Profile of Poisoning Cases Observed in a Tertiary Health Centre in the Rural Setup of Central India

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Abstract

Aim: To study the profile and analyze the trends of poisoning in a Tertiary Health Centre in the Rural Setup of Central India. *Materials and Methods:* The study was conducted in the Department of Forensic Medicine and Toxicology, JNMC, Wardha; where the indoor and outdoor hospital records of poisoning cases from 1st of January'2011 to 31st of May'2013 were studied with the help of a structured questionnaire based on age, sex, marital status, residence, circumstances, manner and type of poisoning. *Results:* Of all cases observed in this study, 64.13% were males and 35.87% were females, and 69.75% of all cases were married. 26.20% of all cases were poisonings with an intention of deliberate self-harm; while 24.82% were accidental poisonings and 48.96% were animal bites. *Conclusion:* The study highlights the trends of poisoning observed in a Tertiary Health Centre in a rural setup of Central India, showing that the young married males between the ages of 21 to 30 years are at the highest risk of poisoning. The most common type of poisoning is due to animal bites, followed by organophosphates.

Keywords- Poisoning, Rural India, Accidental, Suicidal.

Introduction

Poisoning is one of the commonest causes of morbidity and mortality observed in Rural India. Also, it is a common mode of suicide in developing countries like India, particularly in agriculture workers.

According to WHO (1999), more than three million poisoning cases have been reported out of which 2,51,881 deaths occur worldwide annually, 99% of which occur in developing countries, with agricultural workers being the commonest victims of morbidities associated to poisoning.[1]

According to the National Crime Records Bureau, there have been 28,012 reported deaths in 2010 and 29,478 reported deaths in 2011 because of poisoning, with many cases remaining unreported in remote areas.[2,3]

A comparative study revealed that in Developed countries, the mortality rate due to poisoning is only 1-2%, but in Developing countries like India, It varies between 15 to 30% and forms the fourth most common cause of mortality, especially in Rural India.

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Pattern of poisoning in any region depends on many factors like availability of poisons, religious and cultural influences, and occupation prevalent in the region; while the choice of poisoning agents depends on the accessibility, cost and potential harmful effects of poison.

In developing countries like India, easy accessibility without any documentation and low cost of highly poisonous chemicals plays an important role in accidental as well as suicidal poisoning. Monsoon dependent agriculture and socioeconomic factors related to it also play a very important role in the incidence of acute poisonings.

Hence, A detailed study about the profiles of the poisoning cases observed in a particular area is not only important for immediate diagnosis and treatment, but also is necessary for evaluation of the current scenario and introduction of new means to curb the increasing incidences of poisoning.

The present study was undertaken against this background, to study and analyse the profile and magnitude of the morbidity and mortality due to poisonings in this rural setup of Central India.

Materials and Methods

A study was conducted in the Department of Forensic Medicine and Toxicology, Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha, Maharashtra; to study the profile of Poisoning cases in tertiary health centre of rural setup in Central India.

The casualty and indoor patient records of 145 cases of poisoning brought to Acharya Vinoba Bhave Rural Hospital, Wardha between January 2011 and May 2013 were studied for information regarding number of patients cured, expired, or absconded, for noting the history and circumstances at the time of incidence of poisoning.

A structured proforma was prepared and used for individual case study. The Indoor patient records and casualty records were also studied for information about age, sex, residence, educational qualification, and marital status of the victim. With reference to the admitted poisoning cases, information about morbidity associated was noted along with the details of poison responsible.

Results

The following results were observed in our study. A total of 145 cases with a history of poisoning were studied. Only 5.5% of cases were found to be fatal while the rest of the patients were either cured or discharged against medical advice with no further follow up. Male preponderance was noted with a ratio of 1.78:1, where 64.13% of the victims were males and only 35.87% were females. Incidence of poisoning was observed more in the age group of 21-30 years, followed by the age group of 31-40 years. Table 1 shows the age and gender wise distribution of victims. The most common type of poisoning morbidity resulted from animal bites, which was observed in 48.96% cases, followed by organophosphorus compounds in 23.65% cases. Table 3 describes the different types of poisonings observed in the study.

Discussions

The study included 145 cases with a history of poisoning. The following were the observations noted after analysis of the recorded data:

Age: In the present investigation, 145 cases of poisoning were studied in detail. It was noted that the majority of the cases were in the age group of 21-30 years. Similar statistics have been reported by authors.[4 -15] Predominance of this age group maybe because it constitutes the most active phase of life, where people tend to take risks and get frustrated and depressed in personal as well as professional life.

Sex: Male preponderance observed with a male to female ratio 1.78:1. Number of authors also reported similar observations.[4,6-9,11-13,15-18] This observation may have been made because of a general trend in which males take more responsibilities of the family than females on the social and professional spheres.

Marital status: On studying the marital status of the subjects, it was observed that 69.65% of patients were married and 30.35% were unmarried. This data suggests that the rate of poisoning is more among the married population as compared to unmarried population. This observation was found to be consistent with authors. [4,7 – 9, 11, 13] This could be because of increased responsibilities of family among the married population, in comparison with their unmarried counterparts.

Urban and Rural Variation: Majority of the cases observed in this study were of rural origin (69.34%) since the hospital receives mostly rural cases from and rural regions in and around Wardha. Similar findings were also reported by many authors. [4 - 7, 9,10, 13,14,19]

Manner of poisoning: In this study, the manner of poisoning was mostly accidental, followed by deliberate self-harm (26.20%). No homicidal cases were observed. Authors[5,7,10,11,13,15,18] observed the commonest manner of poisoning to be suicidal.

Commonest Poison observed: Majority of the cases observed in this study were animal bite poisonings, followed by organophosphates. Snake bites were major cause of accidental poisonings. Author[15] also reports similar findings. The choices of agents for deliberate self-harm were organophosphates followed by OTC

medications. Similar observations were made by many authors throughout the world.[1,5,6,7,8,14,16,18,21]

More cases were reported during the mid-monsoon months of July and August (16.55% each) and during the day time. More frequency during the mid-monsoon months may be related to the monsoon dependent agricultural practices and socioeconomic factors relating to it.

Most common victims were farmers, male laborers, housewives and students. Similar findings were also reported by Authors[5,6, 10,12]

The study identified the most vulnerable stratum of the society against poisoning, and also the most common causes of poisoning observed. The study could not highlight the mortality rate associated to poisoning because of high number of discharges against medical advice, and could not emphasize on the importance of early admission due to in-apt histories given by patients and their peers.

Conclusion

Hence, it may be concluded that male sex, young age, married status, monsoon dependent agricultural practices, and rural background with low socioeconomic status are the risk factors for poisoning. Commonest manners of poisoning were accidental poisonings followed by suicidal poisonings.

Morbidity and mortality associated to poisonings due to animal bites can be reduced by promoting safety precautions among the vulnerable population, and also by creating awareness about first aid measures and proper medical care at the earliest that can prove life-saving, instead of the common practice of visiting local quacks.

In order to reduce the morbidity and mortality associated to deliberate self-harm poisonings, this harmful behaviour should be curbed by detecting its cause, providing psychiatric counselling and prompt medical intervention in management of acute poisoning.

Incidence of accidental poisonings can be reduced with a stricter law regarding sale and distribution of poisons, and substitution of pesticides with safer agents is the need of the hour.

Apart from medical efforts, social efforts on the part of Government, NGOs and other social groups through sincere work at many levels like boosting the economy, poverty eradication, irrigation schemes, agriculture and markets is the need of the hour.

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Table I. Age distribution of the victims.

	Males	Females
0-10 years	10	4
11-20 years	13	7
21-30 years	27	12
31-40 years	18	12
41-50 years	12	6
51-60 years	9	9
61-70 years	3	2
71-80 years	1	0

Table II. Marital Status of the victims.

Gender	Marital Status	Percentage
Male	Unmarried	17.15%
	Married	47.35%
Female	Married	13.20%
	Unmarried	22.30%

Table III. Types of Poisonings observed.

Observed Poisonings	%
Snake bite	33.79%
Scorpion bite	6.80%
Other animal bites	8.27%
Organophosphates	23.65%
OTC medications	14.75%
Other accidental poisonings	12.74%

Chart 1. Gender-wise age distribution of Victims

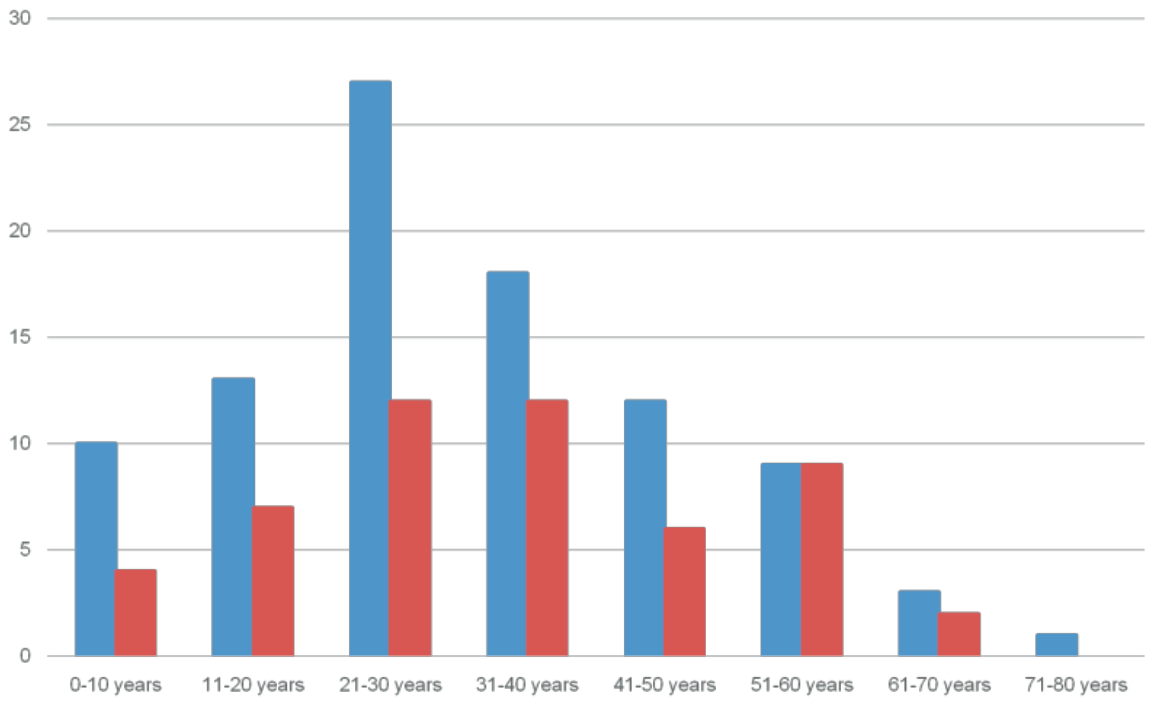

Chart 2. Marital Status of victims