

Class

Adrenergic, Inotropic Agent, Vasopressor

Pharmacologic Properties

Dopamine is an endogenous catecholamine that exerts an inotropic effect on the myocardium resulting in increased cardiac output. It stimulates dopaminergic, beta-adrenergic and alpha- adrenergic receptors of the nervous system in a dose-dependent manner. Low to moderate doses (2-10 mcg/kg/min) have predominant beta-adrenergic receptor stimulating actions that result in increased cardiac output and heart rate with minimal vasoconstriction. At higher doses (> 10 mcg/kg/min), dopamine has alpha receptor stimulating actions that result in peripheral vasoconstriction and increased blood pressure.

Indications

- Cardiogenic, neurogenic, septic, or anaphylactic shock [Protocol 35](#).
- Bradycardia with hypotension refractory to Atropine [Protocol 9](#).
- Pediatric bradycardia with hypotension refractory to Epinephrine [Protocol 9P](#).
- Hemodynamically significant (SBP < 90 mmHg) hypotension [Protocol 9](#), [Protocol 35](#).
- Hypotension (SBP < 90 mmHg) not secondary to hypovolemia [Protocol 35](#).
- Hypotension associated with acute CHF/Pulmonary Edema [Protocol 8](#).

Contraindications

- Shock due to hypovolemia
- Dopamine should not be administered in the presence of uncorrected tachyarrhythmias or ventricular fibrillation
- Dopamine should not be used in patients with pheochromocytoma

Precautions

- Significant local tissue necrosis can occur with extravasation from peripheral IV
- Dopamine is inactivated in alkaline solution, do not use any alkaline diluent
- Patients who have been treated with monoamine oxidase (MAO) inhibitors will require substantially reduced dosage (1/10th of the regular dose)

Side Effects/Adverse Reactions

- Headache, Ectopic beats, Tachycardia, Palpitation, Nausea, Vomiting, Dyspnea

Dosage and Administration

Adult

Adult Symptomatic Bradycardia

- 5 mcg/kg/min, slowly titrated to desired effect/response.
 - Mix 400 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 800 mcg/mL.
 - Mix 800 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 1600 mcg/mL.

Adult Hypotension

- 10 mcg/kg/min, slowly titrated to desired effect/response.
 - Mix 400 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 800 mcg/mL.
 - Mix 800 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 1600 mcg/mL.

Pediatric

Pediatric Symptomatic Bradycardia

- **MCP**
- Dosage as listed for pediatric hypotension.

Pediatric Hypotension

- 2 – 20 mcg/kg/min, slowly titrated to desired effect/response.
 - Mix 400 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 800 mcg/mL.
 - Mix 800 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 1600 mcg/mL.