



Organophosphate Poisoning: A Case Study

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ABSTRACT

Poisoning by organophosphates is a complicated medical problem. Due to changed signals in these synapses brought on by an increase in acetylcholine concentration in cholinergic synapses as a result of acetylcholinesterase inhibition, pathological outcomes such as failure of the respiratory muscles and cardiac arrhythmias result. A particularly dangerous complication is hypoxia (low oxygen level), which occurs when the lungs' ability to exchange gases is hindered and the heartbeat slows. One of the most dangerous occupational risks in the world is organophosphate poisoning, which can be readily caused by pesticides that are widely available. High mortality and morbidity are linked to it.

Keywords: Organophosphate (OP) poisoning, Acetylcholine (ACh), cholinergic synapses

1. INTRODUCTION

One of the major health issues around the world is poisoning. In terms of global death rates, it ranks 45th. The exposure to domestic agents has been linked to the highest occurrence (44.1%), followed by drug usage (18.8%) and exposure to agricultural pesticides (12.8%). One of the most typical types of poisoning in underdeveloped nations like India is organophosphate poisoning.

The onset of OP poisoning symptoms can be categorised as acute (within minutes to 24 hours), delayed (between 24 hours to 2 weeks), or late (beyond 2 weeks). Nicotinic and muscarinic receptor activity is the source of acute onset symptoms. Salivation, lacrimation, urine, defecation, gastric pains, vomiting, bradycardia, hypotension, miosis, and bronchospasm are all muscarinic symptoms. Weakness, fasciculation, cramping, and paralysis are nicotinic symptoms. Anxiety, agitation, convulsions, and respiratory depression are central nervous system symptoms. While muscarinic symptoms are cholinergic symptoms in the form of bradycardia, miosis, and salivation, delayed onset nicotinic symptoms are intermediate syndrome. Coma and extrapyramidal symptoms may start to manifest gradually. Peripheral neuropathy is a symptom that appears later. After 2-4 days following oral exposure to OP poisoning, intermediate syndrome (IMS) frequently develops. It is observed in about 20% of OP poisoning cases. IMS (intermediate syndrome) is characterised by the paralysis of respiratory muscles and peripheral limb paralysis. Only mechanical ventilation for 7-15 days, and occasionally for 21 days, is used to cure IMS. Acute pancreatitis is one of the uncommon side effects of organophosphate poisoning.

2. CASE PRESENTATION

A patient aged 23 years old visited IGMC Shimla with the complaints of consumption of chlorpyrifos of unknown amount. Patient came with the chief complaints of vomiting, excessive salivation. Patient further had complication of induced acute pancreatitis.

Past Medical/ surgical history:

There is no significant past medical/Surgical history in patient.

3. GENERAL EXAMINATION

Weight: 62kg

Height: 162cm

BMI: 23.6kg/m²

4. SPECIAL INVESTIGATION

According to the reported symptoms, Patient's Lab investigation like Cortisol level, Renal function test liver function test, Coagulation profile, D-dimer test and ABG analysis was done.

5. TREATMENT

Emergency treatment included 150 ml Ringer's Lactate bolus, Cimetidine 400 mg IV and atropine 1 mg IV.

- ❖ Inj. Atropine 15ml/ hr.
- ❖ Inj. PAM 0.5 (500 mg/hr.)
- ❖ Inj. Pantop 40mg OD
- ❖ Inj. Thiamine 500mg TDS
- ❖ Inj. Opti neuron 1amp OD IVF RL 0.45 NS over 12 hr.

6. INTERVENTIONS

- ❖ NG Lavage was done.
- ❖ Family counselling and patient care was done.
- ❖ Urine output was monitored
- ❖ Cumulative fluid balance was maintained

7. CARE PLAN

Planned counselling session for patient and family

Advised for follow up

8. OUTCOME

Patient had underwent NG Lavage and taken prescribed medicine , after taking the medicine patient condition was stable . After medications the lab investigations was monitored and the values returned to normal.

9. DISCUSSION

Organophosphate poisoning is **poisoning due to organophosphates (OPs)**. Organophosphates are used as insecticides, medications, and nerve agents. Symptoms include increased saliva and tear production, diarrhoea, vomiting, small pupils, sweating, muscle tremors, and confusion.

References

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