Research Article

A study of profile of poisoning cases in and around Hassan district, Karnataka

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Abstract

Aim: The aim of this study was to analyze the profile of poisoning cases in and around Hassan, Karnataka. **Materials and methods**: The present study was a retrospective study conducted during January 2012 to December 2012 by the Department of Forensic Medicine, Sri Chamarajendra Hospital, Hassan attached to Hassan Institute of Medical Sciences, Hassan, Karnataka. Out of 198 autopsies conducted 107 were poisoning cases. Data regarding age, sex and type of poison were collected and analyzed. **Results**: A total of 198 autopsies were conducted during the year 2012, out of which 107 were poisoning cases. Among 107 cases, 84 (78.5%) were male and 23 (21.5%) were females. The highest number of cases (33, 30.8%) was from the age group 21 to 30 yrs. Organophosphate compound poisoning was the highest (48 cases – 44.86%) among all the poisoning cases followed by Aluminium phosphate (10 cases – 9.3%), Paraquat (9 cases – 8.4%) and Ethyl Alcohol (9 cases – 8.4%) poisoning. **Conclusion**: The study results depict an increase in incidence of poisoning in younger individuals. It is observed that Organophosphate poisoning is the most common type of poisoning. This may be due to easy availability and low cost of organophosphorus compounds.
Key words: Poisoning, Organophosphates(OP), profile, incidence.

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INTRODUCTION

Poison is a substance that causes damage or injury to the body and endangers one's life due to its exposure by means of ingestion, inhalation or contact.[1] Rapid industrialization, introduction of newer range of drugs for treatment and massive use of pesticides in agriculture has increased the incidence of poisoning.[2] In India, as agriculture is the main occupation, insecticides and other agrochemical fertilizers are used to a greater extent and the poisoning with such products are more common.[3] Easy availability of poisons plays a major role in both accidental and suicidal poisoning cases. Profile of poisoning in an area depends upon a variety of factors, ranging from access to and availability of poison, socio economic status of the individual, cultural and religious influences etc.[4] According to the World Health Organisation (WHO), 99% of the fatal poisoning cases occur in developing countries, predominantly among the farmers due to various kinds of poisoning, includes poisonous toxins from natural products during handling.[5] Although statistically the figure of acute poisoning cases is somewhat less than that of those injured in road accidents, the numbers of death from either case is very nearly the same. It is surprising that whilst the number of deaths from road accidents is rightly a matter of public concern far less attention is paid to an almost equal number of deaths caused by poisoning.[6] Knowledge of general pattern of poisoning in a particular region will help in early diagnosis and treatment of cases, thus decreasing the rate of mortality and morbidity.[7] Hence this study was carried out with the objective to find out the profile of poisoning cases in and around Hassan, Karnataka.

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MATERIALS AND METHODS

The present study was a retrospective study conducted during January 2012 to December 2012 by the Department of Forensic Medicine, Sri Chamarajendra Hospital, Hassan attached to Hassan Institute of Medical Sciences, Hassan, Karnataka. The study was conducted after obtaining clearance from Institutional Ethical Committee. Out of 198 autopsies conducted 107 were poisoning cases. Data regarding age, sex and type of poison were collected and analyzed. Autopsy was conducted after receiving Inquest form by various police stations in Hassan under UDR and CR.No. Autopsy was conducted systematically on 107 bodies. For all cases, following viscera were collected

1. Stomach and contents and part of small intestine.
2. Bottle containing liver piece and Kidney.
3. Bottle containing 30ml of Blood.
4. Bottle containing preservatives – Saturated solution of Nacl.

These four bottles for all the cases were preserved, labeled and sealed and was sent to Regional FSL, Mysore through Police. The results were analyzed by descriptive statistical methods and the frequency is expressed as percentage.

RESULTS

A total of 198 autopsies were conducted during the year 2012, out of which 107 were poisoning cases. Among 107 cases, 84 (78.5%) were males and 23 (21.5%) were females (Table-1). The highest number of cases (33 cases - 30.8%) was from the age group 21 to 30 Yrs. (Table-2). Nature of Poison Consumed: It is evident from Table-3, that Organophosphate compound poisoning was the highest (48 cases – 44.86%) among all the poisoning cases followed by Aluminium phosphate (10 cases – 9.3%), Paraquat (9 cases – 8.4%) and Ethyl Alcohol (9 cases – 8.4%) poisoning. Among 10 cases (9.3%), FSL report showed consumption of both Organophophates and Ethyl Alcohol. In 3 cases FSL report showed positive for colchicine. A single case was reported for the following compounds copper, cyanide, zinc & lead, acetaminophen and dextrapropoxyphen, formaldehyde and paracetamol and theophylline. In 12 cases, FSL reports were negative i.e no substance was detected. The might be due to the treatment of the cases for around 7 to 10 days before death and also could be due to metabolism and excretion of the compound.

Table 1: Showing incidence of Sex

Sex	No of Cases (Total-107)	Percentage (%)
Male	84	78.5
Female	23	21.5

Table 2: Showing the incidence of poisoning according to different age

Age in Years	No of Cases (Total-107)	Percentage(%)
< 20	6	5.6
21 – 30	33	30.8
31 – 40	25	23.4
41 -50	21	19.6
51 – 60	12	11.2
>60	10	9.4
Total	107	

Table 3: Showing details on type of poisoning (Substance) and number of cases belonging to each poison

Type of poisoning agent	Number of Cases	Percentage(%)
Oraganophsphates	48	44.90
O.P with alcohol	10	9.3
Aluminium Phosphate	10	9.3
Paraquat	9	8.4
Ethyl Alcohol	9	8.4
Colchicine	3	2.8
Copper ions	1	0.9
Actaminophem & Dextro propoxyphene	1	0.9
Cyanide	1	0.9
Zinc & Lead	1	0.9
Formaldehyde	1	0.9
Paracetamol & Theophylline	1	0.9
FSL negative	12	11.2

DISCUSSION

In the present study the commonest poisoning agent was Organophosphate (45%). Out of 107 cases, 84 were males and 23 females. This shows that males outnumbered females in deaths due to poisoning, which is comparable to other studies.[6,8,9] In our study, maximum number of cases were of the age group 21 to 30 Yrs (33 cases, 30.8%) when compared to 46.62% in a study by Kora *et al*., 40.5% in a study done by Dash et.al and 49.33% in study by Maharani B et.al[6,9,10] Present study shows that Organophosphate poisoning is the most common cause of poisoning (44.9%) which is consistent with other studies. In a study done by Kora *et al* the incident of OP poisoning was found to the 63.8% and the incidence of OP poisoning in a study by Maharani et.al was 58.66%.[9,10] Based on this it implies that Organophosphate is the most commonly used substance for poisoning. In our study 10 cases (9.3%) were reported to have consumed aluminium phosphide whereas in a study by Zaheer MS et.al the incidence of aluminium phosphide poisoning were found to be 30.8%.[8] Consumption of other poisonous substance like Paraquat (8.4%), Ethyl Alcohol (8.4%) etc were found in our study which is comparable to other studies. There were reports

of 3 cases having consumed colchicine as the poisonous substance. The consumption of colchicine is found to be very rare in other parts of the country whereas a report of ingestion of colchicine is peculiar to this particular region. Hence, our study results show that incidence of poisoning is more common in males especially in the middle age group and organophosphate compound poisoning is the most common type of poisoning which can be compared to various other studies. Increased incidence of OP poisoning may be due to predominant agricultural background of this region and also easy availability of OP compounds as pesticides.

CONCLUSION

The study results depict an increase in incidence of poisoning in younger individuals. It is observed that Organophosphate poisoning is the most common type of poisoning. This may be due to easy availability and low cost of organophosphorus compounds. Strict regulations must be made regarding the availability of pesticides containing organophosphorus compounds. Introducing separate toxicological units in hospitals, upgrading peripheral health centres to manage cases of poisoning, promoting poison information centres will be useful to decrease the mortality related to poisoning.

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