

Study of cases of Poisoning at a District Hospital in Western Maharashtra

Phalke D.B.*

Deshpande J.D.**

Giri P.A.***

Phalke V.D.****

Chavan K.D.*****

ABSTRACT

Organophosphorous compounds produce significant morbidity and mortality in India. The present study is an attempt to study the cases of poisoning admitted in a District hospital in Western Maharashtra to evaluate socio-demographic variables of these cases & to study the morbidity and mortality in different poisoning cases. Organophosphorous poisoning cases were predominant, amounting to 491 cases (32.97%). Maximum cases (59.16%) were in 18 - 35 years age group, male predominance can be seen as 60.98% cases were male & most of the patients (53.99%) were farmers. Time interval of presentation of most number of cases was more than 4 hrs because of the lack of emergency service and inefficient paramedical service needed for patient transport. In present study 50.94% of cases were hospitalized for 8 - 12 days, 78.04 % cases survived while 277 (18.60%) patients expired because of fatal complications. It is essential to establish strict policies against the sale and availability of insecticides and pesticides which are freely available in the market. Accidental poisoning can be prevented by use of personal protective equipment. There should be easy availability of loans, crop insurance schemes and appropriate market value for agricultural products to prevent suicidal tendency in farmers.

Key words: Poisoning, Socio-demographic variables, Rural area.

INTRODUCTION

Organophosphorous compounds produce significant morbidity and mortality in India.¹ Organophosphorus compounds are the

most common suicidal poison in developing countries and mortality continues to be high. Most of these poisonings are usually ingested with a suicidal intent.² Organophosphorous compounds are commonly used because of their rapid action, ready availability and knowledge of lethal potency. Poisoning in India is a challenge to both clinical and medicolegal practice. Following classical organophosphorous poisoning, three well defined clinical phases are seen: initial acute cholinergic crisis, the intermediate syndrome and delayed polyneuropathy.³

Diagnosis of cases of poisoning is difficult when proper history is not available. When there is delay

Author's Affiliations: *Professor and Head, **Associate Professor, ***Assistant Professor, ****Professor, Dept. of Community Medicine (PSM), ***** Professor and Head, Dept. of Forensic Medicine & Toxicology (FMT), Rural Medical College, Loni, Dist. Ahmednagar, Maharashtra.

Reprint Requests: Dr. Deepak B. Phalke, Professor & Head, Dept. of Community Medicine (PSM), Rural Medical College, Loni Dist. Ahmednagar, Pin - 413736, Maharashtra, Phone- (+91) 02422- 273600, E mail- deephalke@yahoo.co.in.

in transfer of the patient to the Hospital, the diagnosis is based only on signs and symptoms or laboratory investigation of body fluids. After death the positive proof of poison rests in detection of poison in the samples at the Forensic Science Laboratory. Negative report shall always be supplemented with clinical/ postmortem findings and circumstantial evidences. The nature of poison used varies in different parts of the world and may even vary in different parts of same country depending on socioeconomic factor and cultural environment. The present study is an attempt to study the cases of poisoning admitted in district hospital Ahmednagar to evaluate socio-demographic variables of these cases & to study the morbidity and mortality in different poisoning cases.

MATERIALS AND METHODS

The present study was carried out at District hospital Ahmednagar in Western Maharashtra which is equipped with emergency ward, ICU, Operation theatre, & MLC section. Records of all the cases of poisoning admitted to district hospital

from July 2001 - Aug 2006 were analyzed. Following Patients attended the emergency department: patient brought by relatives directly, patient referred by general practioners & patient referred by Primary health center/Rural hospital. Only cases of chemical poisoning were included in the study and cases of snake & scorpion bite were excluded. All the information was recorded on specially prepared proforma which includes the information about age, sex, occupation, date of admission, date of discharge, history of types of poison, symptoms and signs on admission & mode of management. Analysis was done in the form of percentages & proportions.

RESULTS

The results revealed the findings of the present study of poisoning cases which carried out for a period of 5 years from July 2001 to June 2006; requisite data was collected from medicolegal department at district level hospital Ahmadnagar. (Table 1)

Table 1: Year wise distribution of poisoning cases

Year	Male (%)	Female (%)	Total
2001	161(10.8)	106(7.11)	267(17.93)
2002	181(12.15)	122(8.1)	303(20.34)
2003	177(11.8)	121(8.1)	298(20.01)
2004	221(14.82)	153(10.2)	374(25.11)
2005	168(11.2)	069(4.6)	247(16.58)
TOTAL	908(60.98)	581(39.01)	1489(100)

In present study the total poisoning cases were 1489 out of which Organophosphorous poisoning cases were predominant accounting for 32.97%. Next to Organophosphorous poisoning, unknown poisoning case were 30.96%. Organochlorine poisoning cases were about 6.98 % (Table-2).

Salivation, lacrimation, urination, defecation, vomiting, bronchorrhea, bronchospasm, bradycardia were the common sign & symptoms noted among the patients of organophosphorous poisoning.

Table 2: Distribution of cases according to types of poison

Types of Poison	Number of cases (%)
Organophosphorous	491(32.97)
Unknown	461(30.96)
Zinc phosphate	163(10.94)
Organochloro-insecticides	104(6.98)
Drug overdose	119(7.99)
Other(Karosine,Petrollium products)	151(10.14)
Total	1489(100)

Age group was ranging from 0 - 50 years & above. Maximum cases (59.16%) were in age group 18 - 35 years followed by 36 - 50 years age group with 16.32%. Male predominance can be seen as 60.98% cases were male (Table 3). Male to female ratio was 1.5:1.

Majority of cases (63.80%) were from rural area followed by urban area (36.20%). Amongst the rural area majority were farmers (53.99%) (Table 4).

Table 3: Age & sex wise distribution of cases

Age in years	Male	Female	Total (%)
<18	080(5.37)	051(3.4)	131(8.8)
18-35	510(34.25)	371(24.9)	881(59.16)
36-50	151(10.14)	092(6.1)	243(16.31)
>50	167(11.21)	067(4.49)	234(15.71)
TOTAL	908(60.98)	581(39.01)	1489(100)

Table 4: Occupation wise distribution of poisoning victims

Occupation	Cases (%)
Farmers	804(53.99)
Landless laborers/Unskilled workers	313(21.02)
Service(Government/private)	163(10.94)
Students	104(6.98)
Others	105(7.05)
Total	1489(100)

It is observed that the maximum (62.99%) cases reached the hospital 2 - 12 hrs after the consumption of poison (Table 5). Maximum number of cases reached the hospital after 4 hrs of consumption of poison. This might be due to the lack of emergency services and inefficient paramedical services needed for patient transport.

It is also observed that more than half (51%) of total cases of poisoning were hospitalized for 8 - 12 days; and only 14.97% of cases were hospitalized for more than 12 days (Table 6). Most of the case required 8 - 12 days of hospitalization as majority of them were having complications which required minimum 8 -12 days of hospitalization for management. Patient without complication were discharged within 8 days.

The findings of present study showed very good prognosis of poisoning patients admitted at hospital, as out of 1489 cases, 1162 (78.04%) cases survived and only 50 (3.36%) patients were referred to tertiary centre because of non availability of facilities for advanced management procedures such as dialysis and monitoring methods. Atropine and oxime therapy along with ventilatory and other supportive measures, as required, prevent most of deaths in poisoning due to organophosphate compounds. Unfortunately 18.60% (277) patients expired because of fatal complications such as respiratory failure, cardiac arrest, and cerebral oedema (Table 7).

Table 5: Time interval of hospital admission since time of Ingestion of poison

Time interval	Cases (%)
<2 hrs	223(14.97)
2-12 hrs	938(62.99)
12-24 hrs	208(13.96)
>24 hrs	120(8.05)
TOTAL	1489(100)

Table 6: Duration of hospital stay

Duration	Cases (%)
<3 Days	129(11.10)
3-8 Days	267(22.97)
8-12 Days	592(50.94)
>12 Days	174(14.97)
TOTAL	1162(100)

Table 7: Prognosis of poisoning cases

Prognosis	Cases (%)
Expired	277(18.60)
Survived	1162(78.04)
Referred	50(3.35)
TOTAL	1489(100)

DISCUSSION

Poisoning is one of the common cause of admission of young adults in the medical wards. The findings of the present study reveals that organophosphorous poisoning is predominant accounting for (32.97%) with maximum cases (59.16%) were in 18 - 35 years age group. Males were predominantly affected (60.98%), similar to study by Krupesh *et al*⁴ where 73 % were males. Contrary, in a study conducted by Malik *et al*⁵ in Kashmir, it was observed that the females were predominant (69.51%). Bhattarai *et al*⁶ reported that the maximum number of patients were between the age of 20-40 years. According to the findings of study conducted by Siwach⁷ a majority (70 %) of poisoning was seen in age group between 15 - 30 years. Third and fourth decade of life were most affected age groups possibly because of being the working population and having lot of responsibility.

Out of 1489 patients 53.99% were farmers. Nigam *et al*⁸ had also reported that the highest incidence of organophosphorous poisoning is in persons engaged with agriculture, constituting 39.60 %. Poisoning is more common in farmers

and in rural areas it may be accidental or suicidal. Most cases required 8 - 12 days of hospitalization as majority of patients were having complications. In concordance to our findings, in a study by Krupesh *et al*⁴ average days on ventilation were 6.17. The prognosis of poisoning patients in present study showed that it was very good with a survival of 78 % of cases and mortality of 22% as compared with others findings. The results of the study conducted by Unnikrishnan *et al*⁹ reported 28% mortality; Singh *et al*¹⁰ reported 27% at Wenlok Hospital, Mangalore. Overall the mortality rate in India range 15% to 30 %.¹¹ Bhattarai *ET al* (2006) reported that overall mortality was 6.4% during the period of two years.⁶

Present study highlights the problem of organophosphorous poisoning in this region. It is essential to establish strict policies against the sale and availability of insecticides and pesticides which are freely available in the market. Like drugs, sale of insecticides and pesticides should be monitored by special authority. Due to lack of knowledge regarding safety measures and easy availability of pesticides and insecticides accidental poisoning was more common. Unfavorable environmental conditions leading to

crop damage aggravating poverty and unpredictable prices for farm products were some of the other reasons for suicidal poisoning.

Accidental poisoning can be prevented by taking care during preparation of insecticidal solution, spraying the by using mask, gloves, goggles and taking bath after spraying and keeping the poison away from the reach of children. It is observed that farmers do not purchase protective devices though available at affordable cost due to sheer ignorance. Legislation in this regard of compulsory sale of protective equipment with spray pump would definitely help in reducing accidental poisoning. To prevent suicidal tendency in farmers the Government should provide some policies like easy availability of loans at low interest, crop insurance schemes and appropriate market value for agricultural products. There should be availability of primary care for patients at PHC level like gastric lavage, antidotes & ambulance. There should be availability of superspeciality services and equipments at district level. The responsibility lies in community also to give some psychological support to depressed people and there should be understanding in the family.

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