

DOPAMINE

DESCRIPTION AND INDICATION FOR USE

Dopamine is a naturally occurring catecholamine with sympathomimetic actions. Dopamine acts on both alpha and beta adrenergic receptors as well as peripheral dopamine receptors. At low doses (0.5 to 2 microgram/kg/minute) dopamine receptors are selectively activated causing renal and mesenteric vasodilatation. At moderate infusion rates (2 to 10 microgram/kg/minute) beta₁-receptors are activated and cardiac output and systolic blood pressure increase. At high infusion rates (> 10 microgram/kg/minute) alpha-receptors are activated, causing vasoconstriction, and both systolic and diastolic pressures increase. Dopamine is used to improve cardiac output, blood pressure and urine output in critically ill patients with hypotension.

DOSE

IV INFUSION:

Improvement of cardiac output & blood pressure:

2 to 20 mcg/kg/minute

Improvement of renal perfusion:

2 to 5 mcg/kg/minute

RECONSTITUTION/DILUTION

Ampoule = 200 mg in 5 mL (40 mg/mL)

NOTE: 1000 micrograms = 1 mg

Use only 0.9% sodium chloride or dextrose 5% or 10% as infusion fluids

IV: Withdraw required amount of dopamine and make up to ordered volume with infusion fluid.

Usual order will be as follows:

SINGLE (1) STRENGTH:

DRUG	HOW TO MAKE UP	DOSE EQUIVALENT	DOSE RANGE
Dopamine	30 mg/kg in 50 mL	1mL/hr = 10 microgram/kg/min	2 - 20 microgram/kg/min

DOUBLE (2) STRENGTH:

DRUG	HOW TO MAKE UP	DOSE EQUIVALENT	DOSE RANGE
Dopamine	60 mg/kg in 50 mL	1mL/hr = 20 microgram/kg/min	2 - 20 microgram/kg/min

Ref: RWH: Continuous IV Infusion Chart

NOT FOR IV BOLUS, SC or IM USE

ROUTE AND METHOD OF ADMINISTRATION

IV INFUSION: Given as a continuous infusion via a syringe pump

** ADMINISTER INTO A CENTRAL LINE ONLY **

COMPATIBILITY INFORMATION

Please contact your ward pharmacist for information on drugs or fluids not appearing in the table below. Medications that are not routinely used in the Special Care Nursery have not been included in this table and may be incompatible.

	Compatible	Incompatible
Fluids	Dextrose 5%, Dextrose 10%, 0.9% Sodium chloride	Alkaline diluents (sodium bicarbonate)
Drugs	Aminophylline, Dobutamine, Heparin, Ranitidine	Aciclovir, Amphotericin B, Frusemide, Sodium bicarbonate

SIDE EFFECTS

- Tachycardia, Ectopic beats, Vasoconstriction, Hypotension (less commonly hypertension can occur)
- Gastrointestinal upset
- Tissue sloughing and necrosis (if extravasation occurs)

SPECIAL PRECAUTIONS

- Hypovolaemic states should be corrected prior to dopamine administration
- Acidosis, or hypoxia should be corrected prior to or concurrently with administration of dopamine
- Dopamine injection solution contains sodium metabisulfite, which may cause allergic type reactions, including anaphylactic symptoms in susceptible people

CONTRAINDICATIONS

- Uncorrected tachyarrhythmias

DRUG INTERACTIONS

Digoxin

Co administration may increase the risk of cardiac arrhythmias – ensure close monitoring if concurrent use

Phenytoin

Co administration may result in severe hypotension and hypovolaemic shock states – consider alternate antiepileptic agent

NURSING RESPONSIBILITIES

- Observations/Monitoring:
 - Continuous blood pressure monitoring preferably with an arterial line.
 - Continuously monitor heart rate and rhythm
 - Record vital signs hourly
 - Observe and measure urine output
 - Observe intravenous site for inflammation and extravasation - resite infusion immediately. Consider use of phentolamine to reverse ischaemia caused by extravasation injury if required.
- Carefully prime IV tubing
- Use a syringe pump for administration
- Avoid interruption of infusion
- DO NOT ADMINISTER ANY BOLUS DOSES
- Check that rate ordered corresponds with dose required (microgram/kg/min)