



## CLINICAL PROFILE OF ORGANOPHOSPHORUS POISONING AT TERTIERY CARE HOSPITAL

### Medicine

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### ABSTRACT

Organophosphorus compounds are widely used as pesticides in our country. Organophosphorus poisoning can result from occupational, accidental or intentional exposure. Clinical manifestations include cholinergic syndromes, CNS symptoms and cardiovascular symptoms. We conducted a retrospective study of 96 patients which were admitted in our ICCU for OP poisoning during period of January 2017 to July 2017. Most of the patients were between the age group of 20-40 years (53.13%) while 14.58% were < 20 years and 32.29% were > 40 years. Male were 76.04% while 23.96% of the patients were females. 77.08% of the patients were from the rural area while 22.92% were from urban area. Dichlorvos (46.88%) was the most common compound consumed. Mortality rate was 15.62% in this study. Most common cause of death was respiratory failure.

### KEYWORDS

Organophosphorus poison, respiratory failure

#### Introduction:

Organophosphorus poisoning is very common toxicological emergency encountered in rural India. Organophosphorus compounds (OPC) are commonly used by agricultural population in India. Organophosphates inhibit the enzyme acetyl choline esterase. This results in accumulation of acetyl choline at synaptic junction. This excess acetyl choline is responsible for muscarinic and nicotinic effects in the body.

Human gastric mucosa is permeable to organophosphates and is the classical way of absorption in suicidal cases. Liver is the organ where activation and detoxification of OP compounds takes place. They are eliminated through kidneys. Initial management of patients is decontamination and cardiorespiratory stabilization. Atropine and pralidoxime are mainstays of treatment.

So OPC are easily implicated in suicidal and accidental poisoning. Suicidal poisoning carries a death rate of around 4-30%. The special emphasis in this study was given on age, sex, socioeconomic status, occupation, motive of poisoning, type of compound, place and outcome. Respiratory failure is an important complication responsible for death in many patients. So timely intervention is very crucial.

#### Aims and objectives:

To study the clinical profile of OP poisoning patients  
To study the outcome of patients

#### Materials and methods:

Retrospective observational study was carried out at tertiary care hospital. Total 96 cases of OP poisoning were studied (n=96).

**Inclusion criteria:** cases of acute OP poisoning > 12 years

**Exclusion criteria:** Pregnant women, non OP compound poisoning cases, brought dead cases

All the data was collected in detailed proforma with history taken either from patient or relatives as condition permitted.

Detail clinical examination and necessary investigations were performed including serum choline esterase.

All the data was analysed, documented and interpreted as per laid down protocol. Statistical significance was set as P value 0.05 and results were analysed using statistical package of social sciences (SPSS) version 16.0

#### OBSERVATIONS AND RESULTS:

**Table no.1 Sex wise distribution**

Sex	No (n=96)	Percentage
Male	73	76.04
Female	23	23.96

This table shows that majority of the patients were male (76.04%) while 23.96% of the patients were female. Male to female ratio was 3.17:1.

**Table no.2 Age wise distribution**

Age (years)	No (n=96)	Percentage
< 20	14	14.58
21-40	51	53.13
>40	31	32.29

This table shows that the most of the patients were between the age group of 20-40 years (53.13%), 14.58% were < 20 years and 32.29% were > 40 years.

**Table no.3 Socioeconomic status wise distribution**

Socioeconomic status	No (n=96)	Percentage
High	4	4.17
Middle	13	13.54
Low	69	82.29

According to this table majority of the patients were from lower socioeconomic status (82.29%).

**Table No. 4 Residence wise distribution of patients**

Resident	No (n=96)	Percentage
Rural	74	77.08
Urban	22	22.92

77.08% of the patients were from the rural area while 22.92% were from urban area.

**Table No. 5 Literacy wise distribution of patients**

Education	No (n=96)	Percentage
Illiterate	60	62.50
1-12 standard	25	26.04
Graduate and above	11	11.46

Most of the patients i.e. 62.5% were illiterate in this study.

**Table No. 6 Distribution of patients according to poison taken**

Type of poison	No (n=96)	Percentage
Dichlorvos	45	46.88
Methyl parathion	21	21.88
Malathion	12	12.5
FenitrothinDiazinon	8	8.33
Unknown	10	10.41

Dichlorvos (46.88%) was the most common compound consumed followed by methyl parathion(21.88%).

**Table No. 7 Distribution of patients according to intention to take poison**

Mode of poisoning	No (n=96)	Percentage
Suicidal	71	73.96
Accidental	21	21.88
Homicidal	4	4.16

The commonest intention was suicidal (73.96%) followed by accidental (21.88%) and homicidal (4.16%).

**Table No. 8 Outcome of study**

Outcome	No (n=96)	Percentage
Survived	81	84.38
Dead	15	15.62

Mortality rate was 15.62% in this study.

**Discussion:**

Organophosphorus poisoning is very common in rural india. In this study also most of our patients were from rural part of district. Present study shows male dominance(76.04%) in OP poisoning. This may be because males are more involved in spraying crops in farms. Most of the patients were in age group of 20-40 years(53.13%). The reason is because this is main working age group and bear the responsibility of their families.

Maximum cases i.e 77.08% occurred in rural areas as OPC are mostly used by farmers residing in rural areas while most of the cases in urban areas occurred accidentally in children or intentionally in adults. This study showed higher incidence in illiterates. It was 62.5%. Most of farmers in our study were illiterate. This suggests necessity of thorough education and training of farmers to prevent accidental exposure to OPC while spraying in farms.

Higher number of cases(82.29%) occurred in patients belonging to lower socioeconomic status. This may be because they suffer more from financial problems and job problems. Dichlorvos (46.88%) was the most common OP compound found in poisoning in this study followed by methyl parathion(21.88%) and malathion(12.5%). This may be because it is easily available in farms.

Most common intention for poisoning was suicidal in this study.It was 73.96%. Risk factors for suicidal poisoning are social and domestic problems, alcohol abuse, financial stress, chronic illness and failures in life. Mortality rate was 15.62% in this study. Mortality is mostly related to delayed presentation of patients to our hospital, type of compound, higher amount of poison consumed and associated comorbidities.

**CONCLUSION:**

OP poisoning is most common in rural population, with male predominance belonging to lower socioeconomic strata. Education among the agricultural workers and youth about harmful effects of OPC and ways of prevention is necessary. Upgradation of primary health care facilities among rural areas is important step in management of such cases, which will help to reduce morbidity and mortality due to OPC poisoning. Strict implimentation of pesticide act and reducing use of OPC to minimum possible level will also help.

**References:**

1. Jeyaratnam J.Acute pesticidal poisoning: A major global health problem. World Health Stat Q.1990;43:139-144.
2. Singh G,KhuranaD. Neurology of acute organophosphate poisoning. Neuro India.2009;57:119-125.
3. Wadia RS.Treatment of organophosphate poisoning.Indian J crit care med.2003;17:85-7
4. Rodgers ML. OP poisoning. Am J Emerg Med.2006;22:335-44

5. Eddleston M. Patterns and problems of deliberate selfpoisoning in developing world.QJM.2000;93:715-31
6. Nouria S Prognostic value of serum choline esterase in organophosphorus poisoning. Chest.1994;106:1811-4
7. Wang WZ.Effects of pre hospital systemic treatment on prognosis of patients of severe acute organophosphorus pesticide poisoning. Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi.2005;23:371-3
8. Panda S, Nanda R. Laboratory abnormalities in patients with organophosphorus poisoning. Indian Medical Gazette-January 2014
9. Kakri P, Ansari JA Cardiac and electrocardiographical manifestation of acute organophosphorus poisoning. Singapore Med J. 2004;45:385-9
10. Sequeira Jf. Intoxication by organophosphates: Prognostic evaluation on 143 patients.Med Intern.1994;1:4-10