

ORGANOPHOSPHORUS POISONING IN A TERTIARY HOSPITAL OF NORTH INDIA - A PRELIMINARY REPORT

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ABSTRACT

The use of organophosphorus pesticides is widespread in developing countries for increasing the yield of agriculture. It has resulted in increased incidence of ingestion of organophosphorus for self harm purpose. This study was aimed to assess the pattern and outcome of acute poisoning cases in a tertiary care hospital. Total of 118 patients consisted of 62 males and 56 females in the age group of 14-60 years were studied. Maximum number of 60 patients were in the age group of 25-49 years while 49 patients in age group of 14-24 years and 9 patients in age group of 50 years and above. Higher number of 62 patients were from the rural area while 56 patients had urban background. History of ingestion of pesticide was present in all cases. In 90 patients poison consumption was suicidal in nature while in 28 patients the poisoning was accidental. Phosphomidones was the major culprit in majority of the patients followed by malathion and dichlorophos. 103 recovered and mortality was observed in 15 patients.

Key words – Organophosphorus poisoning, pattern and outcome, tertiary care hospital Pesticide

INTRODUCTION

Organophosphorus compounds are widely used for agriculture, vector control and domestic purposes. Because of their easy availability organophosphorus poisoning has assumed major global health challenge. Pesticide self-poisoning accounts for about one-third of the world's suicides [1]

The scenario is grim in developing countries particularly in rural areas where the mortality from intentional self poisoning is 10 to 50 times higher than the developed countries because of common use of these highly toxic insecticides. Acute self-poisoning is a major clinical and public-health problem across much of rural Asia and majority of poisoning cases are due to organophosphorus compound [2,3]

In India too, organophosphorus use is widespread as most population is mainly rural with farming as a major occupation. Information available in our country is limited, with regard to acute poisoning in adults, including hospitalized patients. Acute poisoning is a medical emergency. It is important to know the nature, severity and outcome of acute poisoning cases in order to take up

appropriate planning, prevention and management techniques. This study was aimed to assess the pattern and outcome of acute poisoning cases in a tertiary care hospital in, Jammu

MATERIALS AND METHODS

We retrospectively studied the hospital record of the 118 patients admitted in GMC Jammu from year 2006 to 2008. Diagnosis was based on history, characteristic sign and symptoms and improvement in their condition following treatment with atropine and oximes. The study included cases and data regarding age, sex, circumstances of poisoning, name of the poisonous substance, chemical type, hospitalization, severity and outcome were collected.

RESULTS

Evaluation of data obtained revealed that 118 patients admitted with organophosphorus poisoning consisted of 62 males and 56 females. Maximum 60 patients were in age group 25-49 years, followed by 49 patients in 14-25 years. 90 patients had intentionally consumed the poison out of these maximum number of 52 patients (males 23, females 29) were in age group of 25-49 years followed

by 32 patients (males 18, females 14) in 14-24 age group. While poisoning was accidental in 28 patients (19 males, 9 females) with maximum number in 14-24 age group (8males, 9females) followed by 8 patients in 25-49 year age group (males 8, females 0). 62 patients reported from rural area whereas 56 patients were from urban area. (Table 1).

Table1. Demographic profile and mode of poisoning of 118 patients with organophosphorus poisoning

	Male	Female	Total
Sex	62 (52.5%)	56 (47.5%)	118
Age			
10-24 yrs	26	23	49(41.5%)
25-49yrs	31	29	60(50.8%)
50yrs & above	6	3	9(7.6%)
Marital status			
Married	34	30	64(54.2%)
Unmarried	28	26	54(45.8%)
10-24 yrs	18	14	32(27.1%)
25-49yrs	28	24	52(44.1%)
50yrs & above	3	3	6(5.1%)
Accidental			
10-24 yrs	8	9	17(14.4%)
25-49yrs	8	0	8(6.7%)
50yrs & above	3	0	3(2.5%)
Area			
Rural	32	30	62(52%)
Urban	30	26	56(48%)

History of ingestion of organophosphorus was present in all cases. No history of inhalation or topical application was available. Maximum number of 76 patients were with history of Phosphomidones ingestion followed by Dichlorphos ingestion in 11 patients. 103 patients recovered while 15 patients died, with maximum number of 6 patients out of 49 in 10-24 yrs age group followed by 5 out of 9 patients in 50 yrs and above age group and 4 patients out of 60 in age group of 25- 49 yrs. (Table 2).

DISCUSSION

The use of organophosphorus pesticides is widespread in developing countries for increasing the yield of agriculture products to meet the mounting demand. This has resulted in increased incidence of ingestion of organophosphorus for self harm purpose because of easy availability. The scenario is no different in India where consumption of these for suicidal purpose poses a major problem due to

their extensive use in agriculture sector and uncontrolled sale. [4]

Table 2. Nature of poison, exposure and outcome of patients

	Male	Female	Total
Phosphomidones	43	33	76(64%)
Dichlorphos	5	6	11(9.3%)
Malathion	2	8	10(8.5%)
Tic 20	3	6	9(7.6%)
Unknown	9	3	12(10.2%)
of Exposure			
Ingestion	62	56	118(100%)
Inhalation	-	-	
Out come			
Recovery	54	49	103(87.3%)
Death			15(12.7%)
10-24 yrs	2	4	6 (5.1%)
25-49yrs	2	2	4(3.4%)
50yrs & above	4	1	5(4.2%)

The present study was carried out to evaluate the pattern and lethality of the suicidal organophosphorus in Government Medical College Jammu, the tertiary care hospital of north India. The analysis of data suggests the incidence of consumption of organophosphorus was 52.5% in males. Similar to this an early report has also suggested considerable preponderance in males.[5,] This may be due to fact that it is easier for males to procure pesticide for self harm purpose as they are mostly engaged in agriculture.

Incidence was more in rural than urban population in the present study comprising 52% of patients. This is in concurrence with report depicting higher incidence even up to 82% in patients of poisoning from rural area[5]. This may be because of more prevalent agriculture profession and widespread use of pesticide in agriculture sector in rural area. Higher incidence of suicide has been reported in farmers in rural India [6]

In the current study phosphomidones (64%) was the major culprit in majority of the patients followed by dichlorophos (9.3%) and malathion (8.5%). 15 patients out of 118 died due to poisoning with 6 patients in 14-24 age group out of 49 patients, 5 out of 9 in 50 years and above age group, and 4 out of 60 in 25-49 years age group. This means that mortality rate was more in elderly group (50

years and above age group) which indicates higher risk factor. Elderly group mortality can be due to age related multiple disorders effecting multiple organs rendering them more vulnerable to lethality of organophosphorus poisoning. Earlier study has also revealed that fatal outcome was significantly associated with higher mean age.[7]

Organophosphorus pesticide self-poisoning is an important clinical problem in rural regions of the developing world, and kills an estimated 200000 people every year[8]. It calls for effective ways of reducing the incidence of self-harm. Epidemiological and toxicological data suggest that many of these deaths might be prevented if the use of pesticides most toxic to humans was restricted, pesticides safely stored in rural communities, and the accessibility and quality of care for poisoning improved.[1]. Effective measures on the sale, use and safe disposal of the remaining content of organophosphorus compounds have been suggested to counter this problem. Public education in is of utmost importance this regard.

CONCLUSION

The results of current study revealed in the 118 patients the organophosphorus poisoning was more in males, young adults and from rural area. In majority of patients the ingestion was intentional for self harm. Phosphoridones was the major culprit. Mortality rate was more in elderly group. A number of Organophosphorus compounds have been introduced in Indian market as agricultural insecticides. Number of these compounds have proved to be more toxic to humans than their utility as insecticides as these are misused for self harm. Though suicide prevention is a much broader issue but use of pesticides most toxic to humans must be restricted.

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