

Atropine Sulfate (cardiac indications)

Pharmacologic properties:

Atropine is a potent parasympatholytic anticholinergic. It inhibits muscarinic receptor activity in the parasympathetic sites in smooth muscle, central nervous system, cardiac and secretory tissue. This reduces vagal tone, increases automaticity of the SA node and increases AV conductions, thus increasing heart rate. Additional effects include drying secretions and slowing motility in the gastrointestinal tract.

Indications:

- Bradydysrhythmias (rate < 50) accompanied by hemodynamic compromise, i.e. hypotension (systolic less than 90 mmHg), shock, pulmonary edema, altered level of consciousness
- Pediatric Bradycardia (HR < 100 in an infant, HR < 60 in a child) despite adequate oxygenation, ventilation, chest compressions, **and refractory to epinephrine**

Contraindications:

- Atropine has no effect in patients with transplanted hearts
- 3rd degree AV block in the setting of an acute anterior wall MI

Precautions:

- If normal dose pushed too slowly, or if too small a dose (<0.5 mg) is given, heart rate may initially slow down
- Atropine is potentiated by antihistamines and antidepressants
- Cautious use in Type II AV block and 3rd degree block with wide QRS complexes

Adverse Reactions:

- Restlessness, Agitation, Confusion, Pupil dilation, Blurred vision, Headache, Increased myocardial oxygen demand, Ventricular fibrillation, Dry mouth, Difficulty swallowing, Urinary retention

Dosage and administration:

Adult symptomatic bradycardia:

- 0.5 mg IV bolus, repeat every 3-5 minutes until improved (maximum dose 3 mg)

Pediatric Symptomatic Bradycardia:

- 0.02 mg/kg IV, IO or ET, (minimum individual dose is 0.1 mg and maximum individual dose is 1 mg)
- May be repeated in 3-5 minutes

Atropine Sulfate (as an antidote for poisoning)

Pharmacologic properties:

Atropine is a potent parasympatholytic anticholinergic. It inhibits muscarinic receptor activity in the parasympathetic sites on smooth muscle and the central nervous system, as well as cardiac and secretory tissue. This reduces vagal tone, increases automaticity of the SA node and increases AV conductions, thus increasing heart rate. Additional effects include drying secretions and slowing motility in the gastrointestinal tract.

Indications:

- Organophosphate Poisoning (i.e. parathion, malathion, rid-a-bug) and carbamate (Baygon, sevin, and many common roach and ant sprays)
- Poisoning Signs “**SLUDGEM**”
- Salivation
- Lacrimation
- Urination
- Defecation
- GI hypermotility (Emesis, diarrhea)
- Excessive sweating and bronchorrhea
- Additional signs include: painful pinpoint pupils (Miosis) and bradycardia

Contraindications:

- None when used in the management of severe organophosphate poisoning

Precautions:

- It is important that the patient be adequately oxygenated and ventilated prior to using atropine, as atropine may precipitate ventricular fibrillation in a poorly oxygenated patient.
- Do not rely upon pupillary constriction to discontinue or to titrate medications

Adverse Reactions:

- Victims of organophosphate poisoning can tolerate large doses (1000 mg) of atropine.
- Signs of atropinization (flushing, pupil dilation, dry mouth, tachycardia) are likely to occur

Dosage and administration:

Adult

- 2 mg IV. May repeat 2 mg every 5 minutes
- Titrate until respiratory secretions/ distress begins to decrease

Pediatric

- 0.02 mg/kg repeat every 5 minutes as necessary
- Titrate until respiratory secretions/ distress begins to decrease