DOPAMINE

PHARMACOLOGY & MECHANISM OF ACTIONS:
- Sympathomimetic
- Chemical precursor of norepinephrine which occurs naturally in humans
- Has both alpha and beta receptor stimulating actions
- Onset is 1-2 minutes
- Actions differ with dose given:
  - 1.0-2.0 mcg/kg/min - dilates renal and mesenteric blood vessels (no effect on heart rate or blood pressure).
  - 1.0-10.0 mcg/kg/min - beta effects on heart, which usually increase cardiac output without increasing heart rate or blood pressure.
  - 10-20 mcg/kg/min - alpha peripheral effects cause peripheral vasoconstriction and increased blood pressure.
  - 20-40 mcg/kg/min - alpha effects reverse dilatation of renal and mesenteric vessels with resultant decreased flow.

INDICATIONS:
- Primary indication is shock due to cardiac or anaphylactic causes
- May be useful for other forms of shock, except hypovolemic shock
- Second-line drug to consider for symptomatic bradycardia

CONTRAINDICATIONS:
- Tachyarrhythmias or Ventricular Fibrillation
- Dopamine is contraindicated for hypovolemic shock, unless fluid resuscitation is in progress

ADMINISTRATION:

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<tr>
<th>ADULT</th>
<th>PEDIATRIC</th>
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<td><strong>OLMC:</strong></td>
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<tr>
<td>400 mg in 250 mL D5W for concentration of 1600 mcg/mL</td>
<td>Dilute 1 mL premixed Dopamine to 2 mL NS for 400 mcg/mL NS</td>
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<tr>
<td>Begin infusion at 2 – 10 mcg/kg/min</td>
<td>Begin infusion at 2-5 mcg/kg/min</td>
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<td>Titrate to desired effect</td>
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PRECAUTIONS & SIDE EFFECTS:
- Ectopic beats, Nausea, Vomiting, Angina, Tachycardia. Arrhythmias
- Dopamine can precipitate hypertensive crisis.
- Rule out hypovolemia. Most shock other than cardiogenic shock with pulmonary edema should be treated with fluid challenges first. Treat with appropriate fluids before administration of dopamine.
- Dopamine may induce tachyarrhythmias. If these occur, decrease or stop infusion to reverse tachyarrhythmias induced by dopamine.
- High doses may cause extreme peripheral vasoconstriction. Conversely, low doses may cause a decreased blood pressure due to peripheral dilatation.
- Certain antidepressants potentiate the effects of dopamine.
- Dopamine should not be added to sodium bicarbonate or other alkaline solutions because dopamine will be inactivated in alkaline solutions.

SPECIAL NOTES:
- Dopamine is best administered by an infusion pump to accurately regulate rate. For this reason, it is hazardous when used in the field. Monitor closely and use available equipment features to ensure accurate drug administration. When in doubt, contact OLMC.