

Short Communication

Incidence of Poisoning Deaths in and Around Belgaum, Karnataka – A Retrospective Autopsy Survey

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ABSTRACT

A five-year retrospective study was undertaken to ascertain the incidence of poisoning deaths in and around Belgaum district of Karnataka state, which were autopsied at KLE's Prabhakar Kore Hospital and Research Centre, Belgaum, a referral hospital catering to the needs of the general public within a radius of 100 km.

Out of 600 autopsies conducted, 150 were deaths due to poisoning. The commonest age group of affected victims was 21 to 30 years. Males outnumbered females in a ratio of 2.2:1. The most commonly used poison was an organophosphorus compound. Most victims died within 1 to 6 hours of admission to the hospital. Most of the cases were suicidal in nature.

Key Words: Poisoning; Autopsy study; Belgaum

Introduction

Death by poisoning is a common entity in many parts of the world. A report from the WHO and UNEP in 1990, estimated that more than 3 million people are hospitalized for pesticide poisoning every year, with mortality in the range of 2,00,000 to 2,20,000.¹ It particularly noted that two-thirds of hospitalizations and the majority of deaths were attributable to intentional self-poisoning rather than to occupational or accidental poisoning. Recent studies suggest that several thousand deaths occur every year from pesticide self-poisoning in the Asia-Pacific region alone. The easy availability and unsafe storage practices of pesticides in the homes of the rural poor mean that many acts of self-harm, at moments of acute

distress, have fatal and sometimes unintended consequences. India leads all other countries of the world in both incidence as well as mortality.

The objective of this study is to know the incidence of poisoning in relation to age, sex, survival period, manner of poisoning and commonly used poisons in a major district of the southern Indian state of Karnataka.

Materials and Methods

All poisoning deaths autopsied at KLE's Prabhakar Kore Hospital and Research Centre, Belgaum, from January 2004 to December 2008 form the material for this study. During this period, out of 600 cases, 150 were poisoning deaths (25%). Death due to snakebite and other animal bites and stings were excluded from the study.

Relevant data was obtained from hospital case records, police records, and chemical examiner's reports (from Regional Forensic Science Laboratory, Belgaum). A proforma was designed to get uniform information from all the above mentioned sources.

Results

Salient observations have been laid out in **Tables 1 to 4**, and summarized below:

- The commonest age group of victims was 21 to 30 years (43%).
- Males outnumbered females in a ratio of 2.2:1.
- The most commonly used poison was an organophosphorus pesticide (47%).

- Maximum number of victims died within 1 to 6 hours of hospital admission (27%).
- Majority of the cases were suicidal in nature (73%).
- Maximum number of victims were from rural areas (76%).

Table 1 Incidence of Poisoning Deaths In Relation to Age and Sex

| Age (yrs) | Male | Female | Total | Percentage |
|-----------|------|--------|-------|------------|
| 0-10 | 6 | 8 | 14 | 9 |
| 11-20 | 15 | 8 | 23 | 15 |
| 21-30 | 42 | 22 | 64 | 43 |
| 31-40 | 16 | 3 | 19 | 13 |
| 41-50 | 12 | 0 | 12 | 8 |
| >50 | 12 | 6 | 18 | 12 |

Table 2 Types of Poisons Encountered and Their Incidence

| Type of Poison | No. of Cases | Percentage |
|----------------------------|--------------|------------|
| Organophosphorus pesticide | 70 | 47 |
| Organochlorine pesticide | 15 | 10 |
| Hydrogen cyanide | 2 | 1 |
| Phenolic compound | 8 | 5 |
| Carbamate pesticide | 6 | 4 |
| Aluminium phosphide | 10 | 7 |
| Paraquat | 6 | 4 |
| Zinc phosphide | 6 | 4 |
| Sulphuric acid | 4 | 3 |
| Pyrethroid pesticide | 6 | 4 |
| Ethyl alcohol | 6 | 4 |
| Diazepam | 2 | 1 |
| Unknown substance | 9 | 6 |

Table 3 Duration of Hospital Stay

| Duration | No. of Cases | Percentage |
|-------------------|--------------|------------|
| Brought dead | 5 | 3 |
| 1 to 6 hours | 40 | 27 |
| 6 to 12 hours | 26 | 17 |
| 12 to 24 hours | 24 | 16 |
| 1 to 2 days | 20 | 13 |
| 2 to 5 days | 10 | 7 |
| 5 to 10 days | 10 | 7 |
| 10 to 20 days | 8 | 5 |
| More than 20 days | 7 | 5 |

Table 4 Manner of Poisoning

| Manner | No. of Cases | Percentage |
|------------|--------------|------------|
| Suicidal | 110 | 73 |
| Accidental | 32 | 21 |
| Homicidal | 2 | 2 |
| Unknown | 6 | 4 |

Discussion

Poisoning deaths, especially from consumption of pesticides, are on a relentless rise in India, largely because of their easy availability, and relatively low cost. While many of these are suicidal in nature, accidental poisoning too is fairly common.² Even homicidal poisoning by using pesticides has been reported of late.³

While many studies have confirmed that the maximum incidence of poisoning occurs in the 20-30 year age group,⁴ as in this particular study, there are a few which differ. For instance in one survey, the maximum incidence was seen in the age group above 50 years.⁵

Several Indian studies have documented that organophosphorus pesticides are the most commonly used poisons, though some North and West Indian studies indicate that it is aluminium phosphide which is more common in some

parts of the country.⁶ A few reports indicate that carbamates are more common than organophosphorus compounds in some Indian states.⁷ Other studies have indicated herbicides such as paraquat rising in incidence.⁸

Poisoning by pesticides is more common in rural areas as compared to urban settings for obvious reasons, and that is confirmed in many studies,⁹ including the present survey (114 of 150 deaths, or 76%).

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