CLINICAL PROFILE OF PATIENTS WITH POISONING ADMITTED TO TERTIARY CARE CENTRE OF NEPAL

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ABSTRACT

Background: Acute poisoning is one of major medical emergencies and a common cause of admission and death in hospitals in Nepal. In our country, agrochemicals including pesticides like Organophosphorus, organochlorine, zinc and aluminium phosphate are most common causative agents used for intentional or accidental poisoning. The study was aimed to assess clinical profile of patients with poisoning admitted to tertiary care centre of Nepal.

Methods: This retrospective study was conducted to see clinical profile of patients diagnosed with poisoning in Chitwan Medical College Teaching Hospital for 1 year period from February, 2022 to January, 2023. Data were collected from hospital medical records and Midas software. Data analysis was performed using Statistical package for Social Sciences version 21 and data are presented as frequency and percentage.

Results: A total of 150 cases of poisoning presented to our hospital during the one-year period. Among them, 42% patients were males and 58% females (1.38:1). Most of them (34%) belonged to age group of 21-30 years. Majority of the cases were suicidal (86%). Organophosphorus was the most common poison (36.66%), followed by rat poison (12.66%). About 44% patients went on Leave Against Medical Advice, 28% on Discharge On Request, 23% patients were discharged with full recovery, whereas mortality with treatment was 5%.

Conclusions: Poisoning is more prevalent in females and younger age group. The most common agent is Organophosphorus followed by rat poison. Self-poisoning with suicidal intent is the most common mode of poisoning. Mortality in this study was 5.33% which was more among Organophosphorus poisoning.

INTRODUCTION

Acute poisoning is one of major medical emergencies.¹ It is a common cause of admission and death in hospitals in Nepal.² Most common cause of poisoning is intention of deliberate self-harm.³ Majority of intentional poisoning cases occur in resource limited developing countries and are associated with higher morbidity and mortality.¹ Accidental and occupational exposure to pesticides are seen in farmers and children causing acute or chronic poisoning.¹

In Asian countries, agrochemicals including pesticides like Organophosphorus, organochlorine, zinc and aluminium phosphate are most common causative agents used for intentional or accidental poisoning while in developed and industrialized countries, misuse of drugs like paracetamol, opioids, benzodiazapines, tranquilizers and alcohol are seen.¹,³,⁴ Some hospital based studies and health surveillance have also supported that increasing incidence of poisoning is due to pesticides and drugs.⁵ Knowledge of the patterns of poisoning and its changes is necessary for both emergency physicians as well as government for future planning and public awareness.⁴ Early diagnosis and appropriate treatment can lead to better prognosis.⁶

Few studies have been done on poisoning in our region so this study was aimed to find out the clinical profile of such patients and demographic variables like age, sex, history of psychiatric illness, intent and cause of poisoning, type and amount of poison ingested, routes of exposure to the poison, clinical features, treatment and outcome of the patients.¹,² The study aimed to assess clinical profile of patients with poisoning admitted to tertiary care centre of Nepal.

METHODS

This was a retrospective study conducted in Chitwan Medical College Teaching Hospital in patients diagnosed with poisoning from February 2022 to January 2023 with an aim to investigate patterns of poisoning, demographic variables, clinical features, treatment and outcome of poisoning.

The study population consisted of all patients diagnosed with poisoning admitted to Chitwan Medical College Teaching...
Hospital. The inclusion criteria were age more than 15 years and exclusion criteria were: age less than 15 years and patients being readmitted to hospital with same diagnosis.

Data regarding patients’ demographic variables, composition of poison, route, intent and cause of ingestion, treatment and outcome were collected from patients’ medical records. This study was approved by ethical committee of our institution.

The collected data were organized in Microsoft Excel. Data analysis was performed using IBM SPSS (Statistical package for Social Sciences) version 21 and data are presented as frequency and percentage.

RESULTS

In our study, a total of 241 patients admitted were diagnosed with dengue fever during the six months period. The age and sex distribution of the patients is depicted in Table 1. The mean age of patients was 34.05 ± 14.09 years. The most common clinical presentation of acute poisoning was nausea and vomiting 106 (70.66%) followed by abdominal discomfort 19 (12.66%) (Table 2). Other common features were altered sensorium, burning sensation in throat, frothing from mouth, loss of consciousness, excessive salivation, lacrimation and sweating. About 4.66 % patients were asymptomatic.

Organophosphorus was the most commonly used poison among the patients with acute poisoning due to its easy availability in the household for different agricultural purposes. Nepal being a agricultural dependent country, Organophosphorus is easily accessible and available in the market and do not required any form of prescription. In our study, 55 (36.66%) patients consumed Organophosphorus as a form of poison followed by rat poison 19 (12.66%), chemicals 18 (12%), insecticides 15 (10%), herbicides 15 (10%) and others 20 (13.33%) whereas in 8 (5.33%) patients the poisons could not be identified. (Table 3). Organophosphorus was mainly attributed to Chlorpyrifos and cypermethrin (mixed compound). Oral route was the route of ingestion in all cases.

Majority of patients 129 (86%) used poison for suicidal attempt which was followed by accidental 8 (5.33%). Young age people are highly vulnerable for suicidal attempt. Out of 129 cases of suicide, majority 70 (46.66%) belonged to younger age group less than 30 years of which 44 (29.33%) belonged to age group of 21-30 years (Figure 2).

Family problem 60 (40%) was the most common known risk factor that lead to consumption of poison which was followed by under alcohol influence 13 (8.66%) (Figure 3).
Among 150 patients, 48 (32%) had a psychiatric illness which was the most common comorbidity present. Gastric lavage was done in 27 (18%) patients who presented early and to those whom lavage was not contraindicated. All the patients were managed conservatively and specific therapy was also required among 61 (40.66%) patients according to the type of poison consumed. 27 (18%) patients were under ventilatory support, however, vasopressor was indicated among only 14 (9.33%) patients. Noradrenaline was the commonly used vasopressor. Need of ventilation was higher among Organophosphorus poisoning (20 out of 27). Similarly, need of vasopressor was also more in Organophosphorus poisoning (8 out of 14).

The maximum duration of hospital and ICU stay was 24 and 15 days with a mean duration of 4.24 ± 4.21 days and 3.06 ± 3.21 days respectively. Similarly, the maximum duration of patients on ventilation was 9 days with a mean of 3.11 ± 2.15 days.

Table 4: Distribution of patients according to in-hospital outcome (n=150)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAMA</td>
<td>66 (44)</td>
</tr>
<tr>
<td>DOR</td>
<td>42 (28)</td>
</tr>
<tr>
<td>Normal discharge</td>
<td>34 (23)</td>
</tr>
<tr>
<td>Death</td>
<td>8 (5)</td>
</tr>
</tbody>
</table>

About 66 (44%) patients went on LAMA (Leave Against Medical Advice), 42 (28%) on DOR (Discharge On Request), 34 (23%) patients were discharged with full recovery whereas mortality with treatment was 5% which was higher among Organophosphorus poisoning (Fig 4). Among eight, 4 deaths were attributed to Organophosphorus poisoning, 2 to rat poison, and rest due to chemicals and herbicides. Please correct this one too seven (87.50%) patients died who intentionally used poison for suicidal attempt. Mortality was higher among Organophosphorus poisoning (4 out of 8 deaths) and the patients who were on vasopressor and ventilatory support.

**DISCUSSION**

Poisoning is one of the major public health problem causing significant morbidity and mortality which require ICU admission in many cases.\(^1\) It is one of the most common reasons for visit to Emergency department.\(^2\) The clinical profile and pattern of poisoning are not uniform even in various parts of the same country because of variation in the factors such as geography, accessibility and availability of poison, socioeconomic status, cultural and religious influence.\(^3\)\(^,\)\(^4\)\(^,\)\(^9\)

In our study, a total of 150 cases of poisoning were admitted to our hospital which was 14.98% of total ICU cases (1001). We found higher incidence of poisoning in females (female to male ratio of 1.38:1), which is similar to that shown by Baral et al\(^2\) (1.48:1), Sigdel et al\(^2\) (1.13:1), Lee et al\(^4\) (1.21:1), Karki et al\(^5\) (1.7:1), Rajbanshi et al\(^5\) (1.65:1), Woyessa et al\(^6\) (1.45:1), Marahatta et al\(^10\) (1.34:1), Singh et al\(^11\) (1.3:1), Mandal et al\(^12\) (1.9:1), Khadka et al\(^13\) (1.09:1). However, studies by Joshi et al\(^8\) and Thapa et al\(^9\) has shown male predominance. The female preponderance in this study can be accounted to them being more prone to household stress. Most patients 51 (34%) belonged to age group of 21-30 years which is consistent with other studies Joshi et al\(^8\), Baral et al\(^2\), Marahatta et al\(^10\), Khadka et al\(^13\), Panduru et al\(^11\), Thapa et al\(^9\).

In our study, Organophosphorus accounted for most (36.66%) cases as pesticides are easily available for agricultural purposes in central Terai region of Nepal. Similar findings were shown by Baral et al\(^2\), Sigdel et al\(^2\), Rajbanshi et al\(^5\), Mandal et al\(^12\), Joshi et al\(^5\), Thapa et al\(^9\). Second most common poisoning was by rat poison which accounted for 12.66%. In a study by Panduru et al\(^15\), rat poison accounted for the majority of cases. Most common route of ingestion was oral route which corroborate with studies done by Baral et al\(^2\), Panduru et al\(^11\), Thapa et al\(^9\) and Khadka et al\(^13\). Gastric lavage was done in only 18% patients.

The most common clinical presentation of acute poisoning was nausea and vomiting (70.66%) followed by abdominal discomfort (12.66%). Other common features were altered sensorium, burning sensation in throat, frothing from mouth, loss of consciousness, excessive salivation, lacrimation and sweating. About 4.66 % patients were asymptomatic. The clinical features mostly correlate with that of Organophosphorus poisoning, which is the most common form of poisoning. Majority of patients (86%) used poison for suicidal attempt which was followed by accidental (5.33%). This finding is concurrent with studies done by Marahatta et al\(^15\), Baral et al\(^2\), Singh et al\(^11\), Panduru et al\(^11\). Young age people are highly vulnerable for suicidal attempt. Out of 129 cases of suicide, majority (46.66%) belonged to younger age group less than 30 years. About 32% patients had a psychiatric illness which was the most common comorbidities present.

Almost all the patients were admitted to ICU and managed conservatively. Specific therapy was also required among 40.66% patients according to the type of poison consumed. 22.66% patients were discharged with full recovery whereas mortality was 5.33%. Mortality as well as need of vasopressor and ventilatory support was higher among Organophosphorus poisoning. Mortality rate (5.33%) in our study is relatively lower than other similar studies conducted in Nepal as in Rajbanshi et al\(^2\).
al (17.6%), Joshi and Patel (15.8%) because of well-equipped critical care resources in the ICU and immediate initiation of management in our institution.

**CONCLUSION**

Poisoning is a significant public health problem worldwide and major factor for mortality in hospital especially among young adults. In our study poisoning was most common in females with a female to male ratio of 1.38:1 and younger age group of below 30 years. Organophosphorus was most common poisoning agent followed by rat poison. Oral route was the route of ingestion in almost all patients. Majority of patients (86%) consumed poisoning agents with the intention of suicidal attempt for which family problems was the most common underlying cause. Psychiatric illness was the most common comorbidities seen among patients with poisoning. Majority of patients (44%) went on LAMA, 28% on DOR, 22.66% patients were discharged with full recovery whereas mortality was 5.33% which was higher in Organophosphorus poisoning.

**CONFLICT OF INTEREST:** None

**FINANCIAL DISCLOSURE:** None

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