

Accounts of Poisoning Patients attending at 250 Bedded General Hospital, Sirajganj, Bangladesh

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ARTICLE INFO

Article history:

Received: 20 December 2021

Accepted: 11 April 2021

Online:

www.nbmc.ac.bd

Keywords:

Poisoning, Mortality,
Sociodemographic profile

ABSTRACT

Introduction: Poisoning is a common medical emergency and major cause of mortality and morbidity in a developing country like Bangladesh. **Objective:** To observe the demographic pattern of poisoning patients attending at emergency Department of 250 Bedded General Hospital, Sirajganj, Bangladesh. **Methods:** This cross-sectional study was conducted in 250 bedded General Hospital, Sirajganj, Bangladesh, from 1st January, 2020 to 30th June, 2020. A total of 332 poisoning cases were enrolled in this study. Detailed history was taken from patients, their relatives and relevant data was collected from the medico legal case register of casualty and case paper from concerned department. **Results:** Incidence of poisoning was more among female (188, 56.62%) and maximum cases (155, 46.68%) were from 21-30 years age group. Majority cases (219, 65.96%) attended from rural area, Organophosphorus compound (OPC) poisoning (131, 39.45%) constituted the highest number of cases and in maximum manner of poisoning was suicidal (279, 84.04%) in nature. Majority of cases were discharged after improvement, death rate was 15.06% but fatality was 100% in gas tablet (aluminum phosphide) poisoning. **Conclusion:** This study indicates that younger females are more prone to commit suicide by agricultural poison like OPC. So, positive counseling and motivation may improve this condition.

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INTRODUCTION

Acute poisoning is a significant global public health problem causing significant mortality and morbidity throughout the world.¹⁻³ It also contributes to one of the leading causes for a visit to an emergency department.⁴ Poison is a substance (solid, liquid or gaseous) which if introduced in the living body or brought into contact with any of its part will produce ill-health

or death by its constitutional or local effect or both.⁵ In developed countries, the most frequent cause is intentional drug overdose in the context of self-harm. Accidental poisoning is also common especially in children and the elderly.⁶ It was found in another study that, the age of victims ranged from <1 to 70 years, with the highest incidence in the range of 14-40 years, with majority males (57%) outnumbering females

(43%).⁷ According to WHO data, 1,93,460 people died worldwide from unintentional poisoning in 2012.⁸ In which, 84% occurred in low middle income countries. In the same year, more than 10.7 million years of healthy life was lost due to unintentional poisoning.⁹ Everyday almost 700 people die due to poisoning worldwide, in which 90% of fatal poisoning occurs in developing countries like South East Asia, most of them are agriculture workers.¹⁰ It is important to know the nature and severity of poisoning in order to take appropriate preventive measures. Hence, studies of this nature will remain as a useful tool in planning and managing critically ill acute poisoning cases. It also helps in framing appropriate policies like introducing new guidelines and updating prevailing treatment protocols, counseling and sensitizing the society on hazards of poisoning and proper usage and storage of chemicals.¹¹

The aim of this study was to examine the nature, pattern, morbidity, mortality and magnitude of poisoning cases as well as to determine how many people of poisoning are reporting in the

emergency Department of 250 bedded General Hospital, Sirajganj, Bangladesh.

METHODS

This was a cross-sectional study and conducted in the department of Forensic Medicine and Toxicology of North Bengal Medical College, Sirajganj, Bangladesh. Data were collected from 250 Bedded General Hospital, Sirajganj from 1st January, 2020 to 30th June, 2020. Total 332 patients of poisoning reported to the department of emergency during the study period. A detailed history was taken from the patients and patient's relatives. Relevant data of the individual poisoning were collected from medicolegal case register of causality and concerned department. Statistical analyses (percent calculation) and graph generation were performed in Microsoft Excel.

RESULTS

In our study, out of 332 poisoning cases 144 (47.37%) were males and 188 (56.62%) were females (Figure 1).

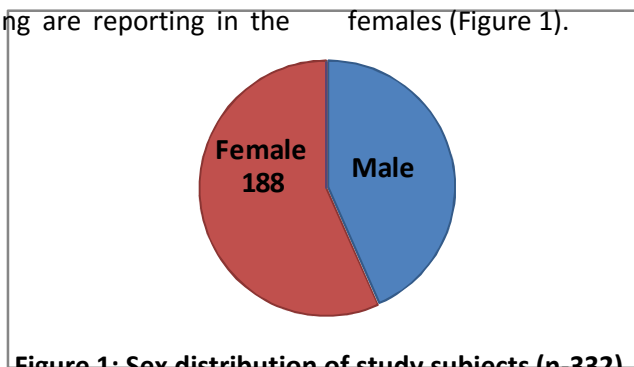


Figure 1: Sex distribution of study subjects (n=332)

Teenagers and young adult were more prone to commit suicide. Maximum incidence of poisoning was observed in the age group 21-30 years (46.69%) (Table I).

Table I: Age distribution of poisoning cases (n=332)

Age Group in years	Number of the participants		Total	Percentage
	Gender of the participants			
	Male	Female		
0-10	0	0	0	00%
11-20	43	56	99	29.82%
21-30	65	90	155	46.69%
31-40	34	41	75	22.59 %
41-50	1	1	2	0.60 %
51-60	1	0	1	0.30 %
>60	0	0	0	00%

Rural population 219 (66.00%) was affected more both in males and females (Table II).

Table II: Regional distribution of study subject (n-332)

Residence	Number (%) of study subjects distributed into both sexes		
	Male	Female	Total (%)
Urban	57 (39.6%)	56 (29.8%)	113 (34.00)
Rural	87 (60.4%)	132 (70.2%)	219 (66.00)
Total	144 (100.00)	188 (100.00)	332(100.00)

Most (190, 57.20%) of the patients were admitted in emergency department from 8 AM to 4 PM (Table III).

Table III: Time of reporting of poisoning (n-332)

Time of reporting	Number of cases	Percentage
8AM-4PM	190	57.20 %
4PM-12AM	125	37.70 %
12AM-8AM	17	5.10%
Total	332	100 %

In Sirajganj district, organophosphorus compound (OPC) poisoning (131, 39.46%) was common (Table IV).

Table IV: Types of poisoning distributed in to both sexes (n-332)

Poison	Number of cases			Percentage
	Total	Male	Female	
Organophosphorus compound (OPC)	131	60	71	39.46 %
Corrosive	105	41	64	31.63 %
Sedative	81	38	43	24.40 %
Gas	15	5	10	4.51 %
Tablet/Aluminum Phosphide				

Suicidal poisoning was the most common (279, 84.04%) in this study and females were more prone to this poisoning whereas, males were more prone to accidental poisoning (Table V).

Table V: Manner of poisoning distributed in to both sexes (n-332)

Manner of poisoning	Number of cases		
	Male	Female	Total (%)
Suicidal	104	175	279 (84.04%)
Accidental	40	10	50 (15.06%)
Homicidal	0	3	3 (0.90%)
Total	144	188	332

Maximum number of admitted poisoning cases (187, 56.32%) was discharged after improvement (Table VI).

Table VI: Outcome of patient (n-332)

Outcome	Number of cases(N-332)	Percentage (%)
Discharged	187	56.33%
Referral	55	16.56%
Death	50	15.06%
Leave against medical advice	40	12.05%
Total	332	100%

In this study, out of total 332 patients, 50 (15.06%) were died. Among them 20 (15.26%) patients were died due to OPC poisoning, 15 (100%) patients were died due to gas tablet/Aluminium phosphide poisoning and 15 (14.28%) patients were died in corrosive poisoning but no patient died in sedative poisoning. It was noticeable that mortality in gas tablet poisoning was 100% (Table VII).

Table VII: Pattern of death in different poisoning (n-332)

Name of poison	Total	Number of death (%)
OPC	131	20 (15.26%)
Gas tablet / Aluminium phosphide	15	15 (100%)
Corrosive	105	15 (14.28%)
Sedative	81	0 (0%)
Total	332	50 (15.06%)

DISCUSSION

Pesticide poisoning is a major health problem in a developing country like Bangladesh. Acute poisoning from various poisonous substances is one of the commonest causes of emergency in hospital admission. During the study period total 332 poisoning cases were admitted in the emergency department of 250 Bedded General Hospital, Sirajganj. Out of this 56.62% were females. The reasons for a greater number of female cases were suicidal in the age group 21-30 years (46.69%) followed by 11-20 years (29.82%). This finding is in agreement with the finding of Gouda et al.,¹⁰ in which incidence was highest in age group 21-30 years (39.60%) followed by 11-20 years (35.08%). Higher incidence of poisoning in the younger age group (21-30 years) was may be due to various social causes like familial disharmony, failure in love, failure in examination, stress due to modern life style and threat from parents, teachers or guardian. The current study shows that the rural population (66.00%) was more affected than the urban (34.00%). The incidence of female cases in rural area was more as compared to male. It is due to the fact that, the rural areas having increased farming activities for which domestic use of insecticidal compounds like OPC is more. This finding is consistent with Ziya et al.,⁹ Gouda et al.¹⁰ and Barkhaet al.¹² They showed that rural population was more affected than urban population. In the present study, maximum number of cases (190, 57.20%) reported to the emergency department between 8 am to 4 pm. Gopinathanet al.¹³ reported same finding. Moreover, the incidence of suicidal cases

(279/332) was highest followed by accidental (50). Suicide is one of the oldest and considered the easiest trends of sacrificing their life by consuming different poisonous substances, which are easily accessible to them compared to other methods. The morbidity, mortality in any case of acute poisoning depends upon a number of factors, such as nature of poison, dose consumed, level of available medical facilities and time interval between intake of poison and provision of medical help etc.¹⁰ This finding is in agreement with Ziya et al.⁹ where majority of the patients (79.23%) consumed poison with suicidal intent as compared with 20.76% of the patient exposed accidentally. Duration of hospital stay after admission was short in most (56.33%) of the cases due to consumption of less toxic compound or less amount (non-toxic dose) or malingering and few (16.56%) cases referred to higher center for better management. This observation is in the agreement with the study of Prashantet al.¹⁴ and Zine et al.¹⁵

Maximum number of cases was OPC poisoning (39.46%) and followed by corrosive (31.63%). Mortality was maximum in OPC poisoning but 100% fatality observed in gas tablet (Aluminum phosphide) poisoning. Among the all poisons in this study, gas tablet was found very much toxic as a result fatality was 100%.

Hospital-based single-center study and limited sample size should be considered as the limitations of this study. Therefore, a multi-center study with a large sample size should be considered as these kinds of data provide preliminary important information regarding poison which may be useful tools to initiate

preventive measures and formulate practical guidelines in the management of acute poisoning.

CONCLUSION

Majority of the intentional poisoning occurred in the female of younger age group in rural area of Sirajganj district with OPC. But fatality was 100% in gas tablet poisoning. So, this study would suggest positive counseling regarding poisoning and marketing restriction of poisonous compound for the reduction of poisoning.

Acknowledgement: Authors are thankful to the Emergency Department of 250 bedded general Hospital, Sirajganj, Bangladesh for their cordial cooperation during this study.

Conflict of interest: None

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