

# Signs & Symptoms

- **Cutaneous symptoms**, which occur in up to 90 percent of episodes, including flushing, itching, urticaria, and angioedema (including periorbital edema and conjunctival swelling)
- **Respiratory symptoms**, which occur in up to 70 percent of episodes, including nasal discharge, nasal congestion, change in voice quality, sensation of throat closure or choking, cough, wheeze, and dyspnea
- **Gastrointestinal symptoms**, which occur in up to 40 percent of episodes, including nausea, vomiting, diarrhea, and crampy abdominal pain
- **Cardiovascular symptoms**, which occur in up to 35 percent of episodes, including dizziness, tachycardia, hypotension, and collapse

# Anaphylaxis Treatment

- *Oxygen*
- *Epinephrine*

**Alpha-1 adrenergic agonist effects:** increased vasoconstriction, increased peripheral vascular resistance, and decreased mucosal edema (eg, in the upper airway)

**Beta-1 adrenergic agonist effects:** increased inotropy and increased chronotropy

**Beta-2 adrenergic agonist effects:** increased bronchodilation and decreased release of mediators of inflammation from mast cells and basophils

- An IV infusion at rates of 1 to 4 µg/min may prevent the need to repeat epinephrine injections frequently. Repeat q5-20min IM injections.
- Patients who are taking β-blockers have increased incidence and severity of anaphylaxis and can develop a paradoxical response to epinephrine. Consider glucagon 1-2mg IV then infusion = inotropic and chronotropic effects that are not mediated through beta-receptors

- *Aggressive fluid resuscitation*

- Give isotonic crystalloid (eg, normal saline) if hypotension is present and does not respond rapidly to epinephrine. A rapid infusion of 1 to 2 L or even 4 L may be needed initially.
- =====

- *Antihistamines – H1 blocker – STOP THE ITCH and HIVES!*

- Administer antihistamines slowly IV or IM (eg, 25 to 50 mg of diphenhydramine).

- *H<sub>2</sub> blockers*

- Administer H<sub>2</sub> blockers such as cimetidine (300 mg orally, IM, or IV), ranitidine 50mg IV

- *Inhaled β-adrenergic agents*

- Provide inhaled albuterol if bronchospasm is a major feature. Inhaled ipratropium may be especially useful for treatment of bronchospasm in patients receiving β-blockers.

- *Corticosteroids*

- Infuse high-dose IV corticosteroids early in the course of therapy. Beneficial effects are delayed at least 4 to 6 hours.

# Epinephrine Dosing...

**IM = 0.5mg**

**IV = 0.1mg**

**0.5cc of concentrated IM (0.5cc of 1:1,000 or 1mg/mL = 0.5mg)**

**1cc of dilute IV (1cc of 1:10,000 or 0.1mg/mL = 0.1mg)**

**0.1cc of concentrated IV (0.1cc of 1:1,000 or 1mg/mL = 0.1mg)**

# Biphasic

- 10-20%
- 4-8hrs later