

RESUSITATION

ANAPHYLAXIS

Definition/ Pathophysiology

- Anaphylaxis is a **life- threatening, systemic, type 1 hypersensitivity** reaction
- It is caused by an antigen binding to **IgE antibodies of mast cells**. Mast cells are tissue dwelling granulocytes usually involved in combating parasitic infection
- This triggers **massive histamine and cytokine release**.
- These inflammatory mediators cause **bronchial smooth muscle contraction, vasodilation, increased capillary wall leakage and myocardial depression**.

Features

Anaphylaxis is likely when all three of the following criteria are met especially in the context of exposure to a known allergen:

- Sudden onset with rapid progression
- Life- threatening airway +/- breathing +/- circulatory problems
- Skin and mucosal changes (flushing, urticaria and angioedema)

Skin signs may not be present and are highly variable.

- **A=** Facial, tongue and laryngeal angioedema
- **B=** Dyspnoea, wheeze, cyanosis
- **C=** Tachycardia, hypotension and **ultimately cardiac arrest (often PEA)**

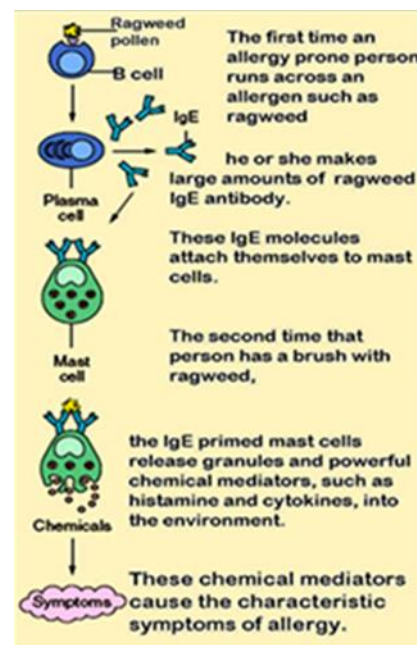
ABC problems cause decreased cerebral perfusion and subsequent confusion, agitation and loss of consciousness.

Common triggers include drugs, foods and animals especially venom e.g. bees/ wasps. **Mean time to cardiac arrest:**

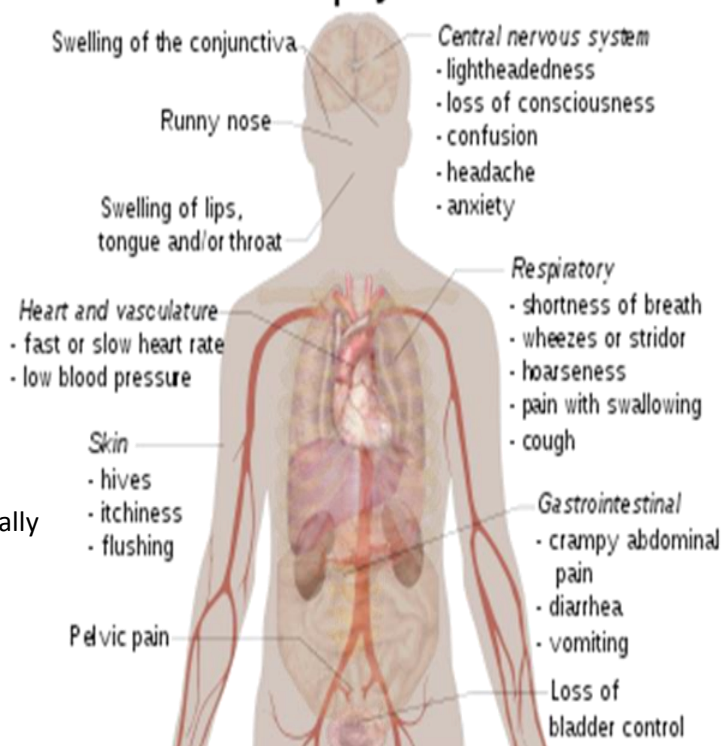
- **IV drugs= 5mins**
- **Venom= 15mins**
- **Foods= 30mins**

Management

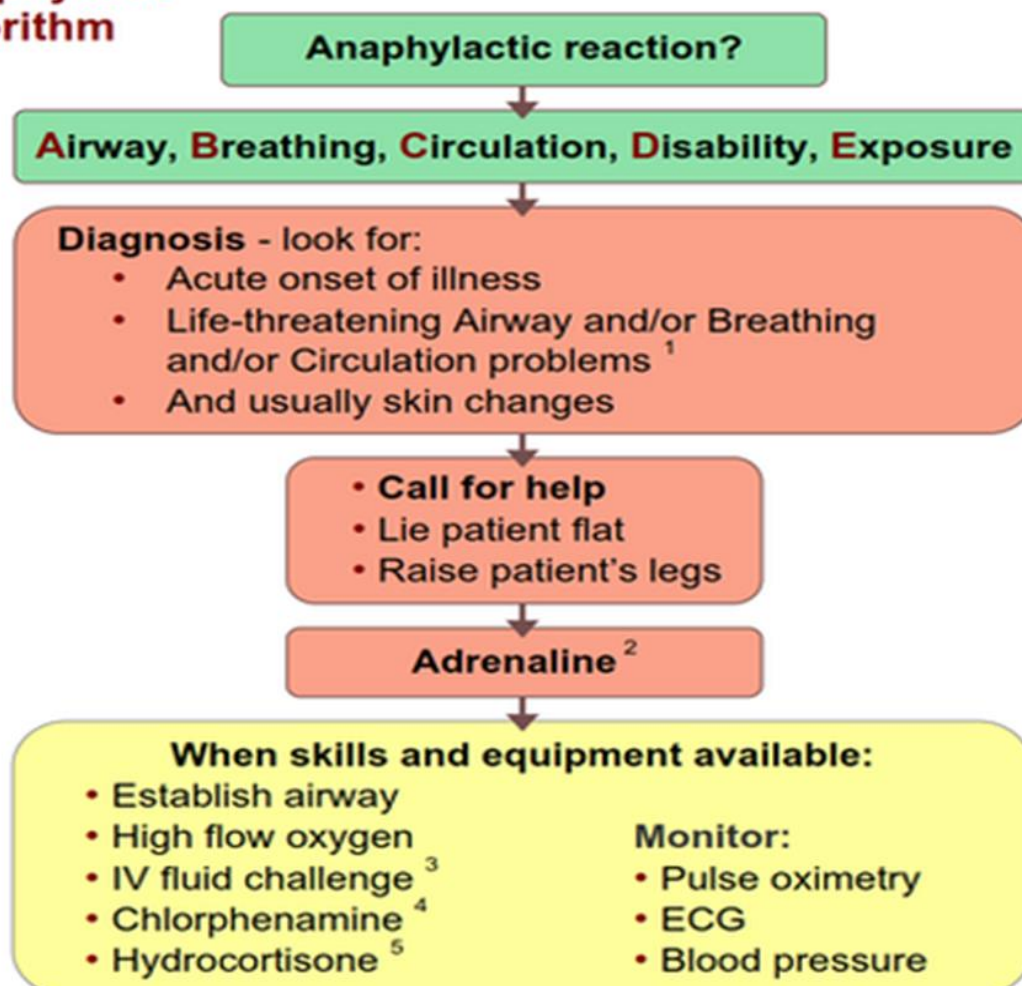
- **The mainstay of treatment is Adrenaline.** This is given as **0.5ml of 1:1000 IM** into the **anterolateral aspect of mid thigh**. Give **immediately** on diagnosing Anaphylaxis i.e. **comes BEFORE AIRWAY**.
- Then follow usual **ABCDE** algorithm.
- Give **IV corticosteroid** (hydrocortisone) and **IV antihistamine** (chlorphenamine)
- **IV crystalloid fluid** challenge up to 1L and reassess.
Do not give colloids and stop these if they are running, colloids are allergenic.



Signs and symptoms of Anaphylaxis



Anaphylaxis algorithm



1 Life-threatening problems:

Airway: swelling, hoarseness, stridor
Breathing: rapid breathing, wheeze, fatigue, cyanosis, SpO₂ < 92%, confusion
Circulation: pale, clammy, low blood pressure, faintness, drowsy/coma

2 Adrenaline (give IM unless experienced with IV adrenaline)

IM doses of 1:1000 adrenaline (repeat after 5 min if no better)

- Adult 500 micrograms IM (0.5 mL)
- Child more than 12 years: 500 micrograms IM (0.5 mL)
- Child 6 - 12 years: 300 micrograms IM (0.3 mL)
- Child less than 6 years: 150 micrograms IM (0.15 mL)

Adrenaline IV to be given **only by experienced specialists**

Titrate: Adults 50 micrograms; Children 1 microgram/kg

3 IV fluid challenge:

Adult - 500 – 1000 mL
 Child - crystalloid 20 mL/kg

Stop IV colloid if this might be the cause of anaphylaxis

4 Chlorphenamine (IM or slow IV)

Adult or child more than 12 years 10 mg
 Child 6 - 12 years 5 mg
 Child 6 months to 6 years 2.5 mg
 Child less than 6 months 250 micrograms/kg

5 Hydrocortisone (IM or slow IV)

200 mg
 100 mg
 50 mg
 25 mg