

# A Clinical Study on Organophosphorus Poisoning - In Emergency Department.

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Received: October 2017

Accepted: May 2018

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## ABSTRACT

**Background:** Organophosphorus compounds controls and eradicates the insects and pests and saves the crops and plants, as agriculture is main contribution for economy in India. Organophosphorus compounds have contributed a lot in bringing the green revolution as most of the agriculture workers not follow the precautions. Accidental poisoning is more common and for various reasons it is commonly used as suicidal poison. Because of the neglected attitude of vegetable agents, the fruits and vegetables are also polluted with organophosphorus compounds. **Methods:** In our study we have examined 100 patients who were admitted in the emergency department. After thorough washing of the dead body blood samples send for RBS, SGOT, Urea and electrolyte. **Result:** Out of these 100 patients the major symptoms were nausea, vomiting, pain abdomen, excessive salivation, sweating. Major things were pinpoint pupils, offensive odor, allied sensorium and Brail cardia. **Conclusion:** Young people who belongs to agriculture families uses organophosphorus poison for suicidal purpose and chronic poisoning also common. So precautional measures to be taken to prevent chronic and accidental poisoning.

**Keywords:** Organophosphorus poison, clinical features, agriculture, pesticides.

## INTRODUCTION

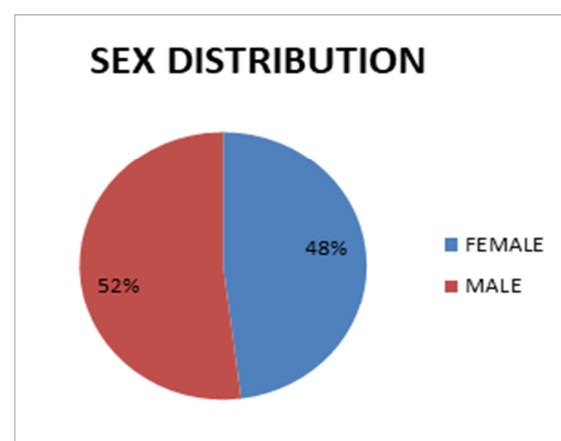
Organophosphorus compounds and carbonates are widely used in agriculture and gardening, especially in developing countries. Mortality is upto 20% in Asian countries, Nerve agents, Sarin, tabun, agents VX, VE are Organophosphorus compound insecticides are organophosphorus,<sup>[1]</sup> malathion mechanism of toxicity ->OP compounds phosphorylate the active site of Acetylcholinesterase (Ache) inactivating the enzyme and leading to accumulation of acetylcholine (Ache) in cholinergic synapse.<sup>[2]</sup>

## MATERIALS AND METHODS

In our study we have examined 100 cases of acute organophosphorus poisoning cases. After the clinical examination and thorough washing of the body with soap and water, blood sample were sent to the emergency laboratory for the estimation of random blood sugar, SGOT, urea and creatinine and serum

electrolytes. After the removal of clothes and gastric lavage treatment was started and ECG was taken twice, once at the time of admission and 2nd ECG was taken at the time of discharge.

## RESULTS



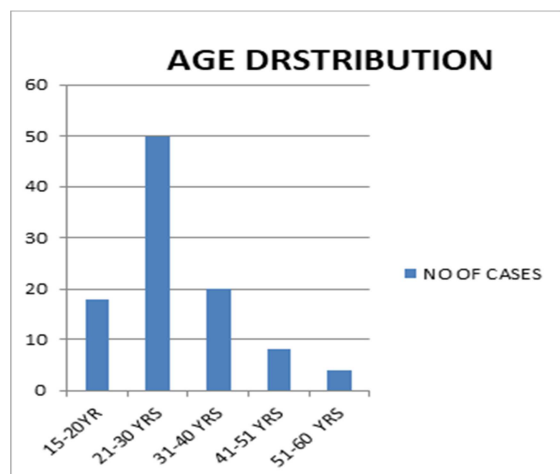
### Analysis of Symptoms

1. In our study Nausea (90%), Vomiting (70%), Abdominal pain (45%), Excessive Salivation (32%), Sweating and Lacrimation (27%), Weakness (18%), Insatiability (15%), Diarrhoea (8%), Blurred Vision

### Name & Address of Corresponding Author

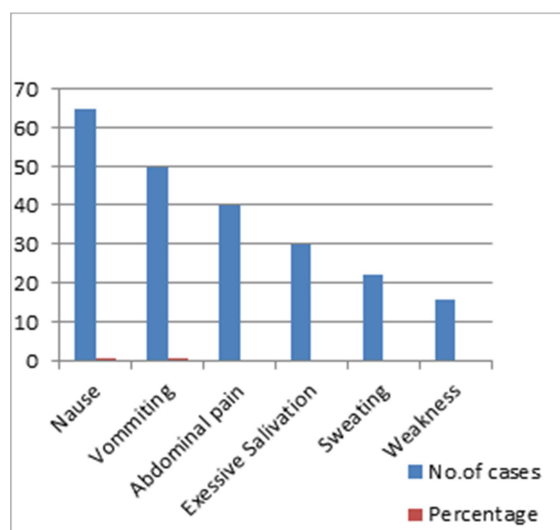
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(8%) were comparable to the study reported by APN kumar et al and Goeal



2. Wheezing, Seuziers, Initial tachycardia followed by Bradycardia was also observed.

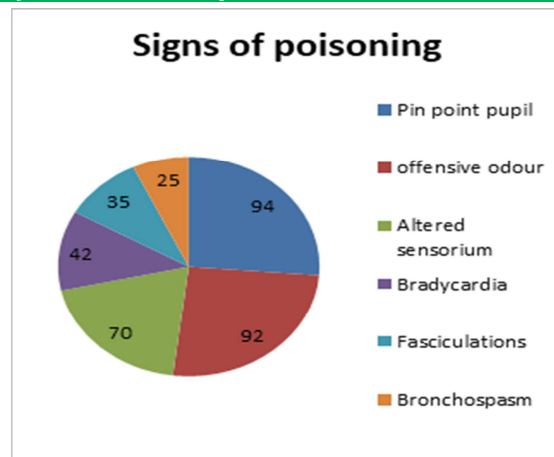
| Symptoms             | No. of Cases | Percentage |
|----------------------|--------------|------------|
| Nause                | 65           | 85%        |
| Vommiting            | 50           | 65%        |
| Abdominal pain       | 40           | 40%        |
| Excessive Salivation | 30           | 30%        |
| Sweating             | 22           | 22%        |
| Weakness             | 16           | 16%        |
| Blurred Vision       | 8            | 8%         |
| Diarrhoea            | 4            | 4%         |



**Signs in our Study**

Pin point pupil (Miosis 94%), offensive odour 92%, Altered sensorium 70% , Bradycardia 42%, Fasciculations 35%, Bronchospasm 25%.

| Signs             | No of Cases | Percentage |
|-------------------|-------------|------------|
| Pin point pupil   | 94          | 94%        |
| offensive odour   | 92          | 92%        |
| Altered sensorium | 70          | 70%        |
| Bradycardia       | 42          | 42%        |
| Fasciculations    | 35          | 35%        |
| Bronchospasm      | 25          | 25%        |



Organophosphours poisoning is very common in adults especially in low socio-economic group. Common symptoms are vomiting, pain abdmn, Nausea, and alterd sensorium. And Common signs are miosis, Rthyam adnormalities bronchospasm. Fasciculations are considered as bad prognostic sign.

**DISCUSSION**

The reasons behind the increased incidence of organoo-phosphorus poising in rural area is the population depends on agriculture. The main crops cultivated are paddy, chilly and cotton and pesticides are commonly required to eradicate insects. The common symptoms are nausea vomiting and due to muscarinic effect of acelyteholine. Shankar et al observed around 55% cases.<sup>[4]</sup>

Pain abdmn is another common symptoms seen in appropriate 40% of cases and may be due to increased tone and rhythm city of duodenum. The cholinesterase inhibitor effect in on duodenum may leads to spasm because of decreased cholinesterase levels.

The froth in the mouth may be due to increased production in saliva. In sensitive to atropine therapy. Breathlessness in due to muscarinic nicotinic or both Vishwanathan and Srinivasan et al observed 42% of cases in their study.<sup>[4]</sup>

Diarrhoea was observed in 4% cases on 1st 2days. The general weakness is due to nicotinic effect of poising headache and blurred vision are seen in 8% of cases.

Constriction of bilated pupil (miosis) is most important sign and observed in 94% cases of may disappear in 24 to 48 hours. It is not related with severity of poison.

Fasciculations were observed in 35% cases Fasciculation were due to increased in amplitude of miniature and end plate potentials due to accumulation of acetyl choline and increase in spontaneous frequency of and plate potentials after treatment with PAM they were disappear balanced observed Fasciculation in 35% cases.

Wheeze is observed in 25% cases and is associated with bronchospasm and disappeared with treatment. Srinivasan and Vishnathan observed wheeze in 45% patients.

Respiratory paralysis is due to nicotinic effect on respiratory muscle, pulmonary congestion and pulmonary edema.

Bronchospasm due to muscarinic effect leads to difficulty in breathing and cyanosis. 15 patients were expired due to respiratory paralysis. Sinus bradycardia is seen in 42% cases.

## CONCLUSION

Young people who belong to agriculture families - use organophosphorus poison for suicidal purpose and it is one of the commonest poisons available in market.

Common clinical features are vomiting, nausea, miosis, abdominal pain, whereas excessive salivation was observed in some patients after 2 to 3 days and improved with atropine, and PAM. Respiratory paralysis improved with ventilator support.

The best preventive measure is education by agriculture officer, regarding spraying, and to improve the socio-economic standards.

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**How to cite this article:** Pavan KS, Reddy R, Ramana V, Reddy T. A Clinical Study on Organophosphorus Poisoning - In Emergency Department. *Ann. Int. Med. Den. Res.* 2018; 4(5):ME12-ME14.

**Source of Support:** Nil, **Conflict of Interest:** Nil.