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Section: 9-23R

Epinephrine

Pharmacological Category: Sympathomimetic agent

Routes: IV/IO/IM, Nebulized

Indications:

1. Anaphylaxis
2. Bradycardia
3. Respiratory distress
4. Hypotension
5. Cardiac arrest

Expected effects:

1. Decreased wheezing
2. Increased BP
3. Increased HR

Notes:

1. This protocol does NOT apply to Epi Auto Injector (see Epi Auto Injector Protocol)
2. Note that epinephrine is not utilized in the pediatric bradycardia protocol

Preparing PUSH DOSE Epinephrine:

1. Prepare (epinephrine 10 mcg/mL)
 - a. Combine 1 mL of 1 mg/10 mL epinephrine in 9mL NS

Dosing: SHOCK

Indication: Hypotension unresponsive to fluid bolus administration

Adults administer:

1. PUSH DOSE epinephrine 10-20 mcg (1-2 mL of 10 mcg/mL) IV/IO. Repeat every 3-5 minutes. Titrate to SBP > 90 mm/Hg.

Pediatrics administer:

1. PUSH DOSE epinephrine utilizing MI MEDIC cards
2. If MI MEDIC cards are not available administer:
 - a. PUSH DOSE epinephrine 1 mcg/kg (0.1 mL of epinephrine 10 mcg/mL) IV/IO. Maximum single dose 10 mcg (1 mL). Repeat every 3-5 minutes.

Dosing: ANAPHYLAXIS/ALLERGIC REACTION

Indication: Anaphylaxis/Severe Allergic Reaction

Adults administer:

1. Epinephrine (1mg/mL) 0.3 mg (0.3 mL) IM. May repeat one time after 3-5 minutes if patient remains hypotensive. Maximum of 2 doses total of epinephrine (including

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epi pen).

Pediatrics administer EPI IM:

1. EPI IM according to MI MEDIC cards
2. If MI MEDIC cards are not available administer:
 - a. For child weighing \leq 30 kg or approx. 60 lbs.
 - i. Epinephrine (1mg/mL) 0.15 mg (0.15 mL) IM. May repeat one time after 3-5 minutes if patient remains hypotensive. Maximum of two IM doses (including epi pen).
 - b. For child weighing $>$ 30 kg or approx. 60 lbs.
 - i. Epinephrine (1mg/mL) 0.3 mg (0.3 mL) IM. May repeat one time after 3-5 minutes if patient remains hypotensive. Maximum of two IM doses total (including epi pen).

Indication: Hypotension not responsive to fluid bolus administration and/or impending arrest

Adults administer:

1. PUSH DOSE epinephrine 10-20 mcg (1-2 mL of 10 mcg/mL) IV/IO. Repeat every 3-5 minutes. Titrate to SBP $>$ 90 mm/Hg.

Pediatrics administer:

1. PUSH DOSE epinephrine utilizing MI MEDIC cards
2. If MI MEDIC cards are not available administer:
 - a. PUSH DOSE epinephrine 1 mcg/kg (0.1 mL of epinephrine 10 mcg/mL) IV/IO. Maximum single dose 10 mcg (1 mL). Repeat every 3-5 minutes.

Dosing: ADULT RESPIRATORY DISTRESS

Indication: Impending respiratory failure and unable to tolerate nebulizer therapy

Adults administer EPI IM:

1. Epinephrine (1mg/mL) 0.3 mg (0.3 mL) IM

Dosing: CRASHING ADULT/IMPENDING ARREST

Indication: Patient in whom cardiac or respiratory arrest appears imminent and hypotension is unresponsive to fluid bolus administration

Adults administer:

1. PUSH DOSE epinephrine 10-20 mcg (1-2 mL of 10 mcg/mL) IV/IO. Repeat every 3-5 minutes. Titrate to SBP $>$ 90 mm/Hg.

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Dosing: PEDIATRIC RESPIRATORY DISTRESS, FAILURE OR ARREST

Indication: Pediatric patient presents with stridor at rest without suspected airway obstruction.

Pediatrics administer EPI IM:

1. EPI IM according to MI MEDIC cards
2. If MI MEDIC cards are not available administer:
 - a. Child weighing \leq 30 kg or approx. 60 lbs.:
 - i. Epinephrine (1 mg/mL) 0.15 mg (0.15 mL) IM
 - b. Child weighing $>$ 30 kg or approx. 60 lbs.:
 - i. Epinephrine (1 mg/mL) 0.3 mg (0.3 mL) IM

Indication: Severe respiratory distress

Pediatrics administer NEBULIZED EPI

1. Epinephrine (1 mg/1 mL) 5 mg nebulized

Dosing: ADULT CARDIAC ARREST

Indication: Cardiac arrest

Adults administer:

1. Epinephrine (1 mg/10 mL) 1 mg IV/IO every 3 to 5 minutes

Dosing: PEDIATRIC CARDIAC ARREST

Indication: Cardiac arrest

Pediatrics administer:

1. Epinephrine according to MI MEDIC cards.
2. If MI MEDIC cards are not available administer:
 - a. Epinephrine (1 mg/10 ml), 0.01 mg/kg (0.1 ml/kg). Max dose 1 mg (10 mL).
Repeat every 3-5 minutes

Dosing: ADULT BRADYCARDIA

Indication: Patients with persistent symptomatic bradycardia

Adults administer:

1. PUSH DOSE epinephrine 10-20 mcg (1-2 mL of 10 mcg/mL) IV/IO. Repeat every 3-5 minutes. Titrate to SBP $>$ 90 mm/Hg.

Dosing: ADULT CHF/CARDIOGENIC SHOCK

Indication: If SBP is below 100 mmHG treat for cardiogenic shock

Adults administer:

1. PUSH DOSE epinephrine 10-20 mcg (1-2 mL of 10 mcg/mL) IV/IO. Repeat every 3-5 minutes. Titrate to SBP $>$ 90 mm/Hg.

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Dosing: ADULT ROSC

Indication: Hypotension unresponsive to fluid bolus administration

Adults administer:

1. PUSH DOSE epinephrine 10-20 mcg (1-2 mL of 10 mcg/mL) IV/IO. Repeat every 3-5 minutes. Titrate to SBP > 90 mm/Hg.

Dosing: PEDIATRIC BRADYCARDIA

Indication: If pulse remains < 60, despite oxygenation & ventilation

Pediatrics administer:

1. Epinephrine according to MI MEDIC cards.
2. If MI MEDIC cards are not available administer:
 - a. Epinephrine (1 mg/10 mL) 0.01 mg/kg (0.1 mL/kg) IV/IO up to 1 mg (10 mL). Repeat every 3-5 minutes.

Dosing: PEDIATRIC ROSC

Indication: Hypotension unresponsive to fluid bolus administration

Pediatrics administer:

1. PUSH DOSE epinephrine according to MI MEDIC cards, titrating to age appropriate SBP per MI MEDIC cards.
2. If MI MEDIC cards are not available administer:
 - a. PUSH DOSE epinephrine 1 mcg/kg (0.1 mL of epinephrine 10 mcg/mL) IV/IO. Maximum single dose 10 mcg (1 mL). Repeat every 3-5 minutes. Titrate to SBP > 70 mmHG + (2 x age in years) up to 100 mmHg.

Used in the Following Protocols

- Shock (Section 1 General Treatment)
- Anaphylaxis/Allergic Reaction (Section 1 General Treatment)
- Respiratory Distress (Section 3 Adult Treatment)
- Crashing Adult/Impending Arrest (Section 3 Adult Treatment)
- Pediatric Respiratory Distress, Failure or Arrest (Section 4 Obstetrics and Pediatrics)
- General Cardiac Arrest (Section 5 Adult Cardiac)
- Pediatric Cardiac Arrest – General (Section 6 Pediatric Cardiac)
- Bradycardia (Section 5 Adult Cardiac)
- Pulmonary Edema/Cardiogenic Shock (Section 5 Adult Cardiac)
- Pediatric Bradycardia (Section 6 Pediatric Cardiac)
- Return of Spontaneous Circulation (ROSC)-Adult (Section 3 Adult Treatment)
- Peds ROSC (Section 4 Obstetrics and Pediatrics)