A study of the clinical profile of 30 consecutive cases of poisoning presenting to a rural tertiary care center

Sujata Devi[1], Ashok Dasari[2], Srujan Kumar Dasyam[3], Sai Sripada Rao K[3]

[1]Assistant Professor, Department of Internal Medicine, [2]Ex- postgraduate student, Department of Internal Medicine, [3]Postgraduate student, Department of Internal Medicine, Prathima Institute of Medical Sciences, Karimnagar, Andhra Pradesh, India.

Address for correspondence: Dr. Sujatha Devi, Assistant Professor, Department of Internal Medicine, Prathima Institute of Medical Sciences, Karimnagar, Andhra Pradesh, India.

Email: sujiankita@gmail.com

ABSTRACT

Introduction: Acute poisoning is an important cause of morbidity and mortality in India. It is estimated that more than 50,000 people die every year from toxin exposure. In India, intentional cases alone reach some 126,000 cases annually and organophosphorus compounds constitute major poisonings.

Materials and Methods: A cross sectional, descriptive study was conducted among 30 cases of acute poisoning admitted in Prathima Institute of Medical Sciences, Karimnagar, Andhra Pradesh during September 2011-12. Socio-demographic variables assessed were age, sex and area wise distribution of the respondents. Type of poison, the amount ingested, clinical presentation and outcome were studied.

Results: In this study, maximum cases 13 (43.4%) were between 17 to 20 years, males 17 (57%) were more commonly involved in acute poisoning and 20 (67%) cases came from rural areas. The majority 13 (43.3%) of cases were organophosphates poisonings and 28 (93%) of cases were of suicidal intentions. Most of the suicidal poisonings were due to economical problems 14 (50%), followed by broken relationships 6 (21%) and studies related reasons were observed in 5 (18%) of cases. Out of total 30 cases of poisonings in this study, 26 cases (86.66%) were recovered completely, whereas 4 cases (13.3%) expired.

Conclusion: Prevention of poisoning requires further exploration of underlying factors in their cultural context and effective strategies including management of these problems. Changing the knowledge, attitudes and behaviors of the community and improvement in the medical treatment plan is required to curtail the incidence and mortality.

Key words: Acute poisoning, Organophosphorus compounds, India

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INTRODUCTION

Poison is any substance which produces an adverse effect on a living organism. Poisons are directly or indirectly responsible for more than 1 million illnesses worldwide annually and this figure could be just the tip of the iceberg since most of the poisonings are unreported, especially in 3rd world countries.[1] In developing countries, mortality rates among acute poisoning are around 10 – 20% and in developed countries it varies from 0.5 – 1%. The causes of poisoning are many, including civilian, industrial, accidental and deliberate. Acute poisoning is an important cause of morbidity and mortality in India. Although exact estimates are not available, hospital studies suggest that up to 10% of admissions in medical emergency are due to poisonings.[2] In India, it is estimated that more than 50,000 people die every year from toxin exposure. The problem is getting worse with the introduction of newer drugs and chemicals and the list keeps growing inexorably. In India, males are more commonly involved in self poisoning than females.

Similarly, the intentional cases are around 126,000 annually and organophosphorus compounds and carbamates constitute major poisonings; the effective number of cases occurring annually has been estimated up to 76000.[2,3,4,5] The other common poisons are rodenticides, sedative drugs, alcohol, plant toxins and household poisons. Plant poisons are common in rural areas of south India and aluminium phosphide common in the north, west and central India. Sedatives, hypnotics and tricyclic antidepressants are common in urban areas. Organophosphorus compounds, zinc and aluminium phosphate are common in rural areas. [6]

The present study was undertaken to study socio-demographic characteristics, the spectrum of different poisons, common clinical manifestations of acute poisoning, reasons of acute poisoning, underlying motivating factors, outcome and complications of different poisonings among cases of poisonings admitted to a tertiary care hospital.

MATERIALS AND METHODS

A cross sectional, descriptive study was conducted among 30 cases of acute poisoning who were admitted in Prathima Institute of Medical Sciences, Karimnagar during September 2011-12. The study protocol was approved by the institutional ethics committee of the institute. Age below 13 years, snake bites and arthropod bites, mixed poisonings, allergic reaction to drugs and cases of food poisoning were excluded from the study. Socio-demographic variables assessed were age, sex and area wise distribution of the respondents. Type of poison, the amount ingested, clinical presentation and outcome were studied. At the time of admission, after resuscitation, detailed history regarding the type of poison, trade name, amount ingested, route of poisoning and source of poison was incurred. The cause of poisoning like suicide, accidental or homicidal; and underlying motivating factors like economical problems, broken relationship, medical and psychiatric illnesses, studies and loss of close relatives were enquired. Patients presenting complaints in detail were noted. Past history, including history of previous suicidal attempts and history of medical illnesses like heart diseases, hypertension, diabetes, renal failure, stroke, epilepsy, liver diseases and other co- morbid conditions were noted. Treatment history, including the current drugs on which the patient was put was noted. In personal history, marital status, number of children, history of broken relationships, recent bereavement, history of alcohol intake, smoking history and history of drug abuse were noted. Occupational history, especially in accidental poisonings was noted. Family history of suicidal attempts, psychiatric and medical illnesses was enquired. General examination included evaluation of anaemia, jaundice, cyanosis, discoloration of skin, nail changes, nasal secretions, frothing from the mouth and smell of breath were noted. Temperature, pulse, blood pressure, respiratory rate, pattern of respiration, SpO2 were noted at the time of admission and during follow up. Detailed systemic examination with special importance to a conscious state, pupil size and its reaction to light, involuntary movements, focal neurological deficits, JVP, cardiac sounds (S1, S2, added sounds), respiratory sounds and per abdominal examination was done. All patients were investigated by routine blood investigations like complete blood picture, blood sugar, blood urea, serum creatinine, serum electrolytes, liver function tests, urine examination, chest X ray and ECG. Special investigations like blood cholinesterase levels, creatinine kinase, and ABG analysis, ultrasound abdomen, abdominal X ray and other radiological studies were done in selected cases.

General measures to prevent absorption of poison like emesis, gastric lavage, activated charcoal administration, catharsis, whole bowel irrigation, changing clothes and washing of patient were done. Airway and oxygenation was maintained with oral, throat suctions, O2 administration with face mask and ventilator support. Specific antidotes were administered where ever necessary. All patients were given supportive and symptomatic therapy. All patients were monitored repeatedly and outcomes were noted. Data was analyzed using excel and descriptive statistics obtained were the numbers and percentages.

RESULTS

Table 1 describes the socio-demographic characteristics of the cases. In this study, maximum cases 13 (43.4%) were between 17 to 20 years followed by 6 (20%) cases in 21-30 yrs. The age range was from 17 years to 70 years. Males, 17 (56.6%) were more commonly involved in acute poisoning than females. A total of 20 (67.6%) cases came from rural areas and most of them, 12(40%) were labour by occupation. Students accounted for 08 (26.6%) of cases and 5(16.7%) were housewives.

Table 1: Socio-demographic characteristics of respondents

Characteristics		Number	Percentage
Age	17-20 years	13	43.4%
	21-30 years	6	20%
	31-40 years	5	16.7%
	41-50 years	1	3.3%
	51-60 years	4	13.3%
	> 60 years	1	3.3%
Sex	Male	17	56.7%
	Female	13	43.3%
Area	Rural	20	67.6%
	Urban	10	33.4%
Occupation	Labour	12	40%
	Housewives	5	16.7%
	Students	8	26.6%
	Employees	5	16.7%

Table 2: Types of poison, reasons and motivating factors for poisoning and outcome of the cases

Variables		Number	Percentage
Types of poison	Organophosphates	13	43.4%
	Organochlorides	3	10%
	Drug Poisons	6	20%
	Supervasmol 33	4	13.3%
	Other	4	13.3%
Reason of poisoning	Suicidal	28	93 %
	Accidental	02	07 %
Motivating factor	Economical problems	14	50%
	Broken Relationship	6	21%
	Medical, psychiatric illness	3	11%
	Studies	5	18%
Outcome	Recovered	26	86.7%
	Expired	4	13.3%
Total		30	100%

Table 2 showed the poison related characteristics, reason and motivating factors for poisoning and outcome of the cases. Out of 30 acute poisoning cases, majority 13 (43.4%) cases were of organophosphates poisonings, 6 (20%) cases were drug poisonings, and 4 (13.3%) cases were due to Supervasmol hair dye poisoning. The majority 28 (93%) of cases were of suicidal intention and only 2 (07%) cases were of accidental poisoning. Most of the suicidal poisonings were due to economical problems 14 (50%), followed by broken relationships 6 (21%) and studies related reasons were observed in 5 (18%) of cases. Out of total 30 cases of poisonings in this study, 26 cases (86.7%) were recovered completely, whereas 4 cases (13.3%) expired.

DISCUSSION

In the present study, the majority of the patients of acute poisoning were below 40 years of age. The age range observed in this study was 17-70 years. The highest percentage (43.4%) of cases was reported between 17 to 20 years and 63.3% cases were in between 17 to 30 years. In a study conducted by Multani et.al , 63.4% cases were in between 15 to 30 years whereas this proportion was 40.5% in the study conducted by Bansal et al.[7,8] This particular age group constitutes an important transitional period of life where carrier, marriage or other life events may cause crises and stress to the individual. Most of the acute poisoning cases were labors (40%), followed by students (27%). Others are house wives (17%), employees (16%). Out of 30 cases of acute poisoning 17 patients were males and 13 patients were females. Males are more commonly involved in acute poisoning than females both from urban areas and rural areas. Ratio between males and females in this study was 1.3:1. In a study conducted by Multani et.al, the male and female ratio was 1.5:1.[7] The higher incidence in males may be because males are more exposed to stress and occupational hazards compared to females. In the present study, out of 30 cases 20 cases came from rural areas and 10 cases came from urban areas. Ratio of cases from rural and urban areas was 2:1. In a study conducted by Bansal et al, 58.1% cases were from rural areas.[8] More cases from rural areas were observed in the present study may be attributed to location of the tertiary care center where the study was conducted. The most common poison observed in this study was organophosphorus compounds (43.4%), followed by drug poisons(20%),Supervasmol (13.3%). Organophosphorus compounds was the most common agents (35.46%) responsible for poisoning in a study conducted by Vaidya et al. Pesticide poisonings were common in the present study and other Indian studies because of easy availability of pesticides in India.[9] In our study, majority 93% cases were suicidal and 7% cases were accidental. Route of poisoning in all suicidal cases was ingestion. In a study conducted by Multani et.al 82.4 % cases were due to suicidal poisonings, 14.4% were due to accidental and 3.3% were homicidal.[7] Similarly, suicidal poisoning was the most common mode of poisoning (56.9%) observed in a study conducted by Vaidya et al.[9] The most common underlying motivating factors of suicidal poisoning were economical problems (50%), followed by broken relationship (21%), studies (18%), medical and psychiatric illness (11%). Out of 30 cases, 26 patients were recovered completely and 4 patients expired. Majority of deaths (75%) occurred in organophosphorus poisoning cases. Other cause was rodenticide poisoning. Mortality was common in males compared to females. In present study mortality rate was 13.3%. In Multani et.al study mortality rate was 28.8 %. Several factors determine the survival and mortality in poisoning.[7] Mortality was high in patients with delayed presentation, high amounts of consumption and altered sensorium at the time of presentation.

CONCLUSION

The present study showed that the majority of the patients were of younger age with males more common than females. Most of the cases were of suicidal intention with underlying economic problems and most common poison observed was organophosphate compounds and a significant mortality.

Prevention of poisoning, especially suicidal poisoning requires further exploration of underlying factors in their cultural context and effective strategies including management of these problems. Changing the knowledge, attitudes and behaviors of the community through health education is essential in order to minimize the incidence. Also improvement in the medical treatment plan is required to curtail the mortality.

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