



ORIGINAL RESEARCH PAPER

Medicine

STUDY OF SEVERITY, COMPLICATIONS AND OUTCOME IN 50 PATIENTS OF ORGANOPHOSPHORUS POISONING

KEY WORDS:

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INTRODUCTION:

DEFINITION: Organophosphorus insecticides are normally esters, amides or thial derivatives of phosphor-thionic or phospho n thotanic acids. The organophosphorus compounds are classified in 2 groups, one is Alkyl phosphates and other is Aryl phosphates.

CLINICAL MANIFESTATIONS:

Signs and symptoms are due to accumulation of acetyl choline and subsequent hyperstimulation of receptors are well known. **Muscarinic manifestations** are frothing from the mouth, increase sweating, lacrimation, increase bronchial secretion, dyspnea, cough, tightness in chest, nausea, vomiting, abdominal tightness, diarrhea, miosis, urinary incontinence, hypotension, bradycardia. **Nicotinic manifestations** are muscle twitching, fasciculation, muscle cramps, muscle weakness including respiration, tachycardia, hypertension. **Central nervous system manifestation** are giddiness, anxiety, restlessness, insomnia, tremors, headache, drowsiness, confusion, ataxia, coma with absent reflexes, convulsion, depression of respiratory and circulatory centre with dyspnea and fall in blood pressure.

- Miosis may not be seen if reflex sympathetic over activity secondary to hypotension predominates. Gastrointestinal symptoms occur earlier after ingestion.

CLINICAL SEVERITY GRADING:

1) Grading system by API textbook of medicine 1 is according to clinical symptoms and serum cholinesterase level:

Mild: Headache, nausea, vomiting, abdominal pain, salivation, sweating. Serum cholinesterase level is less than 50% of normal value.

Moderate: Above symptoms plus anxiety, restlessness, miosis. Serum cholinesterase level is between 10%-20% of normal value.

Severe: Unconsciousness, muscle twitching, flaccid paralysis, increase bronchial secretions, convulsion, respiratory failure. Serum cholinesterase level is less than 10% of normal value.

2) WHO grading system:

Mild: Anorexia, headache, dizziness, anxiety, weakness, substernal discomfort, fasciculation of tongue and eyelids, miosis and impairment of visual acuity.

Moderate: Nausea, vomiting, salivation, sweating, hypertension or hypotension, bronchorrhoea, muscular fasciculations.

Severe: Miosis or mydriasis, non-reactive pupil, dyspnoea, respiratory depression, pulmonary edema, cyanosis, loss of sphincter control, convulsions, coma, bradycardia or tachycardia, hypokalemia, muscular paralysis (may involve the respiratory muscles).

Our Study of severity, complications and outcome in 50 patients of Organophosphorus Poisoning was done during the period of 01/02/2016 to 31/08/2016 at Civil hospital, Ahmedabad. In our study, correlation between grading of patients and outcome were observed. Our findings were as below.

Table 1: Signs and symptoms frequency in our study:

Signs and symptoms observed in the patients	Grading of the patients	No. of the patients
Headache, nausea, vomiting, abdominal pain, salivation, sweating	Mild	34
Headache, nausea, vomiting, abdominal pain, salivation, sweating, anxiety, restlessness, miosis	Moderate	06
Unconsciousness, muscle twitching, flaccid paralysis, increase bronchial secretions, convulsion, respiratory failure	Severe	10

Table 2: Grading of patients and outcome:

Grading of the patients	No. of the patients	Average Plasma cholinesterase level(Iu/L)	Recovery (in days)	No. of death of patients
Mild	34	1420	3 ± 2	0
Moderate	06	475	5 ± 2	1
Severe	10	280	10 ± 2	6

According to table 2, patients belonged to mild category were 34, 6 patients belonged to moderate grade and 10 patients belonged to severe grade. Patients who were included in mild grade the average value of plasma cholinesterase on admission was 1420 Iu/L. In moderate grade of patients the average value was 475 Iu/L. While in severe grade of patients had average plasma cholinesterase level was 280 Iu/L.

The patients of mild grade severity were recovered in average 3 ± 2 days. While moderate grade of patients recovered in average 5 ± 2 days. The patients in severe grade recovered in average 10 ± 2 days.

COMPLICATIONS OBSERVED:

From our study of severity, complications and outcome in 50 patients of Organophosphorus Poisoning, we observed following complications.

Table 3: Incidence of various complications observed in OP poisoning

Complication	Total	Percentage (%)
Respiratory paralysis	6	12
ARDS	2	04
Cardiac arrhythmia	5	10
Aspiration pneumonia	4	08
Intermediate syndrome	4	08

As evident from the above table 3 that respiratory paralysis (12%), cardiac arrhythmia (10%) and aspiration pneumonia (8%), intermediate syndrome(8%) are commonest complications. While ARDS seen in 4% of patients.

Table 4: Incidence of patients who required ventilator management

Grading of patients	No. patients put on ventilator	Recovered	Expired
Mild	00	0	0
Moderate	03	2	1
Severe	10	4	6

It is evident from table 4 that not a single patient from mild grade was put on ventilator. There were 3 patients from moderate grade and 10 patients from severe grade who were put on ventilator. All were put on mechanical ventilation. In moderate grade 1 patient was expired and 2 patients were recovered. Out of 10 patients of severe OPC poisoning 6 expired and 4 patients recovered.

CONCLUSION:

Patients with very low serum cholinesterase graded as severe Organophosphorus Poisoning have more complications and needed more ventilatory management and recovery period is prolonged.

1. Most common clinical features were vomiting, miosis and giddiness.
2. Grading of patients done according to clinical signs, symptoms & serum cholinesterase level.
3. Majority of the patients belonged to mild grade.
4. The average serum cholinesterase level was 1420 lu/L in mild, 475 lu/L in moderate and 280 lu/L in severe grade of patients.
5. Complications that observed during the study most commonly seen were respiratory paralysis, intermediate syndrome and aspiration pneumonia.
6. 1 patient from mild grade, 3 patients from moderate and 10 patients of severe grade put on ventilator. Out of which 1 patient of moderate grade and 6 patients of severe grade expired.
7. Overall mortality was 14%. Among them 12% from severe grade and 2% from moderate grade.

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