

Seminole Community College
Paramedic II
Medication Handout #12
Dopamine / Dobutamine

Dopamine – Intropin (Sympathomimetic)

Mechanism of Action - A chemical precursor of norepinephrine that has both alpha and beta actions, and stimulates dopaminergic receptors in a dose dependant fashion. Dopamine stimulates the heart through alpha and beta receptors

Indications- Usually reserved for hypotension that occurs with symptomatic bradycardia or post cardiac arrest. **Goal BP 90 mm Hg.**

Contraindications- Hypovolemic hypotension without aggressive fluid resuscitation, tachydysrhythmias, ventricular fibrillation, pheochromocytoma.

Precautions- Occlusive vascular disease, cold injury, arterial embolism. Assure adequate fluid resuscitation of the hypovolemic patient. Dopamine is dose dependant, higher doses may have a profound negative impact on the heart, causing hypertension, worsening ischemia by increasing cardiac oxygen demand. **Do not use** in the same IV lines as Sodium Bicarbonate, may inactivate. Extreme tissue destruction if IV infiltrates. SVT or ventricular arrhythmias. MAO inhibitors may potentiate the effects of dopamine, use 1/10th the normal dose. Alkaline solutions inactivate dopamine. Must be tapered off, use central line due to risk of infiltration causing severe damage.

Dosage- At “*low doses*” **1-5 mcq/Kg/min** initial studies indicated that it produces vasodilation of renal, mesenteric, and cerebral arteries by stimulation dopaminergic receptors. In recent studies that has not proven to be effective (see ACLS text). DOPAMINERGIC

At “*moderate doses*” or “*cardiac doses*” **5 - 10 mcq/Kg/min** produces cardiovascular effects. BETA

At “*higher doses*” or “*vasopressor dose*” **10-20 mcq/Kg/min** produce hemodynamic effects similar to norepinephrine (peripheral arterial vasoconstriction). ALPHA

Field Dosage – Adult 5 mcq/Kg/min titrated to effect. Pediatric: same as adult. Final recommended dose dosage range is 5 - 20 mcq/kg/min.

Dopamine is mixed 400mg - 800mg in a 250ml – 500ml bag of D₅W. Which would provide you with a concentration of 1600 mcg/ml to 3200 mcg/ml.

Dobutamine (Dobutrex) Sympathomimetic

Mechanism of Action - Synthetic sympathomimetic amine that exerts its potent inotropic effects by stimulating beta-1 and alpha adrenergic receptors in the myocardium and blood vessels. Dobutamine has beneficial hemodynamic effects and its lack of norepinephrine release minimize its effects on myocardial oxygen demand. DOES NOT PRODUCE RENAL AND MESENTERIC VASODILATION LIKE DOPAMINE.

Indications – Treatment of pulmonary congestion and severe systolic heart failure.

Precautions – Atrial Fibrillation and pre-existing hypertension. High doses may cause myocardial ischemia, SVT and V-tach.

Dosage – Adult 2 to 20 mcg/Kg/min.
Pediatric- Same as Adult