Organophosphorus Insecticides (Organophosphates/OPs)

OP exposure produces multi-system toxicity. Respiratory muscle weakness and bronchorrhea cause early deaths. Atropine is the first line antidote.

Toxicity / Risk Assessment

- Deliberate ingestion normally results in severe toxicity

- Any paediatric exposure is potentially lethal

- Dermal/ inhalational exposure: toxicity unlikely

Clinical features

Time of onset of toxicity varies with agent and route of exposure (minutes – hours)

Early death is secondary to excessive respiratory secretions and respiratory muscle paralysis

Acute Toxicity:

Cholinergic system excess predominates

- Nicotinic: ↑HR, ↑BP, fasciculations, muscle weakness

- Muscarinic: salivation, bronchorrhea, bronchospasm, ↓HR, ↓BP, lacrimation, diarrhoea, miosis, vomiting, diaphoresis

- CNS: confusion, agitation, seizures, coma

Hydrocarbon additive can cause chemical pneumonitis

Delayed toxicity: - Delayed neuropathies: up to 6 weeks

- Intermediate syndrome: paralysis 2-4 days post exposure

Management – *Oxygenation, adequate atropinisation +/- intubation are mainstays of treatment*

Universal precautions for staff (gown, gloves). Personal protective equipment (PPE) is **NOT** required.

Manage in resuscitation area. Remove clothing. Place in plastic bag. If dermal exposure, decontaminate by washing with soap and water.

Activated charcoal is not indicated.

PLEASE DISCUSS ALL CASES WITH CLINICAL TOXICOLOGIST

Antidote: Atropine

Administer ASAP to all patients with muscarinic symptoms (very large doses may be required):

- 1200 mcg (50 mcg/kg children) IV bolus and double dose every 5 minutes
- Continue IV boluses until *adequate atropinisation* is achieved:

Adequate atropinisation is defined as: HR > 80 bpm, systolic BP > 80 mmHg, chest clinically clear

- Commence atropine infusion: Provide infusion delivering a 10-20% of the cumulative dose required to achieve 'adequate atropinisation' PER hour

Antidote: Pralidoxime (see separate guideline)

- NOT ROUTINELY ADMINISTERED IN ALL CASES. Discuss with clinical toxicologist.

Seizures: treat with diazepam 5mg IV, optimise oxygen delivery, ensure adequate atropinisation

Disposition

- Critical care bed admission for all patients with significant symptoms
- Admit all patients for observation. Discuss period of observation with clinical toxicologist.
- Admitted patients should be observed for at least 24 hours post last dose of atropine