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Demographic characteristics, patterns and outcome of poisoning in emergency department

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Abstract

Introduction: Poisoning is one of the common medical emergencies presenting in the emergency department. It is emerging as a leading cause for suicidal purpose in recent years. This study aims to analyze the characteristics of poisoning based on age, gender, marital status, occupation, poisoning substance, intention, reason for taking poison and its outcome.

Method: This is a descriptive prospective cross sectional study conducted at emergency department of KIST Medical College and Teaching Hospital from 20th June 2020 to 19th June 2021. A total of 128 patients who presented with history of oral ingestion of poison were included in this study. Informed consent was taken and preset proforma was filled. Data was then entered in MS Excel and analyzed using STATA 14.

Result: The majority of poisoning patients belonged to age group 21-30 years 50(39.06%), female 75(58.59%), married 75(58.59%) and housewife by occupation 35(27.34%). Common poisoning substance found were organophosphorous 44(34.38%) followed by zinc phosphide and mixed drugs 20(15.63%). 103(80.47%) patients used poisoning for suicidal intention and common reason for taking poison was found to be domestic quarrel 67(52.43%). Out of 128 patients 74(57.81%) were admitted, 52(40.63%) were discharged on patients request and 2(1.56%) was referred out due to unavailability of intensive care unit bed.

Conclusion: Poisoning was found more in female, young adults, married and housewives. Common poisoning agents found was substances which are easily available at home and local shops. Patients are irrationally using these substances for suicidal purpose.

Keywords: Characteristics, Emergency department, Poisoning

INTRODUCTION

Poisoning is one of the common medical emergencies presenting in the emergency department. Patients are rushed to the hospital emergency, irrespective of the nature and amount of poison.¹ Although poisoning is preventable, it is still a public health issue globally.² Age standardization death rate of Nepal due to poisoning is 6.76 per 100000 populations, which falls under top 50 causes of mortality.³ Cases of poisoning are increasing day by day owing to changes in lifestyle and social behavior of humans. Over the counter easy availability of these drugs is one of the major factors for this burden, which should be strictly controlled.^{4,5}

Acute poisoning can be unintentional or intentional. Studies have shown that unintentional poisoning is more common in children and intentional poisoning is more common in adults. Motive of intentional poisoning may be recreational, suicidal or assault and for unintentional it may be accidental, drug reaction or occupational.⁶

Type of poisoning cases differ from country to country; even differs in different geographical regions of the same country. The management of acute poisoning depends upon hospital protocols and availability of required health care resources.⁷ Early diagnosis and appropriate timely management is the key to survival of the patient.⁸ It is essential to determine current poisoning trend to plan management and take necessary action against it. Hence, this study was conducted to determine the pattern of poisoning and its outcome in a tertiary care hospital in Lalitpur (Kathmandu), Nepal.

METHOD

This is a descriptive cross sectional study conducted at the Emergency Department of KIST Medical College and Teaching Hospital from 20th June 2020 to 19th June 2021 after obtaining ethical clearance from Institutional Review Committee (IRC) of KIST Medical College (IRC No: 076/077/35). Patients who presented to the emergency department with history of oral ingestion of any poison were included in this study. Cases presented with history of poisoning i) other than oral route, ii) food poisoning, iii) animal bites, iv) insect bites, v) allergic reaction to drugs were excluded in this study. Informed consent was taken from the first degree relative and details regarding age, gender, marital status, occupation, name of poison, intention, reason and outcome were filled in the preset proforma sheet. Data were entered in Microsoft Excel and analyzed using STATA version 14.0. Categorical variables were analyzed in the form of frequency and percentage.

RESULT

A total of 128 patients presented to the emergency department of the KIST medical college and teaching hospital with history of oral ingestion of poisons during the study period. In this study the majority of poisoning patients

belonged to age group 21-30 years 50(39.06%) and most of the poisoning patients were female 75(58.59%).

In this study maximum number of patients was married 75(58.59%). According to the occupation of the patients, most of the patients were housewife 35(27.34%) followed by student 33(25.78%).(Table 1).

Table 1. Characteristics of study population

Characteristics	N(%)
Age groups (years)	
<1	1(0.78%)
1-10	9(7.03%)
11-20	25(19.53%)
21-30	50(39.06%)
31-40	20(15.63%)
41-50	10(7.81%)
51-60	7(5.47%)
>60	6(4.69%)
Gender	
Female	75(58.59%)
Male	53(41.41%)
Marital status	
Married	75(58.59%)
Unmarried	46(35.94%)
Widow	4(3.13%)
Divorced	3(2.34%)
Occupation	
Housewife	35(27.34%)
Student	33(25.78%)
Job holder	24(18.75%)
Unemployed	14(10.94%)
Business	12(9.38%)
Laborer	8(6.25%)
Farmer	2 (1.56%)

This study revealed that most common poison ingested was organophosphorous 44(34.38%), followed by zinc phosphide 20(15.63%) and mixed drugs 20(15.63%). Among mixed drugs ingestion, substance revealed were drugs usually available at home and prescribed drugs like NSAIDs, cough syrups, anti cold medicines, multi vitamins, calcium tablets, antibiotics, antihistamines, benzodiazepines etc. Common intention of poisoning was found to be suicidal 103(80.47%) then accidental 25(19.53%). Accidental poisoning was commonly found in smaller children and older age groups. Common reason for taking poison was found to be domestic quarrel 67(52.34%) followed by love tragedy 19(14.84%). (Table 2).

Regarding the outcome, 74(57.81%) were admitted in intensive care unit after initial emergency management, 52(40.63%) went on discharge on patient request (DOPR) and 2(1.56%) were referred out. None of the patients expired during treatment in the emergency department. (Table 3).

Table 2. Characteristics of poison

Characteristics	N(%)
Name of poison	
Organophosphorus	44(34.38%)
Zinc phosphid	20(15.63%)
Mixed drugs	20(15.63%)
Paracetamol	8(6.25%)
Ethyl alcohol	8(6.25%)
Aluminium phosphide	4(3.13%)
Sulphuric acid	4(3.13%)
Kerosen	4(3.13%)
Hydrocarbon	3(2.34%)
Carbolic acid	3(2.34%)
Hydrochloric acid	3(2.34%)
Urea	2(1.56%)
Tetrahydrocannabinol	2(1.56%)
Sodium hydroxide	1(0.78%)
Formaldehyde	1(0.78%)
Turpentine oil	1(0.78%)
Intention of poison	
Suicidal	103(80.47%)
Accidental	25(19.53%)
Reason for taking poison	
Domestic quarrel	67(52.34%)
Accidental	25(19.53%)
Love tragedy	19(14.84%)
Financial issues	12(9.38%)
To threat family	5(3.91%)

Table 3. Outcome of patient

Outcome	N(%)
Admission	74(57.81%)
Discharge on patients request	52(40.63%)
Referred out	2(1.56%)

DISCUSSION

In this study, the maximum number of poisoned patients was found between 21- 30 years of age (39.06%). This finding is similar to the retrospective studies done in Northeast Ethiopia and Karnataka, India.^{8, 9} This age groups tend to have more stress, as they are active mentally, physically and socially.¹⁰ Involved in love life, facing love tragedies and stress of studies could be other factors for increased stress at these ages.

This study revealed that poisoning was more common in female (58.59%) than male patients. Several studies done in India, Turkey and Ethiopia showed similar results.^{5, 11, 12} However this finding contradicts with the studies done in Northern India, Saudi Arabia and Kerala, where male patients consumed more poison.^{2,4,13} Reason behind female preponderance could be that they have to manage household work, children and workplace and fulfill familial obligations because of which they feel overwhelmed with time pressures and unmet obligations.

In this study, 58.59% poisoned patients were married but marriage alone cannot be a reason for self harm. Similar finding was found in studies done in Kathmandu Medical College and Eastern Nepal.^{14,15} Reason behind this could be with marriage increases responsibilities, financial burden and increase basic needs with time which can increase stress and frustrations.

In our study more patients were found to be housewives followed by student, which is similar to study done in Palpa, Nepal.¹⁶ Commonly ingested poison was found to be organophosphorous, which constitutes 34.38%, followed by zinc phosphide and mixed drugs 15.63% and paracetamol 6.25% respectively. This finding is similar with other studies carried in different places of the world.^{1, 3, 7, 16, 17} Low cost and easy availability of these substances in local shops could have made them popular agents for poisoning in our part of world.

Suicide was the common intention of poisoning (80.47%), followed by accidental. This finding is similar to the studies done in Bangladesh, India, Turkey and Ethiopia.^{5, 8, 12, 18} However, study done in Saudi Arabia showed more accidental poisonings.² Current global economic downturn, loss of employment, disturbed mental health and family disputes may be the reasons for increased frustration and suicidal rates. In this study, domestic quarrel (52.34%) was the most common reason for taking poison. Similar results were found in studies done in Northeast Ethiopia and Chennai.^{9, 19}

In this study 57.81% of the patients were admitted in intensive care unit after initial management in emergency department. 40.63% were advised for admission but discharged on patient's request. Reasons for refused admission were financial issues and family disputes. 1.56% was referred out due to unavailability of intensive care unit bed at that time. None of the patient expired during emergency stay.

There were certain limitations of the study. This study was done in one center, short period of time hence results may not be generalized. Patients were not followed after initial management and admission from emergency department..

CONCLUSION

Poisoning was found more in young adults, female housewives and students. Poisoning agents used commonly were Organophosphorous, Zinc phosphide, Paracetamol, other drugs and substances which are easily available at home and local shops. Patients are irrationally using these substances for suicidal purpose. This type of study should be regularly conducted to know the current poisoning trend for antidote storing and better management.

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Conflict of Interest

None

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None

Ethical Clearance

It was taken from IRC of KISTMCTH.

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