Management of Organophosphate Poisoning

Patient is drowsy with GCSE<8 with lung secretions

Toxicological

Non Toxicological

- Non cardiogenic pulmonary oedema
- Seizure
- Pontine haemorrhage /infarction

CT brain to exclude non Toxicological causes

Focused history taking and examination

Look for following clinical signs

1) Mental status
- Agitated
- Drowsy

2) Vital signs & Body temperature
- Blood pressure
- Pulse
- Respiratory rate

3) Pupillary Size
- Normal
- Pinpoint
- Dilated

4) Skin secretions
- Dry
- Diaphoric

Identify using Toxidrome approach

Patient is Agitated

High BP, Pulse rate & Temperature

High Respiratory rate

Dilated pupils

Dry skin & Secretions

Anticholinergic Toxidrome

Wet skin & Secretions

Sympathomimetic Toxidrome

Patient is Drowsy

NL/Low BP, NL Pulse rate & Temperature

Very low Respiratory rate

Pinpoint pupils

N/L skin & Secretions

Opoid Toxidrome

Low/Normal Respiratory rate

Normal pupils

N/L skin & Secretions

Sedative/Hypnotic Toxidrome

Low BP, Pulse rate & Temperature

Very low Respiratory rate

Pinpoint pupils

Wet skin & Secretions/ Diaphoreti

Cholinergic Toxidrome

Identifying the Cholinergic Toxidrome

Nicotinic effects

- **NMJ** - Fasciculation
  Cramps
  Weakness
  Paralysis
- **CNS** - Tremor
  Seizure
  Altered mental status
- **CVS** - Tachycardia

Muscarinic effects

- **Hyper-secretion of glands**
  Lacrimation
  Salivation
  Sweating
  Bronchial secretion
- **Smooth muscle**
  Broncho constriction
  Bradycadia
  GI hyper motility
- **CNS**
  Miosis and blurred vision

Intermediate Syndrome

- **Usually occurs between day 2-4**
- **Cause neck and proximal limb weakness**
- **High mortality following respiratory paralysis**
- **Asses by single breath count/check proximal muscle power/ spirometry**
- **Treatment- Intubation and ventilation**
- **Avoid succinylcholine for intubation**

Management

Resus RSI-DEAD

- **Resuscitation- ABCDE-> Intubation (GCS<8)**
- **R- Risk assessment**
  Relevant history
  1. Patient identification (Name,Age,Gender, Weight)
  2. Substance detail
  3. Exposure time
  4. Exposure location
  5. Look for suicidal notes etc
  6. Examine the colour of vomitus
- **S- Supportive/Symptomatic care**
  Regularly monitoring vitals
  Position to left lateral
  Adequate hydration
  Anti-emetic
  PPI
- **I- Investigations**
  ABG
  Serum electrolytes
  ECG
  Renal Function Test
  Liver Function Test
  Chest -X-Ray
  RBS
- **D- Decontamination**
  Gastric lavage
  Activated charcoal
  - **This is usually done within 2 hours**
  - **In cases of large doses, consider administration even within 6-8 hours of ingestion**
- **E- Enhanced elimination**
- **A- Antidote**
  Atropine
  Pralidoxime
- **D- Dispiosition**
  Ward/ICU

In this case even before start intubating need to give "IV Atropine"

Atropine

1) Initial dose as 0.6-3mg IV Bolus
2) Double the dose every 3-5 minutes till target parameters achieved

Target parameters	Review parameters
• Stable HR (>80bpm) • SBP > 80mmHg • Clear lung sounds • Dry mucus membrane & axial • Pupills no longer pinpoint	• 30 min for 3 hrs • Hourly for 6 hrs • 3-6 hourly for 24-48 hrs

3) After initial bolus give 20% of total bolus doses as per hour infusion

If atropinization is lost give bolus doses of Atropine until target parameters achieved add additional 20% of bolus requirement to existing infusion per hour

Pralidoxime

- **Atropine must give before Pralidoxime**
- **As no trials have shown a survival benefit, it is not administered routinely**

For lipid soluble organophosphates , eg: “Profenofos”
- **Atropine infusion may be required for a longer duration.**
- **Ventilators support may be need for a longer period.**
- **The onset of intermediate syndrome may be delayed.**

Toxicology Expert Committee
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