

A Study on Incidence and Patterns of Acute Poisoning Cases in an Emergency Department of Western Region of Nepal

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ABSTRACT

Introduction: Poisoning is a common cause of morbidity and mortality in the Nepal. The objective of our study is to evaluate the incidence and pattern of acute poisoning cases admitted to the Gandaki Medical Teaching Hospital.

Methods: This is cross-sectional observational study carried out among acute poisoning cases attending emergency department from January 2015 to December 2017.

Results: A total of 156 poisoning cases were treated of which female patients were 71% and the highest numbers (36.5%) of patients were in the age group 21 to 30 years. Organophosphates poisoning was the commonest poison diagnosed among 28.8%, followed by rodenticide poisoning found among 27.5%. Psychiatric illnesses were present among 94.8% of our patients. The most common diagnosis were Anxiety and depression 46.6% followed by family dispute among 30.4%. Above fifty percent of our patients attended our emergency department within 2 hours our ingestion of poisons.

Conclusion: Female and young people are at greater risk of acute poisoning. Pesticides were the most common agent. The reasons for the poisoning need to be carefully evaluated and proper support and advice must be given in poisoning cases.

Keywords

Emergency, poisoning, organophosphates, Nepal.

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INTRODUCTION

Acute poisoning account for significant morbidity and mortality worldwide, especially in developing countries like Nepal.¹ As per World Health Organization (WHO) estimates 0.3 million people die every year due to various poisoning agents.² Poisoning is one of the major cause of hospitalization through emergency department and is a major public health problem in Nepal.³

The nature of use of poisons varies in different parts of the world and may vary even in different parts of the same

country depending upon the socio-economic factors and culture diversity. In industrialized countries commonly uses analgesics, tranquilizers and antidepressants agent for mode of poisoning. Whereas developing countries which are agriculture dominant- pesticides agents are the most common methods used.^{4,5}

Knowledge of general pattern of poisoning in a particular region can help in early diagnosis and treatment, thus contributing to a decrease in mortality and morbidity. Hence the present study was conducted with the main objective to study the incidence and pattern of acute poisoning cases attending Emergency department of

Gandaki Medical Teaching Hospital, Pokhara, Nepal.

ingestion (Table 4).

METHODS

This is cross-sectional observational study carried out among acute poisoning cases attending the Emergency department of Gandaki Medical College Teaching Hospital from January 2015 to December 2017 was enrolled in our study. Approval of this study was obtained from Institutional Review Committee and informed consent was taken from the patients or their family members.

The inclusion criteria included the poisoning cases attending the Emergency Department of Gandaki Medical College Teaching Hospital. The collected data was reviewed verified and statistically analyzed using the Statistics Packed for Social Science (SPSS) version 16 and Microsoft Excel 2007. Descriptive statistics was used for all studied variables.

RESULTS

One hundred and fifty six patients were included in the study. Our study patient age ranged from two to 69 years. Maximum number of patients-36.5% belonged in the age group category of 21-30 years followed up by 29.1% in age group of 11 to 20 years (Figure 1). There were 111 females and 45 males. Maximum above ninety percentage of our patient mode of poisoning was suicidal intention. Almost 60.2% of our patients were married and 37.1% of individuals were unmarried. Almost sixty percentages of our patients were from around Pokhara valley area and rest of them was from the rural areas of the districts (Table 1).

Psychiatric illnesses were present among 94.8% of our patients. The most common diagnosis was Anxiety and depression was 46.6%, family dispute among 30.4% and mood disorder among 7.4% of our patients (Table 2). Among the types of poisoning- Organophosphates poisoning was the most common poison diagnosed among 28.8% of our patients, Rat poisoning was found among 27.5% and other poisons were found among 16.6% (Table 3). Above fifty seven percent of our patients attended our emergency department within 2 hours our ingestion of poisons followed by twenty eight percent within 2-4 hours and almost fifteen percent after 4 hours of poison

Age wise Distribution

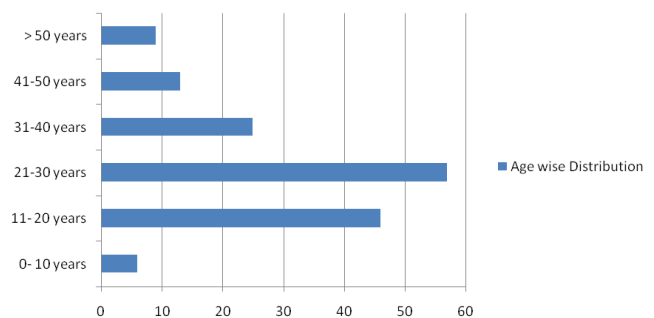


Figure 1: Age wise distribution of patients.

Table 1: Socio demographic distribution of study patients (N=156)

Patient characteristics	Number (%)
Sex	
Male	45(28.8%)
Female	111(71.2%)
Mode of poisoning	
Suicidal	148(94.8%)
Accidental	8(5.2%)
Socioeconomic status	
Low	4(2.6%)
Medium	152(97.4%)
Urban and rural distribution	
Rural	56(35.9%)
Urban	100(64.1%)
According to marital status	
Married	94(60.3%)
Unmarried	58(37.2%)
Divorced	4(2.5%)

Table 2: Psychiatric illness analysis of poisoning patients (n = 148)

Psychiatric Illness	Number (%)
Anxiety and depression	69(46.6%)
Family dispute	45(30.4%)
Excess stress and anger	11(7.4%)
Economic crisis	10(6.7%)
Fail in exam	7(4.7%)
Substance abuse	6(4.2%)

Table 3: According to type of poison (n = 156)

Types of Poisoning	Number (%)
Organophosphorous poisoning	45(28.8%)
Rodenticides	43(27.6%)
Paracetamol	6(3.8%)
Mushroom poisoning	4(2.5%)
Other drugs	12(7.7%)
Other poison	26(16.7%)
Unknown	20(12.9%)

Table 4: Time elapsed since exposure to hospital arrival (n=156)

Hospital Arrival time	Number (%)
Less than 2 hrs	90(57.6%)
2-4 hrs	45(28.8%)
>4hrs	21(13.6%)

DISCUSSION

Poisoning is an increasing 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.⁶ This is the first study done on incidence and pattern of poisoning in Emergency department of Gandaki Medical College Teaching Hospital, Pokhara Nepal.

In our study patient age group varied from 2 years to 69 years. Maximum numbers of patients 36.5% were in age group of 21-30 years. This highlights that adolescents and young adults are the vulnerable age group with increased risk in our community. This finding were similar with study done in Palpa were 24.6% of patients were in the similar age group.⁷ Suvedi et al⁸ in a study done at Bir Hospital showed that 14 to 29 years age group were the most age group presenting with poisoning cases in the emergency.

The present study found that the incidence of poisoning were more common in female patients compared to male patients. There were 72% of female attended our emergency department compared to male 28% of the total patients. These findings were similar with study done at Manipal teaching hospital, were female patients were 54.08%.⁹ A study done in emergency department of Turkey showed female to male ratio of 3.5:1.¹⁰ Hence

is shows higher prevalence of poisoning cases were reported in female patients compare to males. The reason for the finding may be that females were more emotionally unstable. They are economically dependent on male counterpart. They may suffer from domestic violence and abuse in the family and community as well.

Our study showed above 90% of poisoning cases was due to suicidal intentional and rest was due to accidentally. In study done at Bir Hospital by Singh et al³ showed 97% of cases were due to intentional poisoning for suicidal attempt. This shows there is increasing trend of intentional poisoning in the community may be due to undiagnosed psychiatric conditions in the patients like depression and low self esteem. Homicidal poisoning was mainly confined to the effects made by robbers to rob people by giving some fruit juice mixed with sedative agents to drink for the purpose. Demographical pattern showed maximum patient were from around Pokhara valley region as the city is the province capital and people living here for more job opportunities and better education facility.

On evaluation of the co-morbidity health status of our patients showed psychiatric illness analysis commonly present were anxiety and depression 46.6%, family dispute among 30.4% and mood disorder among 7.4%. There is increase incidence with mental disorder in our patients. Psychiatric evaluation and consultation with support in the community is very important in management of poisoning in Nepal.

Organophosphorus compound was the most common poison found in our study. Almost 30 percent of our patient had taken organophosphorus substance for suicidal intention. These findings were consistent with other studies done in Kafle et al¹¹ and Poudyal et al.¹² Second in the list was rodenticide containing phosphides substance in 25 %. The reason to have increased cases of these substances for poisoning is due to easy and wide-spread availability in our market for agriculture insecticides purposes. In this study, medicinal preparation used for poisoning was 18%. Paracetamol and other drugs available over the counters like analgesics and anxiolytics were more commonly used.

In this study, most of patients 64 % had arrived hospital within two hours after ingestion of poison. In study done by Singh et al almost similar number of patients had arrived hospital within 3 hours.³ As our hospital being in center part of Pokhara, we expect patients visiting our hospital.

CONCLUSIONS

In developing country like Nepal, poisoning is important public health importance concern hence appropriate intervention program is needed. Female and young people are at greater risk of acute poisoning. Deliberate self harm was the more common reason for poisoning in our subjects. Pesticides were the most common agent. The reasons for the poisoning need to be carefully evaluated and proper support and advice must be given in poisoning cases. Further multi-center study is needed to study the incidence and pattern of poisoning in Nepal.

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