

A Retrospective Study on Acute Poisoning Cases in Tertiary Care Centers of Western Nepal

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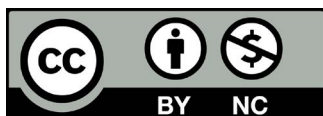
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ABSTRACT

Introduction: Poisoning is a major public health problem and a reason for significant morbidity and mortality worldwide. It is one of the most common presentations in an emergency department. This study was carried out to evaluate the pattern of acute poisoning cases in attending emergency room of Manipal Teaching Hospital.

Methods: This is a retrospective observational study done by manually going through and analyzing all the files of 83 cases of acute poisoning attending the emergency department of Manipal Teaching Hospital during the period of 1st Jan 2020 - 30th Dec 2021.

Results: Out of all 83 cases, the maximum percentage (58.33%) of poisoning occurred in females of the younger age group. Maximum number of cases attending was during January (18.07%) during weekdays i.e., on Monday (20.48%). Most of the cases attended with organophosphorus poisoning (37.34%) for deliberate self-harm. A majority of patients (79.51%) presented with nausea and vomiting (72.28%) followed by abdominal pain (15.66%). The overall treatment outcome was good with (75.90%) were discharged following proper management and care.

Conclusion: The maximum cases of acute poisoning attending the emergency department were younger females of 15-25 years of age. Males of age 25-35 years of age were found to be most affected. There is a steep rise in cases in males of the age group >55 years. Organophosphorus compounds were used in most of the cases.

Keywords: Acute Poisoning; Organophosphorus

INTRODUCTION

Acute poisoning accounts for significant morbidity and mortality worldwide, especially in developing countries like Nepal.¹ Poisoning due to chemical, pharmaceutical, plant, and animal toxins is a worldwide phenomenon and has a heavy social and economic impact on a country's health care system. Poisoning is a common cause of admission and mortality, especially among young people in hospitals in Nepal.² Despite the recent developments in toxicology, technological advances, and changing lifestyles reveal new factors and poisoning cases remain to be a problem. All poisonings should be considered serious and independent from their clinical presentation at the time of admission. Identifying the cause and prompt initiation of treatment is life-saving.³ Early diagnosis and proper management of poisoning are very crucial, the failure of which may lead to dreadful

consequences or even death. The incidence of poisoning depends upon the socio-economic status, degree of the intent of self-harm, and the availability of the poison.⁴ The global incidence of poisoning is not known. Recently, some review articles reported that the number of intoxications with organophosphorus poisoning was three million per year and the number of deaths and casualties is 3,00,000 per year worldwide.⁵ The objective of our study is to evaluate the pattern of acute poisoning cases in attending the Emergency room of Manipal Teaching Hospital.

METHODS

This is a retrospective record based study carried out among acute poisoning cases attending the emergency

department of Manipal Teaching Hospital from January 2020 to December 2021 after approval was obtained from the Institutional Review Committee. The inclusion criteria included all the acute poisoning cases of the age group >15 years, attending the emergency department of Manipal Teaching Hospital. Cases of food poisoning, snake bite, and animal bite were excluded. Data regarding age, sex, marital status, month, day, type of poisonous substance, clinical presentation, mode of poisoning, and outcome were collected manually in a pre-structured proforma and entered in MS. Excel 2010, was analyzed, and frequency, as well as percentages, were calculated.

RESULTS

A total of 83 cases of age group >15 years were included in our study out of which, 23(27.7%) were male and

Table 1: Distribution of cases according to age, sex, marital status and month

Characteristics	N (total=83)	Percentage
A. Gender		
Male	23	27.71
15-25	6	26.08
25-35	8	34.78
35-45	2	8.69
45-55	3	13.04
>55	4	17.39
Females	60	72.2
15-25	35	58.33
25-35	11	18.33
35-45	8	13.33
45-55	2	3.33
>55	4	6.66
B. Marital Status		
Married	47	56.62
Unmarried	36	43.37
B. Month		
January	15	18.07
February	5	6.02
March	7	8.43
April	5	6.02
May	12	14.45
June	7	8.43
July	4	4.81
August	5	6.02
September	7	8.43
October	4	4.81
November	7	8.43
December	5	6.02

60(72.2%) were female. Most of the cases were of females of 15-25 years of age (58.3%) and males of 25-35 years of age (34.78%). The study showed a rise in poisoning cases in males above 55 years of age. The majority of cases were due to the consumption of organophosphorus compounds (37.34%), followed by rodenticide poisoning (12.04%), and mostly suicidal intention (79.51%). Most of the cases were recorded during January(18.07%) followed by May(14.45%) especially during weekdays i.e., Monday(20.48%). Out of all 83 cases, nausea and vomiting were the most common clinical presentation in about 72.28% of cases. Overall hospital mortality in poisoning cases was 1 (1.20%) while 16 cases (19.27%) were taken home against medical advice in critical condition due to logistic reasons and financial constraints. The cause of death in 1 case of organophosphorus compounds was respiratory arrest.

Table 2: Type of poisonous substance, mode of poisoning thyroid malignancy (n=89)

Type of poisonous substance	N (total=83)	Percentage %
Organophosphorus	31	37.34
Rodenticide	10	12.04
Drugs	8	9.63
Unknown	4	4.81
Paracetamol	9	10.84
Mushroom	3	3.61
Zinc phosphide	11	13.25
Methanol	1	1.20
Aconite	2	2.40
Cypermethrin	1	1.20
Dhatura	1	1.20
Phenol	1	1.20
Carbon monoxide	1	1.20
B. Mode of Poisoning		
Suicidal	66	79.51
Accidental	17	20.48
Homicidal	0	0
No complains	7	8.43

Table 3: Based on the clinical presentation of patient-thyroid malignancy (n=89)

Clinical presentation	Number of cases	Percentage %
Nausea and vomiting	60	72.28
Pain abdomen	13	15.66
Loss of consciousness	7	8.43
Abnormal body movements	8	9.63

Table 4 Type of disposal of patients thyroid malignancy (n=89)

Outcome	Number of cases	Percentage
Discharged	63	75.90
LAMA*	16	19.27
Discharge on request	3	3.61
Death	1	1.20

DISCUSSION

Poisoning is an increasingly common social problem in developing countries like Nepal. Globally, most suicides in low- and middle-income countries are caused by pesticide poisoning. It is estimated that 300 000 people die annually in Asia from pesticide ingestion.¹⁴ Our study included about 83 cases in the age group >15 years. The majority of cases were females in the age group 15-25 years, who used organophosphorus compounds with suicidal intentions. This is similar to the two other studies done in Nepal where most of the cases were of age group 15-25 years⁶ and 11-20 years.⁵ In most of the studies conducted on acute poisoning, high female preponderance was reported. In a study conducted at Gandaki Medical College Teaching Hospital, by Acharya K, et al.¹ about 70% of cases were females. While in a study by Shakya R, et al.⁵ female: male ratio was reported to be 2.1:1. Many other studies conducted in Nepal also reported the highest number of cases to be female.^{7,8,9} Likewise, in a study done in Northeast Ethiopia, by Getie A, et al.¹⁰ the female showed a higher number of cases as compared to males. Whereas, in a similar study conducted by Maskey A et al.⁶ male preponderance was reported and showed about 43.8% were females and 56.2% were males. In this study, organophosphorus compounds(37.34%) followed by rodenticides(12.04%) were mostly used for poisoning. Similarly, a study conducted in Western Regional Hospital, Pokhara, by Thakuri SBH et al.¹⁰ majority of cases reported to be of OP poisoning(43.33%) as it is in Northeast Ethiopia.¹¹ In a study conducted in Shenyang, China, by Zhang Y et al.¹² the most common agent used were therapeutic drugs(32.6%) followed by pesticides(26.9%). Also, in a study conducted in Uttarakhand, India,^[13] about 69.38% of total cases were reported to be insecticides/pesticide poisoning. So, the compounds used for poisoning appear to be different in different parts of the world. Most of the cases in our study were reported to be of suicidal intention(79.51%) as was reported in a study conducted in different parts of the world.^{10,11,12,13} The majority of the patients were discharged(75.90%) after proper management and care, while 19.27% of total cases, were left against medical advice. Overall mortality was found to be 1(1.20%) in our study. While in a study conducted by Maskey A et al.⁶ the overall mortality appeared to be 6.9%. However, the exact number of mortality cannot be ascertained as 19.27% of cases are left against medical advice due to financial reasons.

CONCLUSION

In developing countries like Nepal, cases of acute poisoning have been rapidly rising. Our study showed that the majority of the cases are females of the younger age group. Most of them were with suicidal intention and organophosphorus compounds has been used in the highest number of cases. Community-based awareness programs will help to educate people about the dangers of certain poisons and will reduce the instances of poisoning. Implementation of strict rules regarding the sale of pesticides that are easily accessible and affordable would help. Training healthcare staff about early diagnosis and proper management of acute poisoning cases would help to improve the outcome.

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