

# Southern Illinois Regional EMS System

## JJ-5 ATROPINE SULFATE

### Class:

- Anticholinergic agent.

### Description:

- Atropine Sulfate (a potent parasympatholytic) inhibits actions of acetylcholine at postganglionic parasympathetic (primarily muscarinic) receptor sites. Small doses inhibit salivary and bronchial secretions; moderate doses decrease gastrointestinal motility, inhibits gastric acid secretion, and may block nicotinic receptor sites at the autonomic ganglia and at the neuromuscular junction. Blocked vagal effects result in increased heart rate and enhanced atrioventricular conduction with limited or no inotropic effect. In emergency care, atropine primarily is used to increase the heart rate in life-threatening or symptomatic bradycardia and to antagonize excess muscarinic receptor stimulation caused by organophosphate insecticides or chemical nerve agents (e.g. sarin and soman).

### Onset and Duration:

- Onset: Rapid.
- Duration: 2 – 6 hours.

### Indications:

- Hemodynamically significant bradycardia.
- Asystole.
- Pulseless electrical activity with absolute bradycardia.
- Organophosphate or nerve gas poisoning.

### Contraindications:

- Tachycardia.
- Hypersensitivity to atropine.
- Obstructive disease of gastrointestinal tract.
- Obstructive uropathy.
- Unstable cardiovascular status in acute hemorrhage with myocardial ischemia.
- Narrow – angle glaucoma.
- Thyrotoxicosis.

### Adverse Reactions:

- Tachycardia.
- Paradoxical bradycardia when:
  - Pushed too slowly.
  - When used at doses less than 0.5mg.
- Palpitations.
- Dysrhythmias.
- Headache.
- Anticholinergic effects:
  - Dry mouth – nose – skin.
  - Photophobia.
  - Blurred vision.

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## JJ-4 ATROPINE SULFATE (continued)

- Urinary retention.
- Constipation.
- Nausea and vomiting.
- Flushed, hot, dry skin.
- Allergic Reactions.

### Drug Interactions:

- Use with other Anticholinergic agents may increase vagal blockage.
- Potential adverse effects may occur when administered with digitalis, cholinergics and neostigmine.
- The effects of atropine may be enhanced by antihistamines, procainamide, quinidine, antipsychotics and antidepressants, and thiazides.
- Increased toxicity to Amantadine.

### How Supplied:

- Parenteral:
  - There are various injection preparations.
  - In emergency care, atropine usually is supplied in prefilled syringes containing 1mg in 10ml of solution.

### Dosage and Administration:

- Bradycardias:
  - Adult:
    - 0.5mg every 3-5 minutes for desired response.
    - Maximum dose 3mg.
  - Pediatric:
    - 0.02mg/kg IV/IO
      - Endotracheal tube (diluted to 3 – 5ml).
    - Minimum dose 0.1mg.
    - Maximum single dose of 0.5mg for a child.
    - May be repeated once.
- Anticholinesterase/Organophosphate Poisoning:
  - Adult:
    - 2mg IV/IO/IM push every 5 minutes until atropine effects are observed and symptoms dissipate.
  - Pediatrics:
    - 0.05mg/kg IV/IO/IM every 10 minutes until atropine effects are observed and symptoms dissipate.

### Special Considerations:

- Pregnancy Category C.
- Follow endotracheal tube administration with several positive-pressure ventilations.
- Atropine causes pupillary dilation, rendering the pupils nonreactive:
- Pupil response may not be useful in monitoring central nervous system status.