OP poisoning

@tribincol

- Ingestion / inhalation / dermal absorption · eg: Malathion, fenthion, endosulfan

Mechanism

- OP → Irreversible binding to serine OH group of acetylcholine esterase (AChE) → AChE inactivation → ACh accumulation at Synapse → Cholinergic receptor overstimulation → Ageing · Function unrestored till new enzyme synthesized

- Hydrolysation reactivates the enzyme but alky group gets lost after some time which strengthens the bond making reversal impossible (ageing)

Clinical course

i) Acute cholinergic syndrome

S - Salivation
L - Lacrimation
U - Urination
D - Defecation
G
E > Gastric Emptying

B - Bradycardia
B - Bronchorrhea
B - Bronchospasm

ii) Intermediate syndrome

- 24-96 hours later
- Proximal neck muscle weakness
- ↓ deep tendon reflex
- CN abnormalities
- Respiratory insufficiency

iii) OP induced delayed polyneuropathy

- 1-3 weeks after
- Degeneration of long myelinated nerve fibres
- Leg cramping, numbness, paraesthesia
- Shuffling gait
- Wrist and foot drop

Lab diagnosis

- Red cell cholinesterase
- Plasma cholinesterase
- ECG abnormalities (prolonged QTc, sinus tachycardia)
- Hypoxemia

Management

- Assess coma scale
- BP, HR, auscultate lungs
- Lie in left lateral position
- Oxygen. Intubate if respiratory distress
- Start atropine
- Remove clothes
- Gastric lavage
- Activated charcoal

i) Atropine

- Atropine challenge test: To confirm OP poisoning
  0.6-1mg IV atropine given. If HR↑ 25/min / skin flushing, OP poisoning unlikely

- Bolus 3-5mL
- Aim for HR>80, SBP >80 mm Hg, clear chest. If not achieved in 5mins double dose every 5 mins
- Once atropinized, hourly infusion 10-20% total dose of atropine used to atropinize
- Check secretion, HR, pupils to reduce infusion rate by 20% every 4 hourly once patient stable
- Atropine toxicity = Absent bowel sounds + fever + confusion/delirium
  Stop atropine infusion for 60 mins

ii) Pralidoxime

- Bolus: 30mg/Kg in 100mL over 15-30 mins
- Continuous infusion 8-12 mg/Kg/hr

iii) Benzodiazepines

- Diazepam 10mg slowly IV as necessary upto 30-40mg/24hrs