

Original Research Article

A study of patients with acute poison: a single center experience

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ABSTRACT

Background: Periodic experimental and epidemiological studies are essential to understand the pattern of poisoning in society. These studies are useful for planning of providing better and fast health care facilities to decrease poisoning connected mortality. This study was intended to assess the pattern & consequence of acute poisoning cases.

Methods: This study was conducted with 100 patients admitted at a Geetanjali Medical college and hospital from June 2015 to December 2017 were studied. We retrospectively analyzed the gender, age, causes of poisoning, types of poisons, poisoning route, emergency diagnoses, outcomes, and prognoses of these patients.

Results: Most of the patients were from the age group of 21 - 30 years (49 %) followed by 31-40 years (33%). Males (59%) prevailed females (41%). Out of all subjects, 53% belonged to middle socioeconomic class, whereas only 19% were from high socioeconomic class. Out of all patients, 62% were from illiterate class and 38% were literate. Suicide (77%) was the most communal nature of poisoning. Phenyl (19%) was the most commonly used poison. Mortality was found to be 4% and was mainly related to organophosphate compounds.

Conclusions: Poisoning is further common in young males so they should be emotionally maintained in stressful conditions. Mortality was found significantly to organophosphate poisoning. Easy availability of this compound should be checked. Early care in tertiary care center may assistance to reduce mortality in India.

Keywords: Acute poisoning, Pattern and outcome, Stress

INTRODUCTION

Poisoning, both accidental and intentional, is a major contributor to mortality and morbidity all over the world. According to WHO, about three million acute cases with 2, 20,000 deaths occur annually.^{1,2} Out of this, 90% of fatal poisoning occur in developing countries. The professional poisoning due to pesticides is most common in developing countries, because of insecure practices, illiteracy, unawareness and lack of caring clothing. It is predictable that half a million inhabitants die every year as a result of pesticides poisoning.³

Some hospital based studies and health observation have clearly specify the increasing incidence of poisoning due

to pesticides and drugs.² The pattern of poison varies from region to region depending on factor like geography, socioeconomic condition, cultural and religious influence, accessibility and availability of poison. In India, majority of population is employed in agriculture. Poisoning due to pesticides is more familiar.⁴ Second to pesticides, drugs were exposed to be the more common cause in poisoning in India. Poisoning is the most leading cause of unnatural morbidity and mortality in India. As suicidal poisoning is more frequent in young adults, it is an enormous 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 natural severity of poisoning in categorize to take proper preventive procedures. Studies of this nature will be useful in

development and organizing critically ill acute poisoning cases.^{5,6}

METHODS

The prospective observational study comprises of 100 cases of acute poisoning admitted at Geetanjali Medical College and hospital, Rajasthan from June 2015 to December 2017. Data regarding the age, gender, religion, socio-economic class, marital status, literacy, 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 the poison involved was resolute from the incidental evidence, reliable history, and presentation of remaining stuff/container from which the poison had been obsessive and suggestive clinical features. A complete history, general and systematic examination was 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:

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

Treatment was given specific to the cases and outcome was observed. Ethical approval was taken from Institutional Ethics Committee.

RESULTS

Of the 100 cases with acute poisoning admitted at our hospital from June 2015 to December 2017 were studied. Majority of poisoning cases were between 21-30 years of age (49%) followed by 31-40 years of age (30%). Male cases (59%) were more than females (41%) with male to female ratio being 1.4:1. This is because males are more often exposed to financial, familial responsibility and professional stress in day to day life. More than half of the cases (53%) belonged to middle socio-economic class while 28% cases were from poor socioeconomic class and only 19% 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. Majority of the cases (90%) were from urban area and 10% cases were from rural area because of easily availability of household products such as phenyl, sleeping pill, rat kill poison, bleaching powder followed by pesticides. The incidence of poisoning was

also more in illiterates (62%) than the literates (38%). 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, phenyl (19%) was the most commonly used poison. It is due to plentiful use of phenyl as less costly and easily available (Table 1).

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

Poison	Grand total	Percentage (%)
Acid	2	2%
Agarbatti sent poisoning	1	1%
All out	1	1%
Bhang	2	2%
BP	8	8%
Brown sugar	1	1%
Chlorine	1	1%
Dettol	2	2%
Godrej dye	1	1%
Harpic	1	1%
Hit	3	3%
Insecticide	2	2%
Kerosene	5	5%
Organophosphorous	10	10%
Phenyl	19	19%
Rantac	1	1%
Rat kill poison	11	11%
Sleeping pill	14	14%
Unknown	12	12%
All out	3	3%
Grand total	100	100%

In the present study, majority of the cases were married (68%), may be due to the fact that they are exposed to more number of stress factors. Suicide (77%) was the most common nature of poisoning whereas accidental cases were 23%. 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. Mortality was found to be 4%. Maximum mortality was related to higher number of organophosphate compound poisoning cases, uncontrolled sale and easily availability to use in agricultural field.

DISCUSSION

Majority of patients (77%) were from suicidal group followed by accidental (20%). Table 2 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 2: Comparison of nature of poisoning with other studies.

Nature of Poison	MS Zaheer et al ⁷	B. Singh et al ⁸	Present study (%)
Suicidal	80.8%	69%	77%
Accidental	15.4%	28%	20%
Homicidal	3.8%	3%	3%

Table 3: Comparison of age groups of patients with other studies.

Age in years	MS Zaheer et al ⁷	SK Das et al ⁹	Present study (%)
≤ 20	26.9%	23.2%	7%
21-30	56.8%	40.5%	49%
31-40	9.6%	21.6%	33%
> 40	6.7%	14.7%	11%

Maximum cases were young adults from age group 21-30 (49%) followed by 31-40 (30%) age group. The incidence in other studies like MS Zaheer et al⁷ and SK Das et al were similar (Table 3).⁹

High incidence in this age is obvious due to the fact that this age group is exposed to several determining factors of life in factor of the life in terms of studies, modern lifestyle, marriage, nuclear family and other settlement factors. So, they are subjected to mental stress during this period. Males are affected more than female. Both B Singh et al and SK Das et al found same results.^{8,9}

Majority of cases belong to middle and poor socioeconomic status irrespective of their urban or rural distribution. 53% belong to middle socioeconomic class and 28% to poor socioeconomic class, only 19% belonged to high socioeconomic class. MS Zaheer et al, observed same results (55.3%).⁷ This may be due to the fact that they are under financial stress in day to day life. S.K Das et al (58.2%), J. Gargi et al (46.5%) found predominance of urban group.^{9,10} Findings of present study coincides with these results of easily availability of household products such as phenyl, sleeping pill, rat kill poison, bleaching powder followed by pesticides.^{11,12}

Studies by both M Shoaib Zaheer et al, (67.3%) and SK Das et al, (50%) show majority in married group.^{7,9} Present study relates to them (68%). This may be due to the fact that they have to undergo more amount of stress like dowry, family quarrels, marital conflict and dependence of woman on husband etc. In present study, maximum cases (19%) were due to phenyl followed by sleeping pill (14%). Other types were rat kill poison (11%), organo phosphorous (10%), bleaching powder (8%), kerosene (5%), acid (3%) and unknown poison cases were 12 only. Present study findings coincide with SK Das et al and Kiran N et al.^{9,13} Maximum mortality (4%) was due to organophosphorous compounds. Present study coincides with the studies of B Singh et al and SV

Kumar et al.^{8,14} Though a number of risk factors such as dose expended, level of available medical facilities, time interval between intake of poison and arrival at hospital, can distress the outcome.^{15,16}

CONCLUSION

Proliferation of public awareness regarding the health education, efforts to distress and advance healthy attitude towards life should be undertaken. It is desirable to establish a poison information centre for the better organization and prevention of poisoning cases. All physicians have responsibility to endorse psychiatric care for people suffering from mental problems or depression and for the unsuccessful or possible candidates for suicide looking for help for the first time. Early diagnosis and immediate suitable treatment are often life-saving.

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