PROCTOCOL FOR: **Dopamine: IV Administration**

POLICY:

1. This medication is to be administered only in areas where patient is on a cardiac monitor, and must be administered on an infusion pump, using drug guardrails.

2. On the Cardiac Step-Down Unit, the preferred maximum dose of dopamine is 5 mcg/kg/min. Higher doses may be administered on the CSDU if the physician/APRN feels it is clinically indicated, the patient's clinical condition does not require transfer to the ICU, and the charge nurse/nursing supervisor feels that the patient can be safely managed on the unit.

3. In the ICU/ED/PACU, the maximum dose is 30 mcg/kg/min, unless otherwise indicated per MD/APRN order.

INDICATIONS:

1. Hypotension, poor renal perfusion.

DESIRED PATIENT OUCTOMES:

1. Low dose: 1-3 mcg/kg/min (renal dose): patient will have adequate urine output (at least 30cc/hr).

2. Mid dose: 3-10 mcg/kg/min (inotropic) to high dose > 10 mcg/kg/min (vasopressor): patient will have a higher systolic blood pressure, heart rate and force of contraction.

3. If used for BP control, usual target is SBP 100-120, or MAP > 60, unless otherwise indicated.

4. Patient will not suffer negative side effects of dopamine.

CLINICAL ASSESSMENT AND CARE:

A. Prior to Starting Infusion:

1. Validate solution concentration, per MD order.
   Suggested concentrations:
   Single: 400 mg/500 ml = 0.8 mg/ml(premix)
   Double: 800 mg/500 ml = 1.6 mg/ml(premix)
   Quad: 800 mg/250 ml = 3.2 mg/ml
   (May be mixed in NS if specifically ordered.)

2. Medication is calculated/infused in **mcg/kg/minute**. *Use central line for infusion if available.

3. Assess BP, HR, hemodynamic parameters: PA, PAOP, CO/CI (if patient has Swan-Ganz catheter) and note urine output.

4. Assess peripheral circulation prior to starting infusion.

5. Must have recent patient's weight, preferable patient dry weight.

6. Any pre-existing hypovolemia should be corrected with suitable volume expanders before beginning dopamine.

B. Beginning the Infusion – Dosage is determined by MD/APRN order, indication and desired effect:

1. **Renal Dose** (low dose)= 1-3 mcg/kg/min

PROCTOCOL FOR: Dopamine: IV Administration

a) Begin infusion at **1 mcg/kg/min** unless otherwise ordered.

b) Increase by **1 mcg/kg/min** every **5-10 minutes** until desired dose, effect or clinical response is obtained.

2. **Inotropic doses** (2-10 mcg/kg/min)

   a) Begin infusion at **2 mcg/kg/min** unless otherwise ordered.

   b) Increase by **1 mcg/kg/min** every **5-10 minutes** until desired effect/clinical response is obtained, or maximum dose is reached.

3. **Pressor doses** (> 10 mcg/kg/min)

   a) Start infusion at **5 mcg/kg/min** unless specifically ordered.

   b) Increase dose by **2.5 mcg/kg/min** every **5 minutes** until desired effect/clinical response is obtained, or maximum dose is reached.

4. Remain at the bedside with the patient during initial titration.

5. Orders must be obtained from MD/LIP if titration requires a rate less than or greater than the ordered rate.

6. Assess/document vital signs(BP & HR) with each dose adjustment.

7. Notify the MD/APRN to consider new orders if unable to achieve specified BP parameters or improvement in urine output (for renal dose) at current ordered titration rates or at maximum dose ordered.

C. During Infusion:

1. If actively titrating the med, reassess VS every **5-10 minutes,** per frequency noted above.

2. Utilize the frequent vital sign section of flowsheet during initial and active titration.

3. Once the patient's blood pressure has stabilized, VS frequency may be changed to every hour for inotropic or pressor doses and every 2 hours for renal dose.

4. Monitor urine output hourly, unless renal dose (may monitor every 2 hours)

5. Assess IV site every 1-2 hours and prn to make sure that no infiltration of drug is occurring. Dopamine can cause skin sloughing if an infiltrate occurs peripherally. If infiltration occurs, obtains orders to treat. Usual treatment is Phentolamine, 5-10 mg diluted in 10-15 ml sodium chloride 0.9%, injected with a fine hypodermic needle into the area of extravasation (defined by a cold, hard, and pale appearance).

PROCTOCOL FOR: Dopamine: IV Administration

6. Continue to monitor hemodynamic parameters during titration; once desired effect is achieved, per hemodynamic monitoring protocol.

7. Notify the MD/APRN of any adverse reaction or complication.

D. Potential Complications:

1. Cardiovascular
   a) Tachycardia, palpitations
   b) Ectopic beats
   c) Ventricular arrhythmias (at high doses)
   d) Widened QRS complexes
   e) Bradycardia
   f) Hypotension
   g) Hypertension
   h) Vasoconstriction

2. Respiratory
   a) Dyspnea

3. GI
   a) Nausea
   b) Vomiting

4. CNS
   a) Headache
   b) Anxiety

5. Metabolic
   a) Azotemia

6. Integumentary
   a) Irritation, necrosis and sloughing of skin tissue with extravasation – infiltration of area with Phentolamine is recommended

E. Weaning/Discontinuation of Infusion:

1. Begin downward titration of dopamine per MD/APRN order. Dopamine may be titrated off in the same manner as drug was started, or may be weaned more slowly (i.e., every 30 min decrease in rate), at the discretion of the medical team, while pt response is monitored.

2. Complications or adverse reactions may warrant more expedient weaning or discontinuation.

3. Continue to assess VS, hemodynamic parameters and urine output during titration.

APPROVAL: ICU Standards Committee
ED Standards Committee
Nursing Standards Committee
Cardiac Step-Down Standards Committee

PROCTOCOL FOR: **Dopamine: IV Administration**

EFFECTIVE DATE: 2/90

REVISION DATES: 1/92, 1/93, 1/95, 10/95, 3/96, 8/99, 8/02, 3/03, 3/08, 4/09

REVIEWED DATES: 9/08, 10/09