Organophosphate Poisoning

FORMS: Liquids, solids (dusts, wettable powders) and aerosols.

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion, skin absorption

SIGNS AND SYMPTOMS:
- CNS: Altered mental status, seizures, coma, fasciculation and death
- Eye: Pain, lacrimation, blurred vision and constricted pupils.
- Cardiovascular: Bradycardia or tachycardia, ventricular arrhythmias, A-V blocks, hypotension or hypotension.
- Respiratory: Respiratory failure or arrest, prominent wheezing, acute pulmonary edema, bronchial secretions, dyspnea and tightness of the chest.
- Gastrointestinal: Nausea/vomiting/diarrhea, abdominal cramps, excessive salivation, urination and defecation.
- Skin: Pale, cyanotic skin with excessive diaphoresis.
- Other: SLUDGE syndrome (salivation, lacrimation, urination, defecation, G.I. pain and emesis) DUMBELS (diarrhea, urination, miosis, bronchorrhea, bronchospasm, and bradycardia, emesis, lacrimation, salivation)

NOTE: In general, cardiac dysrhythmias and seizures can be corrected with atropine therapy. Lasix is not effective in treating pulmonary edema!

Pre-Medical Control
PARAMEDIC

2. Consider CPAP.

In the symptomatic patient with significant exposure administer treatment in the following order:
1. Administer Atropine: Adult dose: 0.5 – 2 mg IV/IO push or IM. Pediatric dose: 0.05 mg/kg IV/IO push or IM, min 0.1 mg, max 5 mg. Initial dosing should be given as soon as possible.

2. If no effect (which helps confirm the diagnosis) repeat Atropine q 2-5 minutes until lungs are dry, patient ventilates easily and the MAP is > 60 mm Hg. There is no maximum dose in Organophosphate Poisoning.

3. If available, as an alternative to individual Atropine and Pralidoxime, Mark 1 or Duo Dote Auto injector kits may be used. Administration per Mark 1 Kit/Duo Dote auto injector Dosing Directive – See Chart

4. Follow Seizures protocol and administer a benzodiazepine IV or IM for a patient with either seizure or arrest.

**Post-Medical Control**

1. Pralidoxime (2-PAM), Adult: 1 gm IV or IM (max 1 gm IV, 2 gm IM) over 5 – 10 minutes. Pediatric: 25 mg/kg IV or IM (max 1 gm IV, 2 gm IM) over 5 – 10 minutes. Dose may be repeated in 30 – 60 minutes (1 – 2 doses) for weakness or high Atropine requirements.

**NOTES:**

In cases of skin absorption atropine may not reverse respiratory paralysis. Do not give aminophylline, theophylline, morphine, furosemide or succinylcholine.

Pupillary dilation is an early response and can’t be used to guide therapy. Tachycardia is not a contraindication to Atropine therapy and may actually lessen as the hypoxia resolves with drying up of the secretions and clearing of the bronchospasm. The patient must be observed carefully for ventricular arrhythmias secondary to hypoxia, especially when administering atropine. In massive organophosphate overdoses huge amounts of atropine may be needed.
### ORGANOPHOSPHATE POISONING

#### Clinical Findings | Signs/Symptoms | Required Conditions | Mark I Kits To Be Delivered
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**SELF-RESCUE**

 Threshold Symptoms
- Dim vision
- Increased tearing
- Runny nose
- Nausea/vomiting
- Abdominal cramps
- Shortness of breath

Threshold Symptoms
- and-
Positive evidence of nerve agent or OPP on site

1 Mark I Kit (self-rescue)

**Mild Symptoms and Signs**
- Increased tearing
- Increased salivation
- Dim Vision
- Runny nose
- Sweating
- Nausea/vomiting
- Abdominal cramps
- Diarrhea

Medical Control Order

1 Mark I Kit

**ADULT PATIENT**

 Moderate Symptoms and Signs
- Constricted pupils
- Difficulty breathing
- Severe vomiting

Constricted Pupils

2 Mark I Kits

**Severe Signs**
- Constricted pupils
- Unconsciousness
- Seizures
- Severe difficulty breathing

Constricted Pupils

3 Mark I Kits (If 3 Mark I Kits are used, administer 1st dose of available benzodiazepine)

**PEDIATRIC**

 Pediatric Patient with Non-Severe Signs/Symptoms

Mild or moderate symptoms as above
Positive evidence of nerve agent or OPP on site

Age ≥8 years old:
- As Above
Age <8 years old
- Per Medical Control

**Pediatric Patient with Severe Signs/Symptoms**
- Constricted pupils
- Unconsciousness
- Seizures
- Severe difficulty breathing

Severe breathing difficulty
Weakness

Age ≥ 8 years old:
- 3 Mark I Kits
Age < 8 years old:
- 1 Mark I Kit
Contact Medical Control as needed

*NOTE: 1 Mark I Kit equals 1 Duo Dote*