EMT	AEMT

EPINEPHRINE *(ADRENALIN)*

Description

Endogenous catecholamine alpha, beta-1, and beta-2 adrenergic receptor agonist. Causes dose related increase in heart rate, myocardial contractility and oxygen demand, peripheral vasoconstriction and bronchodilation.

Indications

- Pulseless Arrest
- Anaphylaxis
- Asthma
- Bradycardia with poor perfusion
- Hypotension for age and poor perfusion refractory to fluids and other interventions

Adverse Reactions

- Tachycardia and tachydysrhythmia
- Hypertension
- Anxiety
- Increased myocardial oxygen demand, monitor for cardiac ischemia

Dosage and Administration

Adult:

Pulseless Arrest

- 1 mg (10 ml of a 1:10,000 solution), IV/IO bolus.
- Repeat every 5 minutes.
- Remember than high dose EPI leads to ROSC but also poor neurological outcomes

Bradycardia/ hypotension refractory to other interventions:

- Administer push dose epinephrine or infusion

Adult Wheezing/Systemic Allergic Reaction:

- 0.3 mg (0.3 ml of a 1:1,000 solution) IM. May repeat dose x 1.
- If refractory, consider push dose epinephrine or infusion

Severe systemic allergic reaction (Anaphylaxis) refractory to IM epi:

- Consider push dose epinephrine or infusion

ALTERNATIVE to racemic epinephrine: (for stridor at rest)

- 5 ml of 1:1000 epinephrine via nebulizer x 1

Epinephrine Auto-Injector or IM Injections: requires **BASE CONTACT** for **EMT** administration

Systemic allergic reaction:

Adult: 0.3 mg IM with autoinjector/IM Injection (adult EpiPen)

Pediatric: 0.15 mg IM with autoinjector/IM Injection (EpiPen Jr.)

EPINEPHRINE *(CONTINUED)*

Adult Push Dose:

1. Push out 1 ml of normal saline from a 10 mL syringe.
2. Using the “tip to tip connector” draw up 1 mL of 0.1 mg/1mL (1:10,000) epinephrine into same 10 NS flush syringe.
3. Makes concentration of epinephrine for 10 mcg/1mL
4. Administer slow push of 50 mcg (5 mL) aliquots every 5 minutes as needed
5. Apply label to syringe noting epinephrine 10 mcg/mL

Adult Infusion:

- Mix: inject 1 mg epinephrine into 1000 mL Normal Saline bag to achieve 1 mcg/mL concentration (This means 1 mL of 1mg/mL [1:1000] or 10 mL of 0.1mg/mL [1:10,000] – either way 1 mg of drug). Use macro drip set.
- Adult IV/IO: Begin IV/IO infusion wide open to gravity to give small aliquots of fluid. Typical volumes are less than 100 mL of total fluid, as typical doses are expected to be < 100 mcg. Titrate to desired hemodynamic effect with goal BP of > 90 mmHg systolic, improved respiratory status (bronchodilation), and improved perfusion/mentation.
- Label: Apply label to bag noting epinephrine 1 mcg/mL

Pediatric:

Cardiac arrest:

- 0.01 mg/kg IV/IO (0.1 ml/kg of 1:10,000 solution).
- Subsequent doses repeated every 3-5min: 0.01 mg/kg IV/IO (0.1 ml/kg of 1:10,000 solution)

Bradycardia (CONTACT BASE)

- 0.01mg/kg (0.1 ml/kg of 1:10,000 solution) IV/IO

Pediatric Wheezing 1 to 12 years old

- 0.15 mg (0.15 mL of 1mg/mL [1:1,000] solution) IM for 25 kg. May repeat dose x 2 every 5 minutes.

Moderate to Severe Allergic Reactions

- mg/kg (0.01 ml/kg of 1:1,000 solution) IM

Severe systemic allergic reaction (Anaphylaxis) refractory to IM epi (Contact Base):

- Refractory to IM doses x 3 and 60 mL/kg fluid boluses
- Administer push dose Epi at 1 mcg/kg aliquots to maintain MAP/Systolic BP

ALTERNATIVE to racemic epinephrine: (for stridor at rest)

- 5 ml of 1:1000 epinephrine via nebulizer x 1
- Contact Base for repeat dosing

EPINEPHRINE *(CONTINUED)*

Drug Interactions

- Should not be added to sodium bicarbonate or other alkaloids as epinephrine will be inactivated at higher pH.

Protocol

- Adult Universal Pulseless Arrest Algorithm
- Pediatric Pulseless Arrest ALS Algorithm
- Adult Bradycardia
- Neonatal Resuscitation
- Allergy and Anaphylaxis Protocol
- Bradycardia with Poor Perfusion
- Pediatric Respiratory Distress

Special Considerations

- May increase myocardial oxygen demand and angina pectoris. Use with caution in patients with known or suspected CAD.
- Intramuscular injection into the thigh is preferred route and site of administration. Intramuscular injection of epinephrine in the thigh results in higher concentrations of medication versus intramuscular or subcutaneous injection in the upper arm.
- **EMT's and AEMT's may only administer Epinephrine 1:1, 000**
- **EMTs may utilize a syringe and needle to administer epinephrine in the treatment of anaphylaxis by IM route.**