

Diversified Radiology of Colorado

Management of acute contrast media reactions in adults

Updated 9-13-12

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**
- **Diffuse Urticaria**
 1. Discontinue injection if not completed
 2. No treatment needed in most cases
 3. Give Diphenhydramine (Benadryl) orally/intramuscular/intravenous 25-50 mg
- **Facial or Laryngeal edema**
 1. Give oxygen 6-10 liters per minute via mask.
 2. Give alpha agonist (arteriolar and venous constriction): epinephrine subcutaneous or intramuscular (1:1,000) 0.1- 0.3 mL(=0.1 – 0.3 mg) or, especially if hypotension evident, epinephrine (1:10,000) slowly intravenous – 3 mL(=0.1 -0.3 mg). Repeat as needed up to a maximum of 1 mg.

If not responsive to therapy or if there is obvious acute laryngeal edema, seek appropriate assistance (e.g., cardiopulmonary arrest response team).

- **Bronchospasm**
 1. Give oxygen 6-10 liters per minute via mask.
Monitor: electrocardiogram, oxygen saturation (pulse oximeter), and blood pressure.
 2. Give beta-agonist inhalers (bronchiolar dilators, such as metaproterenol, terbutaline or albuterol) 2 to 3 puffs; repeat as necessary. If unresponsive to inhalers, use subcutaneous, intramuscular or intravenous epinephrine.
 3. Give epinephrine subcutaneous or intramuscular (1: 1,000) 0.1 -0.3mL (=0.1 -0.3 mg) or, especially if hypotension evident, epinephrine (1:10,000) slowly intravenous 1-3 mL (=0.1 – 0.3 mg).Repeat as needed up to a maximum of 1 mg.

Call for assistance (e.g., cardiopulmonary arrest response team) for severe bronchospasm or if oxygen saturation is less than 88% persists.

- **Hypotension with tachycardia**
 1. Legs elevated 60 degrees or more (preferred) or Trendelenburg position.
 2. Monitor: electrocardiogram, pulse oximeter, blood pressure.
 3. Give oxygen 6-10 liters per minute via mask.
 4. Rapid intravenous administration of large volumes of Ringer's lactate or normal saline. If poorly responsive: epinephrine (1:10,000) slowly intravenous 1 mL (=0.1 mg). Repeat as needed up to a maximum of 1 mg.

If still poorly responsive seek appropriate assistance (e.g., cardiopulmonary arrest response team).

- **Hypotension with Bradycardia (Vagal Reaction)**
 1. Secure airway: give oxygen 6-10 liters per minute via mask.
 2. Monitor vital signs.
 3. Legs elevated 60 degrees or more (preferred) or Trendelenburg position.
 4. Secure intravenous access: rapid administration of Ringer's lactate or normal saline.
 5. Give atropine 0.6 -1 mg intravenous slowly if patient does not respond quickly to step 2-4.
 6. Repeat atropine up to a total dose of 0.04 mg/kg (2-3 mg) in adult.
 7. Ensure complete resolution of hypotension and bradycardia prior to discharge.
- **Hypertension, Severe**
 1. Give oxygen 6-10 liters per minute via mask.
 2. Monitor electrocardiogram, pulse oximeter, blood pressure.
 3. Give nitroglycerine 0.4-mg tablet, sublingual (may repeat x 3); or, topical 2% ointment, apply 1-inch strip.
 4. If no response, consider labetalol 20 mg intravenous, then 20 to 80 mg intravenous every 10 minutes up to 300 mg.
 5. Transfer to intensive care unit or emergency department.
 6. For pheochromocytoma: phentolamine 5 mg intravenous (may use labetalol if phentolamine is not available).
- **Seizures or Convulsions**
 1. Give oxygen 6-10 liters per minute via mask.
 2. Consider diazepam (Valium) 5 mg intravenous (or more, as appropriate) or midazolam (Versed) 0.5 to 1 mg intravenous.
 3. If longer effect needed, obtain consultation; consider phenytoin (Dilantin) infusion - 15-18 mg/kg at 50 mg per minute.
 4. Careful monitoring of vital signs required, particularly of pulse oximeter because of risk to respiratory depression with benzodiazepine administration.

Consider using cardiopulmonary arrest response team for intubation if needed.
- **Pulmonary Edema**
 1. Give oxygen 6-10 liters per minute via mask.
 2. Elevate torso.
 3. Give diuretics: furosemide (Lasix) 20-40 mg intravenous, slow push.
 4. Consider giving morphine (1-3 mg intravenous)
 5. Transfer to intensive care unit or emergency department.
- **Unresponsive patient**
 1. **Call a code.**
 2. **Defibrillation may be needed to treat ventricular fibrillation and pulseless ventricular tachycardia.**
 3. **Administer basic life support.**

References

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