

## Acute Contrast Reaction Management in Adults

The reaction management chart below is organized by reaction type. Any time a patient displays a contrast reaction, even a mild one, the best practice is to administer oxygen to the patient as the reaction may progress and could become life-threatening. Always preserve I.V. access and continue to monitor vital signs.

<p><b>Hives (urticaria)</b></p>	<ul style="list-style-type: none"> <li>• Discontinue injection if not completed</li> <li>• No treatment needed in most cases - reassure the patient</li> <li>• Consider diphenhydramine (Benadryl®) PO/IM/IV 1mg/kg(max = 50mg)or Fexofenadine (Allegra®) 180mg PO</li> <li>• If severe/widely disseminated: Epinephrine SC (1:1,000) 0.1-0.3 ml (=0.1-0.3 mg) (if no cardiac contraindications)</li> </ul>
<p><b>Facial or Laryngeal Edema</b></p>	<ul style="list-style-type: none"> <li>• 0.1-0.3 ml epinephrine SC or IM (1:1,000) (=0.1-0.3 mg) or, if hypotensive, 1 ml epinephrine IV (1:10,000) slowly (=0.1 mg). Repeat as needed up to 1 mg</li> <li>• Give oxygen 6-10 L/min (via mask)</li> <li>• If not responsive to therapy or if there is obvious acute laryngeal edema, seek appropriate assistance (e.g., cardiopulmonary arrest response team)</li> </ul>
<p><b>Bronchospasm</b></p>	<ul style="list-style-type: none"> <li>• Give oxygen 6-10 L/min (via mask)</li> <li>• Monitor: ECG, O<sub>2</sub> saturation (pulse oximeter), and BP</li> <li>• Give beta-agonist inhalers, such as metaproterenol (Alupent®), terbutaline (Brethaire®), or albuterol (Proventil®)(Ventolin®) 2 puffs; repeat up to 3 times</li> <li>• If unresponsive, epinephrine SC or IM (1:1,000) 0.1-0.3 ml (=0.1-0.3 mg) or, if hypotensive, epinephrine (1:10,000) slowly IV 1 ml (=0.1 mg) - Repeat up to 1 mg total dose</li> <li>• Consider alternatively, giving aminophylline 6 mg/kg IV in D5W over 10-20 minutes (loading dose), then 0.4-1 mg/kg/hr, as needed (<b>caution: hypotension</b>)</li> <li>• Call for assistance, 911 or emergency response team, for severe bronchospasm or if O<sub>2</sub> saturation &lt; 88% persists</li> </ul>
<p><b>Hypotension with Tachycardia</b></p>	<ul style="list-style-type: none"> <li>• Legs elevated 60° or more (preferred) or Trendelenburg position</li> <li>• Monitor: ECG, O<sub>2</sub> saturation (pulse oximeter), and BP</li> <li>• Give oxygen 6-10 L/min (via mask)</li> <li>• Rapid large volumes of IV isotonic Ringer's lactate or normal saline</li> <li>• If poorly responsive: Epinephrine (1:10,000) slowly IV 1 ml (=0.1 mg) (if no cardiac contraindications). Repeat as needed up to a maximum of 1 mg</li> <li>• If still poorly responsive seek appropriate assistance (e.g., arrest team).</li> </ul>

<p><b>Hypotension with Bradycardia (Vagal Reaction)</b></p>	<ul style="list-style-type: none"> <li>• Monitor: ECG, O2 saturation (pulse oximeter), and BP</li> <li>• Legs elevated 60° or more (preferred) or Trendelenburg position</li> <li>• Secure airway and give oxygen 6-10 L/min (via mask)</li> <li>• Rapid large volumes of IV isotonic Ringer's lactate or normal saline</li> <li>• If unresponsive, atropine 0.6-1 mg IV slowly - repeat up to 2-3 mg in adult</li> <li>• Ensure complete resolution of hypotension and bradycardia prior to discharge.</li> </ul>
<p><b>Severe Hypertension</b></p>	<ul style="list-style-type: none"> <li>• Give oxygen 6-10 L/min (via mask)</li> <li>• Monitor: ECG, O2 saturation (pulse oximeter), and BP</li> <li>• Give nitroglycerine 0.4-mg tablet, sublingual (may repeat x 3)</li> <li>• Transfer to intensive care unit or emergency department</li> <li>• For pheochromocytoma—phentolamine 5 mg IV</li> </ul>
<p><b>Seizures or Convulsions</b></p>	<ul style="list-style-type: none"> <li>• May be consequence of hypotension, primary treatment should be as indicated</li> <li>• Lateral decubitus position, give oxygen, 6-10 L/min by mask</li> <li>• Consider diazepam (Valium®) 5 mg or more or midazolam (Versed®) 0.5-1 mg IV</li> <li>• If longer effect needed, obtain consultation; consider phenytoin (Dilantin®) infusion – 15-18 mg/kg at 50 mg/min.</li> <li>• Careful monitoring of vital signs, particularly of pO2 (respiratory depression)</li> <li>• Consider intubation</li> </ul>
<p><b>Pulmonary Edema</b></p>	<ul style="list-style-type: none"> <li>• Elevate torso; rotating tourniquets (venous compression)</li> <li>• Give O2 6-10 liters/min (via mask)</li> <li>• Give diuretics – furosemide (Lasix®) 20-40 mg IV, slow push</li> <li>• Consider giving morphine (1-3 mg IV)</li> <li>• Transfer to intensive care unit or emergency department</li> <li>• Corticosteroids optional</li> </ul>
<p><b>Unconscious, Unresponsive, Pulseless, or Collapsed Patient</b></p>	<ul style="list-style-type: none"> <li>• CALL CODE</li> <li>• Institute Basic Life Support <ol style="list-style-type: none"> <li>1. Establish airway, head tilt, chin lift</li> <li>2. Initiate ventilation and external chest compression</li> <li>3. Continue uninterrupted until help arrives</li> </ol> </li> </ul>

References

1. *Manual on Contrast Media, Version 10.2, 2016. American College of Radiology.*  
[http://www.acr.org/~media/ACR/Documents/PDF/QualitySafety/Resources/Contrast%20Manual/2016\\_Contrast\\_Media.pdf](http://www.acr.org/~media/ACR/Documents/PDF/QualitySafety/Resources/Contrast%20Manual/2016_Contrast_Media.pdf)
2. *CT and X-ray Contrast Guidelines, UCSF Department of Radiology and Biomedical Imaging; Management of Acute Contrast Reactions; accessed 10/24/2016* <https://radiology.ucsf.edu/patient-care/patient-safety/contrast/iodinated#accordion-allergies>