DOPAMINE POLICY AND PROCEDURE

PATIENT CRITERIA

Dopamine is permitted on the ward if the patient meets the following criterion:

- Requires a low dose Dopamine infusion not exceeding 5mcgs/kg/min to improve urine output.
- Has undergone a cardiothoracic surgical procedure

TRADE NAME:
Dopamine Hydrochloride (Dopamine HCl) / Intropin

GENERIC NAME:
Dopamine Hydrochloride.

DRUG CLASS:
- An endogenous catecholamine (i.e. naturally occurring precursor of adrenaline and noradrenaline) that can stimulate alpha, beta and dopamine receptors on dose.

MECHANISMS OF ACTION:
- The overall effect of dopamine is dose related:
  1. At low doses (less than 5mcgs/kg/min) dopamine effects predominate, resulting in renal vasodilation=improved urinary output.
  2. At moderate dose (5-10mcgs/kg/min) beta-receptor stimulation produces an increase in myocardial contractility and cardiac output.
  3. At high doses (greater than 10mcgs/kg/min) alpha-receptors results in mediated vasoconstriction of arterioles and veins.
* N.B. Only low dose (less than 5mcgs/kg/min) Dopamine can be administered on the ward.

PHARACOKINETICS:
- Onset of action occurs within 5 minutes.
- Half-life in 2 minutes.
- Rapid metabolism occurs in the liver, kidneys and plasma.
- Excretion occurs in urine.

INDICATIONS ON THE WARD:
- To improve urinary output in patient’s following:
  - Cardiac surgery
  - Cardiac and/or lung transplantation
  - Thoracic surgery.
SIDE EFFECTS
- Tachycardia
- Hypertension
- Ectopic beats
- Peripheral vasoconstriction
- Nausea and vomiting
- Headache
- Dyspnoea

CONTRAINDICATIONS
- Phaeochromocytoma because of the release of catecholamines into the circulation, causing acute hypertension.
- Atrial and Ventricular tachyarrhythmias.
- Hyperthyroidism.

DRUG INTERACTIONS
- Incompatible with alkaline solutions.
- Tricyclic antidepressants may potentiate the cardiovascular effects of Dopamine

NURSING CONSIDERATIONS
- Dopamine must be infused centrally.
- Patients must be cardiac monitored whilst Dopamine infusion is in progress.
- Report tachycardia, hypertension and arrhythmia’s immediately.

PREPARATION
- Dilute prescribed amount of Dopamine in 100mls of recommended solution (N/S or 5% Dextrose are the dilutes of choice).
- Dopamine must be infused through a central venous catheter
- Intravenous solutions should be used within 24hrs of re-constitution

DRUG DOSAGE
- Dopamine must be prescribed in micrograms per kilogram per minute = mcgs/kg/min
- The standard reconstituted Dopamine infusion to be used in the ward is 200mgs in 100mls of solution.
- Usual renal dose is 2-5mcg/kg/min. Dose must not exceed 5mcg/kg/min.

DOSE CALCULATION
Rate of administration = dose (mcgs) X pt’s weight (kg) X 60mins X Volume (mls)
In mls/hr  = 1000 mcgs X strength (mg)

Example. Dose prescribed = 5 mcgs/kg/min
Pt’s weight = 75kgs
Dilution = 200mgs Dopamine in 100ml solution

RATE = 5 X 75 X 60 X 100 = 11.25mls
1000 X 200

* Please refer to DOPAMINE INFUSION RATE CHART
**ADMINISTRATION**
- Dopamine must **always** be infused using an IMED pump or syringe pump.
- A central line **must** be used for a continual infusion.

*Commencing a Dopamine infusion*
- Obtain a base line set of observations (BP, pulse).
- Obtain an accurate patient weight to calculate dose in mcg/kg/min.

*Observations post commencement*
- 15 minutely for the first hour
- 4th hourly (or as per clinical pathway).
- Urine output 1-2 hourly.

*Weaning*
- Consult with Doctor prior to weaning.
- Decrease infusion by 1ml/hr.
- Check blood pressure prior to each decrease in infusion rate.