INTRODUCTION

Poison is a substance that is harmful to the body when administrated by means of ingestion, inhalation, injection, or absorption through the skin. Poisons have always been utilized for suicidal as well as homicidal purposes. However, the trend of poisoning primarily depends upon the availability of poison in that particular region for any purpose. During the 16th century (1493–1541), a famous medico of Europe, Paracelsus rightly expressed that “All things are poison and nothing is without poison; only the dose makes the poison.” In recent times, poisoning with agricultural chemicals, either fortuitous or suicidal, has become prevalent due to their facile availability and low cost.¹

There is really no demarcating level between a medicine and poison, for a medicine in a toxic dose a poison, and a poison in a small dose may be a medicine. In law, the real difference between a medicine and poison is the intent with which it is given. If the substance is given with an intension to save life, it is medicine, but if it is given with the intension to cause bodily harm, it is poison.²

The objective of this study is to identify the severity and outcome of poisoning cases is determined by multiple factors including poison characteristics, mode and amount of poisoning as well as treatment opportunities on reviewing of literature; we find that Bundelkhand region is geographical and cultural region divided between states of Uttar Pradesh and Madhya Pradesh of central India. Bundelkhand region involves 13 districts which are Jalaun, Datia, Jhansi, Hamirpur, Mahoba, Banda, Tikamgarh, Lalitpur, Chhatarpur, Chitrakoot, Sagar, Chhatarpur, Sagar, Panna, and Damoh among which Jhansi is only big city and tertiary health-care center.
Aims and objectives

The objectives of the study are as follows:
1. To see spectrum of poisoning in the Bundelkhand region
2. To see mortality and morbidity due to poisoning
3. Look into the basic cause of suicidal poisoning/accidental poisoning.

MATERIALS AND METHODS

Ethical

Ethical Committee approval will be duly taken. Data were collected in the Department of General Medicine from the bedside tickets of the patients after taking a short history and informed consent from the patient.

Source of data

The prospective non-randomized study was done in Maharani Laxmi Bai Medical College, Jhansi between December 2020 and October 2022 including 500 patients were applied for treatment of different poisoning.

Inclusion criteria

The following criteria were included in the study:
- Patient of age ≥17 years with a history or characteristics of clinical feature of acute poisoning
- Cases were included from the general medicine ward and emergency cases were being selected for the study as there many cases of different poisonings being admitted for the treatment of poison with various comorbid conditions
- The patients included in the study who had undergone exposure to poison either by household or agricultural pesticides, industrial toxins, toxic plants, drugs, or miscellaneous products
- All cases of poisoning, irrespective of age, sex, type and mode of poisoning, ingredients of poisons, and the status of patients after poisoning were recorded in the pro forma prescribed by the WHO guidelines.

Exclusion criteria

The following criteria were excluded from the study:
- Snake bite/sting bite.

Investigation

1. Complete blood count
2. Renal function test (KFT):
   - Sr. Creatinine
   - Blood urea
   - Urine –
     - Routine,
     - Microscopy
   - Myoglobin in urine
3. LFT:
   - S. Bilirubin
   - Total
   - Direct
   - Indirect
   - SGOT, SGPT
   - ALP
4. S. electrolyte
   - S.Na+
   - S K+
5. S.CPK level

Specific investigation

6. S. Calcium:
   - Total
   - Ionic

Test description result

Unit Reference

Range

Serum Calcium (total)* mg/dL 8.8–10.6

Method: Ion Exchange electrode

7. Serum Albumin*

   Method: Bromocresol Green g/dL 3.2–5.2
   \[\text{Corrected calcium: S. calcium (mg/dl)} + 0.8 \left(\frac{4 - \text{ s. albumin (g/)}}{1}\right)\]

8. Serum phosphorous* mg/dL 2.5–4.5

   Method: Ammonium Molybdate UV

   (*Machines Used: Beckman Coulter AU480)

9. Arterial blood gas analysis
10. ECG

RESULTS

In our study, a total of 500 cases of poisoning were taken. As per found data, majority of patients were found in 17–30 years of age group 202 (40.4%) followed by 31–40 years of age group 157 (31.4%). Minimum 19 (3.8%) cases were found in 61–70 years of age group and 0 case in >70 years of age group (Table 1).

<table>
<thead>
<tr>
<th>Age group (in years)</th>
<th>No. of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>17–30</td>
<td>202</td>
<td>40.4</td>
</tr>
<tr>
<td>31–40</td>
<td>157</td>
<td>31.4</td>
</tr>
<tr>
<td>41–50</td>
<td>70</td>
<td>14</td>
</tr>
<tr>
<td>51–60</td>
<td>52</td>
<td>10.4</td>
</tr>
<tr>
<td>61–70</td>
<td>19</td>
<td>3.8</td>
</tr>
<tr>
<td>&gt;70</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2: Distribution of cases according to their sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>281</td>
<td>56.2</td>
</tr>
<tr>
<td>Female</td>
<td>219</td>
<td>43.8</td>
</tr>
</tbody>
</table>
Majority of patients were found male, that is, 281 (56.2%) and the rest 219 (43.8%) were females (Table 2).

According to the findings of our study, the maximum mortality rate was found due to Stone hair dye, that is, 100%, followed by Celphos 35.54%, Insecticidal 26.92%, and Alcoholic intoxication 22.22% (Table 3).

As per our study, major cause of taking poison, the maximum number of patients were found in Marital discord 108 (21.6%) followed by having family problems, that is, 75 (15%), which is similar to separation/death of family member, that is, 74 (14.8%) (Table 4).

The maximum number of poisoning cases were found in lower socio economic status, that is, 197 (39.4%) followed by lower middle case respondents, that is, 143 (28.6%). Minimum cases were found in Upper middle Socioeconomic status patients, that is, 68 (13.6%) (Table 5).

**DISCUSSION**

Poisoning exposure was grouped into more than 11 toxic substances. Males were affected – more (52.57%). The high incidence of poisoning in males may be due to the high exposure to stress and strain and occupational poisoning occurs due to inappropriate handling and spraying with high concentrations of chemicals.

The sign and symptoms occur on the basis of the poison consumed and the time interval between consumption to hospital arrival.

The mortality/morbidity in any case of acute poisoning depends on a number of factors such as the nature of the poison, dose consumed, level of available medical facilities, and time interval between intake of poison and arrival at the hospital.
In our study, maximum number of mortality is due to Celphos (aluminum phosphide) similar to the study done by Yadav et al., and the majority of cause belong to 17–30.

The main victims were females and laborers followed by student.

Maximum victims of suicidal poisoning mortalities were in their 3rd decade like in a study done by Kanchan and Menezes. Preferences for organophosphate were relatively more common in males when compared to females, who preferred hair dye, zinc phosphide, carbamate, and medicinal agents.

Limitations of the study
The study performed was a single-centered study.

CONCLUSION

- The majority of poisoning cases were from 17 to 30 years and minimum from age 70 years and above.
- Bundelkhand is agriculture-based region so the availability of insecticide is common at fields and hair dye is easily available at market.
- Concerned authorities should think about substituting aluminum phosphide, which would be less toxic for human beings and concerned authorities should ban the availability of aluminum phosphide (Celphos) in market.

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REFERENCES


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AS, AK - Definition of intellectual content, literature survey, prepared the first draft of the manuscript, implementation of the study protocol, data collection, data analysis, manuscript preparation and submission of article, concept, design, clinical protocol, editing, and manuscript revision, design of the study, statistical analysis and interpretation, review manuscript, literature survey, and coordination

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