Original Article

A Cross Sectional Study to Assess Organo - Phosphorous Poisoning Cases Admitted in a Tertiary Teaching Hospital

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ABSTRACT

Introduction: India is a predominantly an agricultural country, hence pesticides and insecticides are used abundantly for cultivation. So it is natural to have access to these chemical substances by human being either through contact or ingestion by accidental or suicidal intent.

Aims and objectives: 1) To study the sociodemographic profile of patients who had consumed organophosporous poison 2) To study the clinical profile of patients who had consumed organophosporous poison

Result: Maximum number were seen in age group 21-30 years, male subjects were 54%, most of the cases were suicidal in origin (93%). Monocrotophos was the most common compound, vomiting and pupillary constriction were the most commonly observed signs (75%).

Conclusion: Most of the study subjects with intention of suicidal tendency have consumed organophosphorus compound as it is easily available with farmers who uses it as common insecticides. The mortality is very high since the victims are predominantly from rural India where poisoning is very severe due to delay in the access to medical management.

Keywords: organophosporous compound; poison; clinical profile

INTRODUCTION

Death due to poisoning has been known since time immemorial. Poisoning is a major problem all over the world, although its type and the associated morbidity and mortality vary from country to country[1]. Organophosporous poisoning occurs very commonly in India, where farmers form a significant proportion of the population who commonly use organophosporous compounds like parathion as insecticides. Thus, due to the easy accessibility of these compounds, a large number of suicidal cases are encountered.[2] The toxicological aspects of organophosporous compounds are no longer limited to toxicology and industrial medicine but it is of practical importance to physician. Owing to easy availability, pesticides such as organophosphates and carbamates have always been extremely popular in India for the purpose of committing suicide. In recent times, aluminium phosphide has begun to find increasing favour and has in fact edged out the other insecticides from the top spot in some states. Homicidal poisoning involving pesticides has always been rare owing to disagreeable odour/taste, which most of these chemicals possess.[3] The objective of the study is to assess the sociodemographic profile of patients who had consumed organophosporous poison and to study the clinical profile of patients who had consumed organophosporous poison.

MATERIALS AND METHOD:

The present study was conducted at the medical emergency department in a tertiary teaching hospital located in north Karnataka. The patients of suspected organophosporous compound poison were included in this study. A total of 100 cases of organophosphorus with history of OP poison consumption and if patient was unconscious at the time of admission, basic history was taken from the relatives and eye witnesses who brought

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patient to emergency department. Patients who had a history of Diabetes mellitus, history of consumption of alcohol, drugs or other poisons were excluded from the study. A detailed history was taken in every case. Chief complaints of the patients were noted in each of the cases as given by patient. Particular attention was paid to the nature of organophosphorus compound, the average quantity consumed and time lapses before the patient came to the hospital. The various parameters used were state of consciousness such as alertness, drowsiness, stupor and come, pupil's size normal or constricted and reaction to light, normal, sluggish or no response and also pulse rate of the patients. Blood pressure was recorded and also observation on sweating and increase in secretions of upper and lower GIT were noted. Respiratory system was examined for added sounds like rhonchi; crepitation and respiratory rate were noted.

RESULTS

The following observations were made after studying 100 cases of suspected OP poisoning cases admitted in medical emergency department, in a Tertiary Hospital.

Table 1: Age and sex wise distribution of study subjects (n=100)

Indicators	Number	Percentage
Age		
14-20	32	32
21-30	36	36
31-40	15	15
41-50	10	10
50-60	05	05
>60	02	02
Sex		
Male	54	54
Female	46	46
Total	100	100

In this study, pattern of cases according to age wise shows highest numbers in 21-30 years age group, followed by 14-20 and least number of cases shown in >60 age group. Out of 100 patients, 54 cases were male and 46 female.

Table 2: Distribution of study subjects according to Manner of poisoning

Manner of poisoning	Number	Percentage
Suicidal	93	93
Accidental	07	07
Total	100	100

The above table shows that, 93 cases were suicidal and 07 were homicidal.

Table 3: Interval between consumption of poison and reporting of cases.

Time duration in hours	Number	Percentage
0-2	39	39
2-4	32	32
4-6	17	17
>6	12	12
Total	100	100

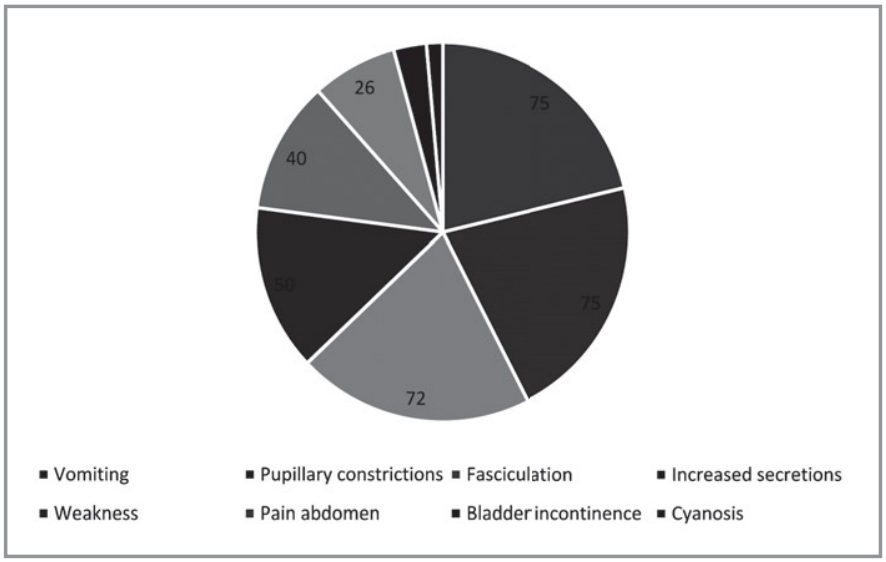
From the above table, we can infer that most of the patients presented within 0-2 hours (39%), followed by 2-4hours (32%) and 12% of the cases were presented after 6 hours.

Table 4: Distribution of study subjects according to type of organophosphorus compound poisons.

Chemical name	Number	Percentage
Monocrotophos	25	25
Endosulphan	17	17
Quinolphos	13	13
Dimethioate	13	13
Chloropyriphos	06	06
Others	11	11
Unknown	09	09
Total	100	100

The above table shows that, the Monocropthos was the most commonly consumed poison (25%), followed by Endosulphan (17%) and others like carbofuran, parathion, phoselene, and carbaryl constituted about 11%. Unknown compound were 09%.

Table 5: Distribution of study subjects according to presentation of clinical features



Most of the patients presented with vomiting and constricted pupil (75%), followed by fasciculation 72% and least sign observed was cyanosis (5%)

DISCUSSION

Poisoning is an important public health problem and a frequent cause of admission into hospitals. Poisoning mortality is predominantly a problem of young adults. Poisoning is an important public health problem and a frequent cause of admission into hospitals. Poisoning mortality is predominantly a problem of young adults.

Poisoning is an important public health problem and frequent cause of admission into hospitals. A study of 100 cases of suspected OP poisoning cases admitted to medical emergency department in a tertiary teaching hospital were studied. Maximum number of study groups was seen in the age group 21-30 years (36%). Nimal Senanayake and Laksman Karalliedde also reported largest number of patients in the same age group[4,5]. Male predominance was seen in our study (54%), Nimal Senanayake and Laksman Karalliedde also had male predominance in their study.[5] Studies conducted in other parts have shown that the majority of poisoned patients were young adults less than the age of 25 and the female-to-male ratio was between 1.7 and 3.[6-10]. Contrast to our study's findings, some studies have shown mean age group was above 30 years and also Female to male ratio was 1:1.[11,12] Most of the patients (39%) were admitted in the first two hours of consumption of poison. Singh et al study also shown same time of reporting to the hospital.[13]

In our study, we have observed that, 93% of cases were suicidal in origin, which is very alarming. Similar results were found in Islambulchilar M et al study, about 90.2% of poisoning were intentional in origin.[14] Contrast to our study findings, some European countries have reported that, majority of poisoning were accidental in origin.[15,16]. In our study 25% of the cases were due to Monocrothophos, 17% ue to Endosulphan. Karalliedde et al have shown that the common agents were Dimethioate, Methamidophos, Malathion, Monocrothopos and Fentthion[4]. Vomiting was observed in 75% of the our patients, increased secretion in 50%, whereas study by wadia RS shown 59% vomiting and Miosis 56%.[17]

CONCLUSION

OP compound toxicity is a diagnostic challenge. Mortality from OP compound poisoning is directly proportionate to the severity of poisoning. Easy availability

and low cost has made OP insecticide as an agent of choice for self-poisoning. It is of great concern since it affects the most productive age group of the society. Onset of symptoms may be delayed and presentations may be atypical. Even though the symptoms are mild initially, observation for longer period is required. As there are no decontaminating measures, even a small quantity of injection may be fatal. The high rate in suicidal poisoning in our studies may be due to factors such as breakup in family support system increase in unemployment, urbanization, and economic instability.

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