Original article

Pattern of poisoning cases in Bir Hospital

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Background: Poisoning is one of the major causes of hospitalization through emergency and is a major public health problem in the country. For starting preventive measures, information on nature and extent of poisoning is required. For some years, there has been no study on poisoning at Bir hospital.
Objectives: To find out the patient profile, the common poisons and outcome of poisoning cases.
Materials and Methods: A retrospective analysis of all acute poisoning cases admitted to the emergency department of Bir Hospital from January 2005 to June 2005 was done to study the pattern of acute poisoning. Data on age, sex, time elapsed after intake, circumstances of poisoning, name of the poisonous substance, actual use, chemical type, hospitalization days, severity and outcome were collected and analyzed.
Results: The age of the patients varied from 16 to 65 years. The male female ratio was 1:1.3. More than three-fourth (76.8%) of the female patients were from 16 to 25 years age group. Similarly, 46.5% of the male patients were from 16 to 25 years age group. In more than 25 years of age, there was male predominance in all the age group. The common insecticides used for poisoning were organophosphorus compounds mainly Methyl Parathion (Metacid) and Dichlorovos (Nuvan). Paracetamol alone or combination preparations with antihistamines were the most common analgesic used. Benzodiazepines were the most commonly used anxiolytics. Ninety-seven percent of cases were intentional poisoning for suicidal attempt. Most of the cases (61.6%) had arrived hospital within 3 hours after exposure to the poison. The hospital stay of the admitted patients with poisoning ranged from one to sixteen days. The mean hospital stay was 5.9 days. During the hospital stay, six (6.0%) cases were managed in Intensive Care Unit (ICU) service. In this study, only 3% cases had mortality. There were 5 cases of Aluminium Phosphide poisoning but surprisingly, none of them died from this highly toxic poison.
Conclusion: Suicide among adolescents and young adults is a common public health problem. Patients with intentional poisoning must undergo psychiatric consultation during their stay in the hospital for the treatment poisoning. This will minimize the risk of next attempt of self harm. In addition, strict rules must be followed regarding sale of psychotropic medicines and pesticides. Effective clinical management of poisoning can minimize the mortality.

Introduction

Acute poisoning is one of the urgent medical problem and a major causes of hospital admission through emergency. Poisoning is a common cause of mortality, especially among the young people in hospitals in Nepal. Use of poison is the main method of attempted suicide.[1] Poisoning is one of the major public health problems in the country. For starting preventive measures, information on nature and extent of poisoning is required. For some years, there has been no study on poisoning at Bir hospital. In this context, the present study was carried out to find out the profile of poisoning cases attending Emergency Department of Bir Hospital.

Objectives

- To determine the age sex distribution of poisoning cases.
- To find out the common poisons.

- To find out the time elapsed from poisoning to the arrival at the hospital.
- To find out the duration of hospital stay and need of intensive care in different types of poisonings.

Materials and Methods

A retrospective analysis of all acute poisoning cases admitted to the emergency department of Bir Hospital from January 2005 to June 2005 was done to study the pattern of acute poisoning. All the admitted cases of poisoning were included in the study. As pediatric patients are not taken care in this hospital, obviously that component could not be studied. Data on age, sex, and time elapsed after intake, circumstances of poisoning, name of the poisonous substance, actual use of the substance, chemical type, hospitalization days, severity and outcome were collected and analyzed.

Results

A total of 99 patients were admitted with poisoning during the 6 months of study period. There were 43 males and 56 females and the male female ratio was 1:1.3. The age of the patients varied from 16 to 65 years. More than three-fourth (76.8%) of the female patients were from 16 to 25 years age group. Similarly, 46.5% of the male patients were from 16 to 25 years age group. In more than 25 years of age, there was male predominance in all the age group *(Fig.1)*.

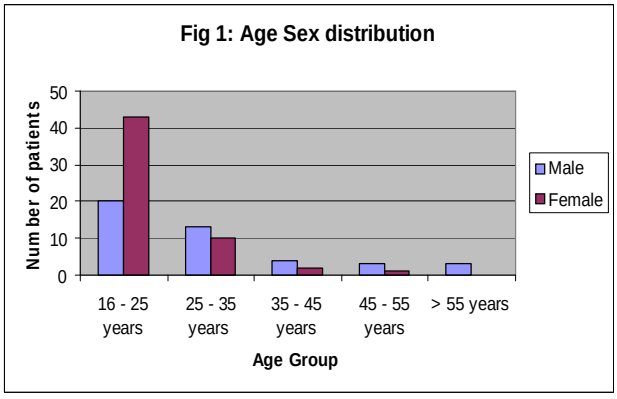

Fig 1: Age, Sex distribution

The common insecticides used for poisoning were organophosphorus compounds mainly Methyl Parathion (Metacid) and Dichlorovos (Nuvan). There were 21 cases of Metacid poisoning and 16 cases of Nuvan poisoning. Paracetamol alone or combination preparations with antihistamines were the most common analgesic used. Benzodiazepines were the most commonly used anxiolytics *(Fig.2)*.

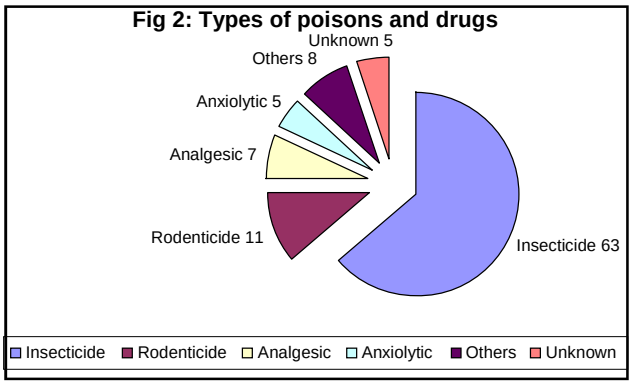

Fig. 2: Types of poison and drugs

Circumstances of poisoning: Ninety-seven cases (98.0%) were intentional poisoning for suicidal attempt and two cases (2.0%) had accidental poisoning.

Most of the cases (61.6%) had arrived hospital within 3 hours after exposure to the poison *(Table 1)*.

Table 1: Time elapsed since exposure to arrival at hospital

Time elapsed	Number of cases
1 hour	22 (22.2%)
2 hours	20 (20.2%)
3 hours	19 (19.2%)
4 hours	8 (8.1%)
5 hours	4 (4.0%)
6 hours	6 (6.1%)
>6 hours	20 (20.2%)
Total	**99**

The hospital stay of the admitted patients with poisoning ranged from one to sixteen days. The mean hospital stay was 5.9 days. The average hospital stay for different types of poisons is shown in the (*Table 2*).

Table 2: Hospital Stay

Poisons	Average Days
Insecticide	7.4
Rodenticide	2.1
Analgesics	5.7
Anxiolytics	2.8
Others	3.8
Unknown	2.0

During the hospital stay, six (6.1%) cases were managed in Intensive Care Unit (ICU) service *(Table 3).*

Table 3: Cases managed in ICU

S. No.	Poisons	Days in ICU	Outcome
1	Aluminium Phosphide (Celphos)	1	Recovered
2	Chloroform	5	Recovered
3	Dichlorovos (Nuvan)	3	Died
4	Methyl Parathion (Metacid)	2	Died
5	Methyl Parathion (Metacid)	5	Died
6	Mushroom	1	Recovered

In this study, only 3% cases had mortality. Among three deaths, two had Metacid poisoning and one had Nuvan poisoning. They died on 2nd, 3rd and 5th days of poisoning. There were 5 cases of Aluminium Phosphide poisoning but surprisingly, none of them died from this highly toxic poison.

Discussion

This study showed females to be more vulnerable than male. The male to female ratio was 1:1.3. Similar findings have been reported from several studies conducted at Bir Hospital, Tribhuvan University Teaching Hospital and Patan Hospital[2-9].

In this study, more than three-fourth (76.8%) of the female patients were from 16 to 25 years age group. Similarly, 46.5% of the male patients were from 16 to 25 years age group. Prasad et al in a study at Tribhuvan University Teaching Hospital had reported 32 percent of cases of poisoning between the ages 15 and 20 years[10]. In a similar study at Bir Hospital, Suvedi found 14-29 years age group to be most vulnerable to poisoning[5]. Thus, adolescents and young adults are at more risk and there is a need for intervention program. Though the number of cases was small, there was male predominance in all the age group above 25 years of age.

The common insecticides used for poisoning were organophosphorus compounds mainly Methyl Parathion (Metacid) and Dichlorovos (Nuvan). This is consistent with other studies carried out in Nepal[2-10]. There were 21 (21.2%) cases of Metacid poisoning and 16 (16.2%) cases of Nuvan poisoning. In a small study from eastern town of Dharan, 62% poisoning patients had Metacid poisoning[3].

In this study, medicinal preparations used for poisoning was 12.1%. Paracetamol alone or combination preparations with antihistamines were the most common analgesic used. Benzodiazepines were the most commonly used anxiolytics. In other studies done at Bir Hospital in the past showed the use of medicinal preparations used for deliberate poisoning to range from 15.6 to 21.6%[5,11].

Ninety-seven percent of cases were intentional poisoning for suicidal attempt. Other studies have shown lesser percentage of suicidal attempts probably due to inclusion of children in the study[2-3].

In this study, most of the cases (61.6%) had arrived hospital within 3 hours after exposure to the poison. In a study done in the town of Dharan in 1995-96, 90% of the patients presented within 2 hours of ingestion of the poison[3].

The hospital stay of the admitted patients with poisoning ranged from one to sixteen days. The mean hospital stay was 5.9 days. Similar findings were observed in other studies as well[3, 12]. During the hospital stay, six cases were managed in Intensive Care Unit (ICU) service.

In this study, only 3% cases had mortality. Among three deaths, two with Metacid poisoning died on 2nd & 5th day in ICU and one with Nuvan poisoning died on 3rd day of hospitalization in ICU. In other studies in Nepal, the mortality ranged from 5 to 8%[2, 3, 5, 7]. There were 5 cases of Aluminium Phosphide poisoning but surprisingly, none of them died from this highly toxic poison. This may be because of the very small number of sample. A study recently published from Morocco showed a mortality rate from Aluminium Phosphide poisoning to be 65%[13]. Similarly, another study done in India showed 59% mortality[14]. This highly toxic poison has already been banned in some countries[15] but is easily accessible and affordable in Nepal. There is an urgent need for strict implementation of the Pesticide Act, which regulates the import, manufacture, sale, transport, distribution and use of pesticides with a view to prevent risk to human beings[16].

Conclusion

Almost all poisoning were suicidal attempts. With the increasing stress in life, suicide among adolescents and young adults is a common public health problem. Patients with intentional poisoning must undergo psychiatric consultation during their stay in the hospital for the treatment poisoning. This will minimize the risk of next attempt of self harm.

Strict rules must be followed regarding sale of psychotropic medicines and pesticides. Potentially poisonous medicines must not be sold without prescription of registered medical practitioners. Similarly, the pesticides must be sold in the presence of a witness who should be known to the client.

As poisoning is a common medical problem, the clinical management have to be improved by several ways like - establishing a poison information and monitoring centre in different parts of the country, preparing national treatment guidelines and training health care providers and ensuring easy availability of the anti-dotes.

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