Anaphylaxis

Anaphylactic (mediated by IgE) and anaphylactoid reactions both lead to mast & basophil cells releasing immune mediators, causing ~1500 deaths/yr.

**Common triggers:** foods (milk, egg whites, fish, nuts), venom/saliva (bees/wasps/etc), abx (pcn), asa/nsaids, latex, contrast media (ionic>nonionic), blood products, idiopathic
- 1/3 of cases triggered by foods
- asa sensitivity affects 10% of asthma pts

**Mediators:** plt activating factor, prostaglandins, leukotrienes, tryptase, kinins, heparin, chymase, TNF-alpha, IL-1, NO, histamine

**Si/Sx** (in order of freq): urticaria/angioedema, upper airway edema, sob/wheeze, flushing, dizziness/syncope/hypotension, n/v/d/abdo pain, rhinitis, h/a, substernal pain, pruritis w/o rash, sz

**DDx:** shock, asthma, airway obstruction, panic attack

**Management**
1. ABCs (lie patient flat/trendelenberg; freq vitals)
2. For signs of systemic reaction (hypotsn, airway swelling, defn difficulty breathing):
   - Give **epinephrine 0.3-0.5 mg (1:1000) IM** (0.01 ml/kg q10-15min to max 0.2-0.5 mL, prn)
   - If severe, life-threatening, give **epinephrine 0.1 mg (1:10,000) IV over 5 min**
     then 1-4 mcg/min gtt prn
   - If trigger agent was injected, inject 0.15-0.3 mL epinephrine into injection site
3. ABCs, 2"nd" survey: airway, oxygen 8-10 L/min, aggressive IVF prn, pressors (dopamine, vasopressin) prn
4. H1 & H2 blockade: Benadryl 25-50 mg IV (1-2 mg/kg, max 50), ranitidine 1 mg/kg IV
5. Nebs prn for bronchospasm
6. Corticosteroids (benefit in 4-6 hrs): hydrocortisone 250 mg IV, solumedrol 50 mg IV, dexamethasone 8-10 mg IV, or prednisone 60 mg PO (milder cases)
7. Remove venom sac, if applicable
8. Observe 2-6 hrs after mild case; 24 hrs after severe case for biphasic response (20% within 1-8 hrs, up to 36 hrs)
9. Consider short course of antihistamines & prednisone (30-60) qd

If not responding to epinephrine b/c of beta-blockade, give glucagon 1 mg IV, then 1-5 mg/hr gtt prn; for bradycardia, consider atropine 0.3-0.5 mg IM/SQ q10min to max 2 mg; if still not responding to glucagon + epid + IVF, can rarely consider isoproterenol 0.1 mg/kg/min & double q15min (may aggravate hypotension & induce arrhythmias & myocardial necrosis)

**Prevention**
- direct skin testing and radioallergosorbent testing (RAST) available for some agents
- medic alert bracelet, epi pen & po Benadryl
- pre-contrast regimen: pred 50 mg 13 hrs before, 7 hrs before, 1 hr before, plus benadryl 50 mg 1 hr before procedure (can replace prednisone with equivalent IV corticosteroids)