

# Dopamine

McHenry Western Lake County  
EMS



# Objectives

- During this session we will discuss:
- Class
- Actions
- Indications
- Contraindications
- Dosing/Routes
- How supplied
- Precautions
- Side effects



# Class:

- Adrenergic
- Chemical Class: Catecholamine



- The adrenergic receptors (or adrenoceptors) are a class of G protein-coupled receptors that are targets of the catecholamine's.
- Catecholamine's called epinephrine and norepinephrine are used in the US.

- From Wikipedia.org



# Actions:

- Sympathomimetic: precursor to nor-epi, stimulates dopaminergic  $\beta$  and alpha receptors.
- $\beta$  dose:  $\uparrow$  P,  $\uparrow$  force of contractions,  $\uparrow$  BP and CO,  $\uparrow$  renal blood flow.
- $\alpha$  dose: vasoconstriction;  $\uparrow$  preload, afterload and BP

# Indications:

- $\beta$  dose: Cardiogenic shock, bradycardia and/or ROSC w/hypotension
- $\alpha$  dose: Neurogenic, septic and anaphylactic shocks



# Dosing/Routes:

- 400mg in 250ml or 800mg/500ml D<sub>5</sub>W or NS
- Beta ( $\beta$ ) dose 5mcg/kg/min
- Alpha ( $\alpha$ ) dose: 10-20mcg/kg/min Titrate to hemodynamic effect;  $\uparrow$  from 5mcg/kg/min until BP and perfusion improve.
- SBP > 90 (MAP >65)



# Dosing/Routes

- *Calculation tip:*
- 5mcg/kg/min: Take 1<sup>st</sup> 2 numbers of the patients weight in pounds; subtract 2. This will = your mcgtts/min
- Example: 150 lbs = 13 (15-2)
- Answer would be 13mcgtts/min for 5mcg/kg/min
- a dose: double mcgtts



# How supplied:

- Premix bag of 400mg/250ml



# Contraindications:

- Tachydysrhythmias (↓ BP due to rate problem)
- Adrenal tumor
- Interactions: Deactivated by alkaline solutions



# Precautions:

- Occlusive vascular disease
- Hypovolemic shock
- Cardiogenic shock with CHF



# Side effects/adverse reactions:

- CNS: Headache, dizziness
- CV: Tachycardia, ↑ myocardial O<sub>2</sub> demand
- Risk of ACS, dysrhythmias, excess vasoconstriction
- Eyes: Dilated pupils
- Skin: May cause tissue necrosis if infiltrates; check IV patency before infusing.
- Ref: MWLCEMS Protocol and 2000 Mosby's Nursing Drug Reference Book



# Case Study

- You are treating a resuscitated cardiac arrest patient that now has a BP of 76/52.
- You have tried a fluid bolus, but that has not increased his pressure. You decide to give Dopamine.



# Case Study

- Your patient weighs 200#.
- What would the initial dose of Dopamine be?



# Answer

- 5mcg/kg/min

- Based on the patients weight, the drip calculation would be?





# Answer

- 200# patient, -2 of the first two digits of his weight (18).
- So the rate would be 18mcgtts/min

