting	4	0	0
Rat Poison	10	0	0
Alcohol	8	1	12.5
Kerosene	3	0	0
Phenyl	5	0	0
Drugs	12	0	0
Benzodiazepines	4	1	25
Unknown poison	7	1	14.2
Total	120	19	15.8

Discussion :

Majority of patients (80%) were from suicidal group followed by accidental (15.8%). Table 3 shows the comparison of nature of poisonings with other studies. Increase in suicidal cases may be due to unemployment, urbanization, breakup in family support system, economic instability, love failure etc.

Table 3 : Comparison of nature of poisoning with other studies

Nature of Poison	M. Shoaib Zaheer et al [7] (%)	Bhoopendra Singh et al [9] (%)	Present Study (%)
Suicidal	80.8	69	80
Accidental	15.4	28	15.8
Homicidal	3.8	3	4.2

Maximum cases were young adults from age group 20-29 (56%) followed by 30-39 age group. The incidence in other studies like M Shoaib Zaheer et al [7] and S.K Das et al [8] were similar (Table 4).

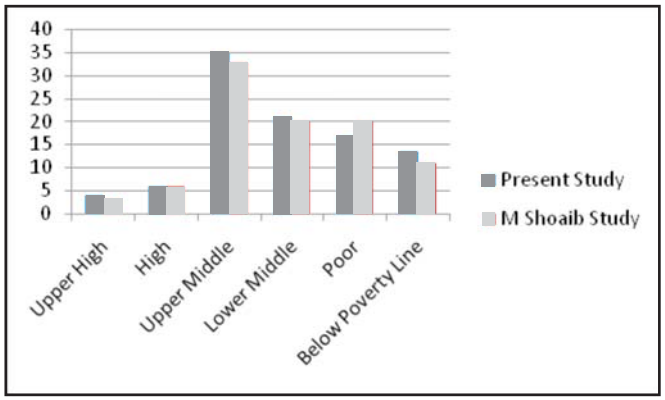
Table 4: Comparison of age groups of patients with other studies

Age (Years)	M. Shoaib Zaheer et al [7] (%)	S. K. Das et al [8] (%)	Present Study (%)
< 20	26.9	23.2	10
20-29	56.8	40.5	56.6
30-39	9.6	21.6	20.8
> 40	6.7	14.7	12.6

High incidence in this age is obvious due to the fact that this age group is exposed to several determining factors of life in terms of studies, services, marriage and other life settlement. So they are subjected to mental stress during this period. Males are affected more than female. Both S.K Das et al [8] and Bhoopendra Singh et al [9] found same results.

As seen in figure 1, majority of cases belong to middle and poor socioeconomic status irrespective of their urban or rural distribution. 58.8% belong to middle socioeconomic class and 35.9% to poor socioeconomic class, only 8.3% belonged to high socioeconomic class. M Shoaib Zaheer et al [7] observed same results (55.3%). This may be due to the fact that they are under financial stress in day to day life. S.K Das et al [8] (58.2%), J. Gargi et al [10] (54.5%) found predominance of rural group over urban group. Findings of present study coincides with these results because rural population is more exposed to insecticides and pesticides and inhabitation of poisonous reptiles in unhealthy and hilly rural areas [11, 12].

Figure 1: Distribution of Cases According to Socio economic Status and Comparison With other Study



Studies by both M Shoaib Zaheer et al [7] (67.3%) and S.K Das et al [8] (50%) show majority in married group. Present study relates to them (78%). This may be due to the fact that they have to undergo more amount of stress due to marital discord and family problem. In present study, maximum cases (25.8%) were due to organophosphate compounds followed by corrosives (17.5%). Other types were snake bite (12.4%) , rat poison (6.5%) , alcohol (6.5%), phenyl (4.1%) scorpion stings (3.3%) and kerosene (2.4%) unknown poison cases were 7 only. Present study findings coincide with S.K Das et al [8] and Kiran N et al. [13] Maximum mortality (41.9%) was due to organophosphorous compounds. Present study coincides with the studies of Bhoopendra Singh et al [9] and S.V Kumar et al. [14] Though a number of factors such as dose consumed, level of available medical facilities, time interval between intake of poison and arrival at hospital, can affect the outcome [15][16].

Conclusion :

Increase in public awareness about the seriousness of problem through health education and efforts to de-stress and develop a healthy outlook towards life should be undertaken. It is needed to establish a poison information centre for the better management and prevention of poisoning cases. All physicians have responsibility to recommend psychiatric care for people suffering from mental problems or depression and for the unsuccessful or potential candidates for suicide seeking help for the first time. Early diagnosis and immediate appropriate treatment are often life saving.

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