

# Anaphylaxis

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# Definition

- ▶ serious allergic reaction with rapid onset (minutes to hours)
- ▶ diagnosis is mainly clinical
- ▶ trigger – local anesthetics
  - esters (high allergenic potential)
  - amids (safer)

# Pathophysiology

- ▶ massive release of histamine (+other mediators) from mast cells and basophils
- ▶ activation:
  - specific IgE dependent = true anaphylactic reaction
  - other immunologic pathways
  - non-immunologic (opioids, exercise, ...)
  - idiopathic
- ▶ histamin effects
  - contraction of smooth muscles
  - vasodilation, capillary leakage (oedema)
  - myocardial depression

# Skin

Hives (urticaria)  
Flushing  
Itching

absent in 20 % cases



# Facial swelling

eyelids / lips /  
tongue / uvula



# Systemic symptoms

- ▶ respiratory (up to 70 %)
  - tachypnoea
  - wheezes
  - stridor
  - hypoxia
  - nasal discharge
  - voice change
  - throat closure

# Systemic symptoms

- ▶ cardiovascular (up to 50% cases)
  - tachycardia
  - hypotension
  - dizziness
  - syncope (hypotonia)
  - incontinence
- ▶ gastrointestinal (up to 50% cases)
  - crampy abdominal pain
  - nausea/vomiting
  - diarrhoea

- ▶ Biphasis course
  - recurrence of symptoms within 10 (up to 72) hours



# Risk factors

- ▶ **concomitant medication**
  - alpha and beta-blocker – resistance to treatment
  - ACE-I – more severe hypotension
  - antihistamines – mimicked symptoms
- ▶ **comorbidities**
  - asthma – increased incidence
  - COPD, severe pulmonary disease
  - cardiovascular disease – severe course
  - acute infection (respiratory)

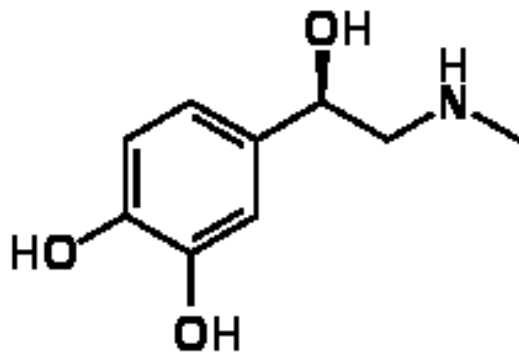
# Treatment

- ▶ remove antigen
- ▶ call for help
- ▶ oxygen
- ▶ supine/semi-recumbent position with elevated lower limbs



# Epinephrine

- ▶ decreases histamine release from mast cells
- ▶ intramuscular (thigh)
- ▶ dose 0.3 to 0.5 mg
- ▶ 0.01 mg/kg for children
- ▶ may be repeated in 10–15 min intervals



# Other drugs

- ▶ H1 /H2 antihistamines
  - relieve itching and hives
  - do not improve other symptoms
- ▶ glucocorticoids
  - effects onset in hours
  - methylprednisone 1–2 mg/kg IV
- ▶ bronchodilators (salbutamol, ...)
  - adrenaline has strong BDL effect
- ▶ IV fluids

# Follow-up

- ▶ observation 4–8 hours
  - with risk factors longer (> 12 hours)
- ▶ lab diagnostics – serum tryptase
  - ideally within 3 hours from symptoms onset
- ▶ pathogen identification
  - specific IgE
  - skin testing
- ▶ Epipen for high-risk patients