Acute poisoning cases in emergency department of tertiary level hospital, Kathmandu

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ABSTRACT

Introduction: To determine the pattern of acute poisoning cases presenting to the Tribhuvan University Teaching Hospital (TUTH), Nepal.

Method: A hospital based cross sectional study was carried out in the emergency department of TUTH analyzing the data of poisoningw cases that attended emergency during one year period.

Result: A total of 276 cases presented to the emergency during the period of one yearfrom February 9, 2010 to February 8, 2011. There were 111 males (40.2%) and 165 females (59.8%). Most of the patients (42%) were in age group of 20-30 years. 170 (61.6%) patients were married. Occupation wise, 31.5% of the cases were housewives, 30.1% were students and 14.5% were laborers. Most of the cases were suicidal (75.4%). Insecticide was the most common poison (40.2%) whereas in 46 patients the poisons could not be identified. Oral was the route of poisoning in almost all cases (99.6%). Most of the cases had presented within 12 hours of intake of poison. Previous psychiatric illness was present in 13 cases (4.7%). Only 12 cases (4.3%) were admitted.

Conclusion: Females and young people are at greater risk of poisoning. The most common agent is insecticide and self-poisoning is the most common mode of poisoning.

Keyword: acute poisoning, emergency, insecticide.

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Introduction

Poisoning due to chemical, pharmaceutical, plants and animal toxins is a worldwide phenomenon and has heavy social and economic impact on country's health care system. Poisoning is a common cause of admission and mortality, especially of the young people in hospitals in Nepal.[1]Early diagnosis and proper management of poisoning is very crucial, the failure of which may lead to dreadful consequences or even death. Incidence of poisoning depends upon the socio-economic status, degree of intent of self-harm and the availability of the poison.[2] Our study aims to find out the incidence of poisoning in a tertiary level teaching hospital and the related common variables like age, sex, occupation, history of psychiatric illness, reasons for exposure and routes of exposure to the poison, vital signs, chief complaints, treatment and the outcome of the patients.

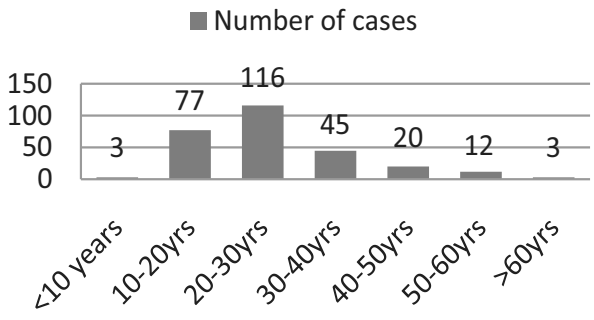
Method

A hospital based study was carried out in the emergency department of Tribhuvan University Teaching Hospital, Kathmandu. Data regarding age, sex, occupation, history of psychiatric illness, reasons for exposure and routes of exposure to the poison, vital signs, chief complaints, treatment and the outcome of the patients were obtained from the emergency tickets recorded in the emergency department of TUTH and were analyzed. Following patients were not included in our study: patients with acute poisoning but already dead on arrival to the emergency, patients with chronic, environmental and industrial poisoning, patients with food poisoning, patients with snake/insect bite and those brought by the police for the investigation of intake of alcohol. The collected data was analyzed using SPSS 17.0.

Result

A total of 276 cases were admitted in the emergency during a one year period from February 9, 2010 to February 8, 2011. This figure comprises 0.7 % of total 39420 patients presenting to emergency during the one year period. There were 111 males (40.2%) and 165 females (59.8%) and the male to female ratio was 1:1.48. The majority of poisoning was found in the age group of 20-30 years (42%) followed by 10-20 years (27.9%)

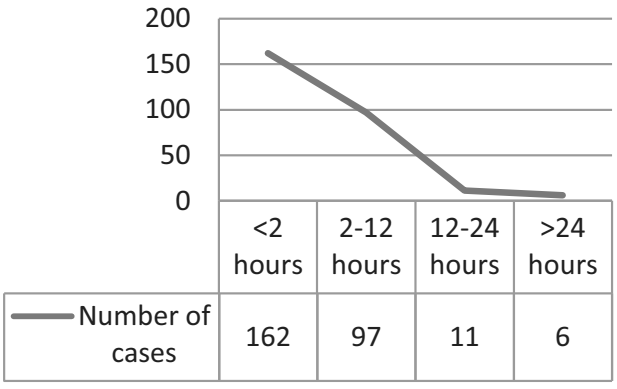
Figure 1. Distribution with age



170 (61.6%) cases were married, 104 (37.7%) were unmarried and 2 (0.7%) were widows. Poisoning was found to be more common in housewives 87(31.5%) and in students83 (30.1%) . Out of total patient 87(32%) were housewifes, 83(30%) were students, 40(14%) were labours, 27(10%) were service holders, 19(7%) were business people, 16(6%) were unemployee and 4(1%) from various occupations

There were 78 cases (28.3%) in spring, 61 cases (22.1%) in summer, 76 cases (27.5%) in autumn and 61 cases (22.1%) in winter. 162 cases (58.7%) had presented within 2 hours of intake of poison and 97 cases (35.1%) had presented at 2-12 hours after intake of poison

Fig 2: Duration of intake of poison before presentation



It was observed that insecticides including organophosphates accounted for 111 cases (40.2%) and type of poison could not be identified in 46 cases (16.7%)

Figure 3. Type of poison

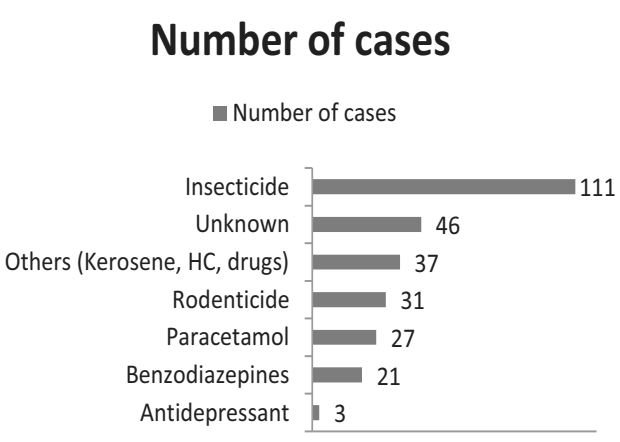
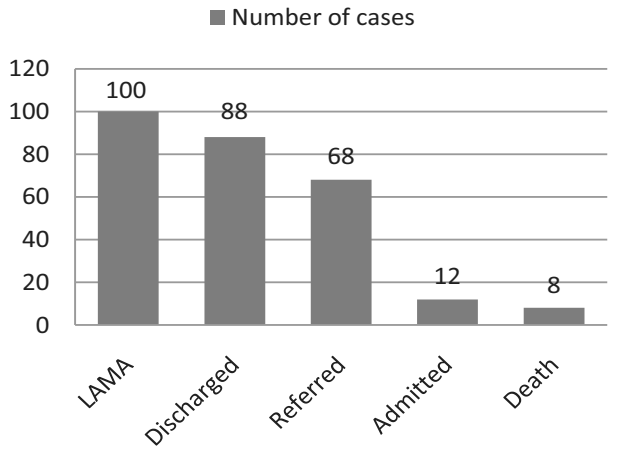


Figure 4. Outcome of poisoning



Oral ingestion was the route of poisoning in all but one of the cases which was inhalational. 208 cases (75.4%) wereintentional as mentioned by the patient him/herself, the patient relatives or the police who brought them.36 cases (13%) were accidental and 29 cases (10.5%) were homicidal. Previous psychiatric illness was present in 13 cases (4.7%). Common clinical presentations have been summarized in table 1.

Table 1. Common presenting clinical feature in order of frequency

Clinical features	Number of cases	Percentage
Nausea, vomiting, burning sensation	174	63
Loss of consciousness, unresponsiveness, drowsiness	114	41.3
Hallucination, restlessness, agitation	51	18.5
Salivation, lacrimation	45	16.3
Pupillary abnormality (constricted/ dilated)	42	15.2
Seizures	39	14.1

Only 12 cases (4.3%) were admitted and death occurred in 8 cases (2.9%) (figure 5). Most of the deaths occurred within 12 hours of presentation (N=7)

Discussion

In our study we found higher incidence of poisoning in females (female to male ratio of 1.48:1), which is similar to that shown by Marahatta et al[3] (1.35:1), Singh et al[4] (1.3:1) and Kishore et al[5] (1.18:1). A study by Thapa et al[6], however, has shown male predominance. The female preponderance in this study can be accounted to them being more prone to stress and strain. However, further study needs to be done to identify risk factors for such gender bias. Most of the cases in our study belonged to age group of 20-30 years followed by the age group of 10-20 years. This is consistent with studies carried out in other centres.[2-8] Higher incidence in this economically productive young age group has profound implications in the society. We found higher incidence of poisoning in married (61.6%) than unmarried (37.7%) individuals. A study by Pokhrel et al[8] has also shown poisoning more common among married individuals. Marital disharmony might be a contributory factor.

Although studies from Nepal indicated a seasonal variation with most cases occurring during summer[9], we did not find any such association. A study by Kishore et al[5] also did not find association with season.

As per our findings, housewives (31.5%) followed by students (30.1%) are the two most commonly involved group. Housewives occupied the first place in studies from other centers as well.[2,10-12] In similar studies by Thapa et al[6] and Khadka et al[7] students were found to be most commonly involved. However in a study by Maharatta et al[3] farmers were shown to be most commonly

involved (40.75%) followed by housewives (31.49%) and students (16.67%). Housewives and students can thus be considered at a higher risk for poisoning which may be due to fact that they are under considerable stress in life.

Most of the cases presented within 2 hours of intake of poison and almost all presented within 12 hours of intake. This is consistent with findings by Singh et al[4] and Kishore et al.[5] We believe this is the critical period and co-relates with prognosis and mortality rate. Early presentation facilitates immediate and effective treatment. Time lapse from the ingestion of poison to the presentation at hospital was significantly less among survivors than that among expired ones.[13]

In our study we found that insecticides including organophosphates accounted for a majority of cases (40.2%). Similar findings were noted in studies from various other centers.[3,4,6-8] In a study by Kishore et al[5] rodenticide was the most common agent involved owing to its easy availability in the region. In our study rodenticide poisoning accounted for 11.2% of cases. Among drugs, paracetamol (9.8%) and benzodiazepines (7.6%) were most commonly used. This is similar to study carried out by Pokhrel et al.[8] In 16.7% of cases the agent was unknown due to lack of information. Identification of poison is very important to institute appropriate antidote to the poison. In our study antidotes –atropine was given in all cases of OP poisoning and Pralidoxime was given in 50% of OP poisoning. Flumazenil was given in one case of benzodiazepine overdose and naloxone was instituted in 3 cases of opiate overdose.

Ingestion was the mode of poisoning in all but one case which was inhalational. Studies by Kishore et al[5] and Khadka et al[7] have also identified ingestion as the commonest route of poisoning. This emphasizes the importance of standard gastrointestinal decontamination procedures if a patient arrives on time. Gastric lavage was done in 80% of the cases. However the exact outcome of the patients after gastric decontamination or antidote could not be assessed in our study because of the large number of patients leaving against medical advice and larger number of cases referred after the decontamination. Our study did not look into the outcome of the patient after they were handed over to the medicine on duty doctor for admission in the medicine ward.

Presenting complaints help determine the initial symptomatic management of poisoning in most of the cases. Most common clinical features were found to be nausea, vomiting and burning sensation. Alteration in consciousness was another common feature. Hallucination, restlessness, seizures, salivation and lacrimation were also present. Pupillary abnormality was the most important sign elicited. The clinical features predominantly correlate with that of organophosphate poisoning, which is the most common form of poisoning. A study by Kishore et al[5] found chief complaints to be gastrointestinal in 50% and central nervous system related in 25.33% of cases. Our study did not look into symptoms according to poison.

Most of the poisoning cases were intentional (75.4%) as assessed by the medical doctor on duty at ED after taking history from the patients and relatives. Only few cases were accidental (13%) and homicidal (10.5%). This corroborates with findings from studies in other centres.[3-6]Accidental poisoning is more common among young children. In a study by Khadka et al[7], the number of accidental poisoning was greater (41.8%) than that in our study (10.5%) This could be explained by a greater proportion of children less than 10 years in their study (16.4%) compared to ours (1.09%).

We did not find any history of psychiatric illness in 95.3% of the cases. Further follow up studies need to be done to find out if intentional poisoning is the first manifestation of an unrecognized psychiatric illness in these cases.

Most of the cases left against medical advice (36.2%), while many were discharged (31.9%) or referred (24.6%). Only 12 cases (4.3%) were admitted. The difference in the rate of admission between our study and studies by Thapa et al[6] (46.6%) and Khadka et al[7] (50.7%) and a large number of cases referred in our study can be explained by the unavailability of bed in the hospital in proportion to the patients presenting with poisoning. The higher number of patient leaving against medical advice could be due to the patients' ignorance about the need of observation and further management. It could also be due to long hours the patients had to wait before getting admission to the hospital wards and lack of enough number of beds in the ER at that time.

Even with a serious exposure, poisoning is rarely fatal if the victim receives prompt medical attention and good supportive care.[14] In our study 7 cases died, 3 of them had presented within 2 hours and 4 of them within 12 hours of poisoning. However, since most of the cases presenting to us had left against medical advice or been referred or discharged, and the patient's condition was not followed up, we do not know the outcome of most of the cases.

Conclusion

Poisoning is a common public health problem and a major cause of death in children and young adults. There has been a rise in the number of cases of poisoning in recent years. This can be attributed to urbanization, increasing stress in life, family conflicts, economic instability and easy availability of drugs and pesticides.

Early detection of poisoning and prompt medical attention and good supportive care are cornerstones of poisoning management. Standard gastrointestinal decontamination protocols should be formed. Patients with suicidal poisoning should undergo psychiatric consultation to reduce the risk of future attempts.

Considering the use of drugs as a means of poisoning, over the counter sale of medicine should be prohibited and drugs should be sold only with a valid prescription. Strict rules should be implemented regarding sale of psychotropic medicines and pesticides.

Most of the pesticide poisoning and subsequent deaths occur in developing countries following a deliberate self-ingestion of the poison.[15]It is essential to recognize that female sex, young age, housewives and students are more prone to suicidal poisoning and are a target group for efforts to curb the incidence of poisoning. Measures should be aimed at youth education, employment opportunities, stress reduction and recreation facilities, healthful home environment and quality education.

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