Anaphylaxis

- Type I IgE-mediated hypersensitivity reaction.
- Release of histamine and other agents causes: capillary leak; wheeze; cyanosis; oedema (larynx, lids, tongue, lips); urticaria.
- More common in atopic individuals.
- An *anaphylactoid reaction* results from direct release of mediators from inflfl ammatory cells, without involving antibodies, usually in response to a drug, eg acetylcysteine.

Examples of precipitants

- Drugs, eg penicillin, and contrast media in radiology.
- Latex.
- Stings
- Eggs
- Fish
- Peanuts
- Strawberries
- semen (rare)

Clinical features

Itching

Sweating

diarrhoea and vomiting

Erythema

Urticaria

oedema.

Wheeze

laryngeal obstruction

cyanosis

Tachycardia

hypotension

Danger signs

Rapid progression of symptoms evidence of respiratory distress (eg, stridor, wheezing, dyspnea, increased work of breathing, retractions, persistent cough, cyanosis)

signs of poor perfusion :

- abdominal pain
- Vomiting
- Dysrhythmia
- Hypotension
- collapse

Mimics of anaphylaxis

- Carcinoid
- Phaeochromocytoma
- Systemic mastocytosis.
- Hereditary angioedema
- Asthma
- Panic disorders
- Vasovagal episodes

Management in adults

Secure the airway—give 100% O2
Intubate if respiratory obstruction imminent

Remove the cause; raising the feet may help restore the circulation

Give adrenaline IM *0.5mg (ie 0.5mL of 1:1000)*. Repeat every 5min, if needed as guided by BP, pulse, and respiratory function, until better.

Chlorphenamine 10mg IV and hydrocortisone 200mg IV

0.9% saline, eg 500mL over ¼h; up to 2L may be needed) Titrate against blood pressure.

May require ventilator support

If still hypotensive, admission to ICU and an IVI of adrenaline may be needed ± aminophylline and nebulized salbutamol: get expert help

Further management:

- Admit to ward. Monitor ECG

- Measure serum tryptase 1–6h after suspected anaphylaxis

- Continue chlorphenamine 4mg/6h PO if itching

- Suggest a ‘MedicAlert’ bracelet naming the culprit allergen.

- Teach about self-injected adrenaline (eg 0.3mg, Epipen®) to prevent a fatal attack.

- Skin-prick tests showing specifific IgE help identify allergens to avoid.

Acute management in Paediatric population

- The first and most important therapy in anaphylaxis is epinephrine. There are **NO absolute contraindications to epinephrine** in the setting of anaphylaxis.

1. **Airway:** Immediate intubation if evidence of impending airway obstruction from angioedema. Delay may lead to complete obstruction.

Intubation can be difficult and should be performed by the most experienced clinician available. Cricothyrotomy may be necessary.

2. **IM epinephrine (1 mg/mL preparation):** Epinephrine 0.01 mg/kg should be injected intramuscularly in the mid-outer thigh.

For large children (>50 kg), the maximum is 0.5 mg per dose.

If there is no response or the response is inadequate, the injection can be repeated in 5 to 15 minutes (or more frequently).

If epinephrine is injected promptly IM, patients respond to one, two, or at most, three injections.

If signs of poor perfusion are present or symptoms are not responding to epinephrine injections, prepare IV epinephrine for infusion.

3. **Place patient in recumbent position**, if tolerated, and elevate lower extremities.

4. **Oxygen:** Give 8 to 10 L/minute via facemask or up to 100% oxygen, as needed.

5. **Normal saline rapid bolus:** Treat poor perfusion with rapid infusion of 20 mL/kg. Re-evaluate and repeat fluid boluses (20 mL/kg), as needed. Massive fluid shifts with severe loss of intravascular volume can occur. Monitor urine output.

6. Consider albuterol, antihistamines, glucocorticoids.

Monitoring: Continuous noninvasive hemodynamic monitoring and pulse oximetry monitoring should be performed.

Urine output should be monitored in patients receiving IV fluid resuscitation for severe hypotension or shock.

All patients receiving an infusion of epinephrine and/or another vasopressor require continuous noninvasive monitoring of blood pressure, heart rate and function, and oxygen saturation.

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