ATROPINE SULFATE

Class: Anticholinergic Agent, Ophthalmic;Antidote;Antispasmodic Agent, Gastrointestinal;Ophthalmic Agent, Mydriatic

Indications: Injection: Preoperative medication to inhibit salivation and secretions; treatment of symptomatic sinus bradycardia, AV block (nodal level); antidote for anticholinesterase poisoning (carbamate insecticides, nerve agents, organophosphate insecticides); adjuvant use with anticholinesterases (eg, edrophonium, neostigmine) to decrease their side effects during reversal of neuromuscular blockade

Note: Use is no longer recommended in the management of asystole or pulseless electrical activity (PEA) (ACLS, 2010).

Ophthalmic: Produce mydriasis and cycloplegia for examination of the retina and optic disc and accurate measurement of refractive errors; produce papillary dilation in inflammatory conditions (eg, uveitis)

Dosage:

Doses <0.5 mg have been associated with paradoxical bradycardia.

-Inhibit salivation and secretions (preanesthesia): I.M., I.V., SubQ: 0.4-0.6 mg 30-60 minutes preop and repeat every 4-6 hours as needed.

-Bradycardia (Note: Atropine may be ineffective in heart transplant recipients): I.V.: 0.5 mg every 3-5 minutes, not to exceed a total of 3 mg or 0.04 mg/kg (ACLS, 2010)

-Neuromuscular blockade reversal: I.V.: 25-30 mcg/kg 30-60 seconds before neostigmine or 7-10 mcg/kg 30-60 seconds before edrophonium

-Organophosphate or carbamate insecticide or nerve agent poisoning: Note: The dose of atropine required varies considerably with the severity of poisoning. The total amount of atropine used for carbamate poisoning is usually less than with organophosphate insecticide or nerve agent poisoning. Severely poisoned patients may exhibit significant tolerance to atropine; ≥2 times the suggested doses may be needed. Titrate to pulmonary status (decreased bronchial secretions); consider administration of atropine via continuous I.V. infusion in patients requiring large doses of atropine. Once patient is stable for a period of time, the dose/dosing frequency may be decreased. Pralidoxime is a component of the management of organophosphate insecticide and nerve agent toxicity; refer to Pralidoxime monograph for the specific route and dose.

-I.V., I.M. (unlabeled dose): Initial: 1-6 mg (ATSDR, 2011; Roberts, 2007); repeat every 3-5 minutes as needed, doubling the dose if previous dose did not induce atropinization (Eddleston, 2004b; Roberts, 2007). Maintain atropinization by administering repeat doses as needed for ≥2-12 hours based on recurrence of symptoms (Reigart, 1999).

-I.V. Infusion (unlabeled dose): Following atropinization, administer 10% to 20% of the total loading dose required to induce atropinization as a continuous I.V. infusion per hour; adjust as needed to maintain adequate atropinization without atropine toxicity (Eddleston, 2004b; Roberts, 2007)

-I.M : Mild symptoms (≥2 mild symptoms): Administer 2 mg as soon as an exposure is known or strongly suspected. If severe symptoms develop after the first dose, 2 additional doses should be repeated in rapid succession 10 minutes after the first dose; do not administer more than 3 doses. If profound anticholinergic effects occur in the absence of excessive bronchial secretions, further doses of atropine should be withheld.

-Severe symptoms (≥1 severe symptoms): Immediately administer **three** 2 mg doses in rapid succession.

-Symptoms of insecticide or nerve agent poisoning, as provided by manufacturer in the AtroPen® product labeling, to guide therapy:

-Mild symptoms: Blurred vision, bradycardia, breathing difficulties, chest tightness, coughing, drooling, miosis, muscular twitching, nausea, runny nose, salivation increased, stomach cramps, tachycardia, teary eyes, tremor, vomiting, or wheezing

-Severe symptoms: Breathing difficulties (severe), confused/strange behavior, defecation (involuntary), muscular twitching/generalized weakness (severe), respiratory secretions (severe), seizure, unconsciousness, urination (involuntary)

-Mydriasis, cycloplegia (preprocedure): Ophthalmic (1% solution): Instill 1-2 drops 1 hour before the procedure.

-Uveitis: Ophthalmic: 1% solution: Instill 1-2 drops up to 4 times/day.

Ointment: Apply a small amount in the conjunctival sac up to 3 times/day. Compress the lacrimal sac by digital pressure for 1-3 minutes after instillation.

Renal Impairment:
No dosage adjustment provided in manufacturer's labeling.
Hepatic Impairment:
No dosage adjustment provided in manufacturer's labeling.

Available dosage form in the hospital: 0.6MG/ML AMP, 1% EYE DROP.

Common side effect: Cardiovascular: Arrhythmia, flushing, hypotension, palpitation, tachycardia. Central nervous system: Ataxia, coma, delirium, disorientation, dizziness, drowsiness, excitement, fever, hallucinations, headache, insomnia, nervousness. Dermatologic: Anhidrosis, urticaria, rash, scarlatiniform rash. Gastrointestinal: Bloating, constipation, delayed gastric emptying, loss of taste, nausea, paralytic ileus, vomiting, xerostomia, dry throat, nasal dryness. Genitourinary: Urinary hesitancy, urinary retention. Neuromuscular & skeletal: Weakness. Ocular: Angle-

closure glaucoma, blurred vision, cycloplegia, dry eyes, mydriasis, ocular tension increased. Respiratory: Dyspnea, laryngospasm, pulmonary edema. Miscellaneous: Anaphylaxis

Pregnancy Risk Factor: B/C (manufacturer specific)