Organophosphorous Insecticides (Organophosphates/OPs)

OP exposure produces multi-system toxicity. Respiratory muscle paralysis and bronchorrhea cause early deaths. Atropine is first line treatment.

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 respiratory muscle paralysis and respiratory secretions

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.

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:

HR > 80 bpm, systolic BP > 80 mmHg, chest clinically clear with no wheeze or rhonchi

- Commence atropine infusion: (10-20% of 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