

Diversified Radiology of Colorado

Management of Acute Contrast Media Reactions in Children

Updated 08/22/2012

Mild Symptoms

Patient should be observed for the progression or evolution of a more severe reaction, which requires treatment: Scattered Urticaria, Diaphoresis, Rhinorrhea, Pruritus, Coughing, Nausea, Dizziness, Brief retching and or vomiting

Moderate Symptoms/Severe Symptoms

- **Persistent Vomiting**
- **Urticaria**
 1. No treatment needed in most cases
 2. For moderate itching, consider diphenhydramine (Benadryl) orally/intramuscular or slow intravenous push 1-2 mg/kg, up to 50 mg.
 3. If severe itching or widely disseminated, consider alpha-agonist: epinephrine intravenous (1:10,000) 0.1 mL/kg slow push over 2-5 minutes, up to 3 mL
- **Facial edema**
 1. Secure airway and give oxygen 6-10 liters per minute (via mask, face tent, or blow-by stream). Monitor electrocardiogram, oxygen saturation (pulse oximeter), and blood pressure.
 2. Give alpha-agonist: epinephrine intravenous (1:10,000) 0.1 mL/kg slow push over 2-5 minutes, up to 3 mL/dose. Repeat in 5-30 minutes as needed.
 3. Consider receptor blocker: diphenhydramine (Benadryl) intramuscular or slow intravenous push 1-2 mg/kg, up to 50 mg.
 4. Note, if facial edema is mild and there is no reaction progression, observation alone may be appropriate.

If not responsive to therapy, call for assistance (e.g. cardiopulmonary arrest response team, call 911, etc.)

- **Bronchospasm**
 1. Secure airway and give oxygen 6-10 liters per minute (via mask, face tent, or blow-by stream). Monitor: electrocardiogram, oxygen saturation (pulse oximeter), and blood pressure.
 2. Give inhaled beta-agonist (bronchiolar dilators, such as albuterol [Proventil or Ventolin]), 2-3 puffs from metered dose inhaler. Repeat as necessary. If unresponsive to inhalers, use subcutaneous, intramuscular or intravenous epinephrine.
 3. If bronchospasm progresses, give epinephrine (1:10,000) intravenous 0.1 mL/kg slow push over 2 to 5 minutes, maximum 3 mL/dose. Repeat in 5-30 minutes as needed.

If not responsive to therapy, call for assistance (e.g., cardiopulmonary arrest response team, call 911, etc.) for severe bronchospasm or if oxygen saturation is less than 88% persists.

- **Laryngeal Edema**

1. Secure airway and give oxygen 6-10 liters/min (via mask, face tent, or blow-by stream). Monitor: electrocardiogram, oxygen saturation (pulse oximeter), and blood pressure.
2. Give epinephrine (1:10,000) intravenous 0.1 mL/kg slow push over 2-5 minutes, maximum 3 mL/dose. Repeat in 5-30 minutes as needed.

If not promptly responsive to initial therapy, call for assistance (e.g., cardiopulmonary arrest response team, call 911, etc.)

- **Pulmonary Edema**

1. Secure airway and give oxygen 6-10 liters/min (via mask, face tent, or blow-by stream). Monitor: electrocardiogram, oxygen saturation (pulse oximeter), and blood pressure.
2. Give diuretic: furosemide (Lasix) intravenous 1-2 mg/kg.

If not responsive to therapy, call for assistance (e.g., cardiopulmonary arrest response team, call 911, etc.)

- **Hypotension with tachycardia (Anaphylactic Shock)**

1. Secure airway and give oxygen 6-10 liters per minute (via mask). Monitor: electrocardiogram, oxygen saturation (pulse oximeter), and blood pressure.
2. Legs elevated 60 degrees or more (preferred) or Trendelenburg position.
3. Keep patient warm.
4. Give rapid infusion of intravenous or intraosseous normal saline or Ringer's lactate.
5. If severe, give alpha-agonist: epinephrine intravenous (1:10,000) 0.1 mL/kg slow push over 2-5 minutes, up to 3 mL/dose. Repeat in 5-30 minutes as needed.

If not responsive to therapy, call for assistance (e.g., cardiopulmonary arrest response team, call 911, etc.)

- **Hypotension with Bradycardia (Vagal Reaction)**

1. Secure airway: give oxygen 6-10 liters per minute (via mask). Monitor: electrocardiogram, oxygen saturation (pulse oximeter), and blood pressure.
2. Legs elevated 60 degrees or more (preferred) or Trendelenburg position.
3. Keep patient warm.
4. Give rapid infusion of intravenous or intraosseous normal saline or Ringer's lactate. Caution should be used to avoid hypervolemia in children with myocardial dysfunction.
5. Give atropine intravenous 0.02 mg/kg if patient does not respond quickly to steps 2, 3, and 4. Minimum initial dose of 0.1 mg. Maximum initial dose of 0.5 mg (infant/child), 1.0 mg (adolescent). May repeat every 3-5 minutes up to a maximum dose up to 1.0 mg (infant/child), 2.0 mg (adolescent).

If not responsive to therapy, call for assistance (e.g., cardiopulmonary arrest response team, call 911, etc.)

References

1. ACR Manual on Contrast Media-Version 8, 2012
<http://www.acr.org/~media/ACR/Documents/PDF/QualitySafety/Resources/Contrast%20Manual/FullManual.pdf>