Anaphylaxis

Emergency management for health professionals

Australian Prescriber

Clinical features

Any acute onset of hypotension or bronchospasm or upper airway obstruction where anaphylaxis is considered possible, even if typical skin features are not present

OR

Any acute onset illness with typical skin features (urticarial rash or erythema/flushing, and/or angioedema) **PLUS** Involvement of respiratory and/or cardiovascular and/or persistent severe gastrointestinal symptoms

1 Immediate action

- Remove allergen (if still present)
- Call for assistance
- Lay patient flat. Do not allow them to stand or walk. If breathing is difficult allow them to sit.

2 Give INTRAMUSCULAR ADRENALINE into mid-lateral thigh without delay

Adrenaline Dose Chart (1:1000 ampoules containing 1 mg adrenaline per 1 mL)

Age (years)	Weight (kg)	Adrenaline volume 1:1000
<1	5–10	0.05–0.1 mL
1–2	10	0.1 mL
2–3	15	0.15 mL
4–6	20	0.2 mL
7–10	30	0.3 mL
10–12	40	0.4 mL
>12 and adult	>50	0.5 mL

Autoinjectors

An adrenaline autoinjector (EpiPen or Anapen) may be used instead of an adrenaline ampoule and syringe

For children 10–20 kg (aged ~1–5 years) EpiPen Junior or Anapen Junior should be used

Instructions are on device label

Repeat doses every 5 minutes as needed

If multiple doses required or a severe reaction, consider adrenaline infusion if skills and equipment available (see section 5)

3 Call ambulance to transport patient if required

4 Supportive management

When skills and equipment available:

- Monitor pulse, blood pressure, respiratory rate, pulse oximetry
- Give high flow oxygen and airway support if needed
- Obtain intravenous access in adults and in hypotensive children
- If hypotensive, give intravenous normal saline (20 mL/kg rapidly) and consider additional wide bore intravenous access

For Additional measures see below

5 Additional measures

Adrenaline infusion

If inadequate response or deterioration, start an intravenous adrenaline infusion as follows:

Give only in liaison with an emergency medicine/critical care specialist. Phone .....

- Mix 1 mL of 1:1000 adrenaline in 1000 mL of normal saline
- Start infusion at ~5 mL/kg/hour (~0.1 microgram/kg/minute)
- Titrate rate according to response
- Monitor continuously

CAUTION – Intravenous boluses of adrenaline are not recommended due to the risk of cardiac arrhythmia

If adrenaline infusion is ineffective or unavailable, consider:

For upper airway obstruction

- Nebulised adrenaline (5 mL i.e. 5 ampoules of 1:1000)
- Consider intubation if skills and equipment are available

For persistent hypotension/shock

- Give normal saline (maximum 50 mL/kg in the first 30 min)
- In patients with cardiogenic shock (especially if taking beta blockers) consider an intravenous glucagon bolus of 1–2 mg in adults (in children: 20–30 microgram/kg up to 1 mg). This may be repeated or followed by an infusion of 1–2 mg/hour in adults.
- In adults, selective vasoconstrictors metaraminol (2–10 mg) or vasopressin (10–40 units) only after advice from an emergency medicine/critical care specialist

For persistent wheeze

- Bronchodilators: Salbutamol 8–12 puffs of 100 microgram using a spacer or 5 mg salbutamol by nebuliser
- Oral prednisolone 1 mg/kg (maximum 50 mg) or intravenous hydrocortisone 5 mg/kg (maximum 200 mg)

6 Observation

Prolonged and biphasic reactions may occur

Observe patient for at least 4 hours after last dose of adrenaline

Observe longer (overnight) if patient:

- had a severe reaction (hypotension or hypoxia) or
- required repeated doses of adrenaline or
- has a history of asthma or protracted anaphylaxis or
- has other concomitant illness or
- lives alone or is remote from medical care

7 Follow-up treatment

Antihistamines

Antihistamines have no role in treating respiratory or cardiovascular symptoms of anaphylaxis. Oral non-sedating antihistamines may be given to treat itch and urticaria. Injectable promethazine should not be used in anaphylaxis as it can worsen hypotension and cause muscle necrosis.

Corticosteroids

The role of corticosteroids is unknown. It is reasonable to prescribe a 2-day course of oral steroid (e.g. prednisolone 1 mg/kg, maximum 50 mg daily) to reduce the risk of symptom recurrence after a severe reaction or a reaction with marked or persistent wheeze.

Adrenaline autoinjector

Prescribe an autoinjector, pending specialist review. Train the patient in autoinjector use and give them an ASCIA Action Plan for Anaphylaxis (see Australasian Society of Clinical Immunology and Allergy website www.allergy.org.au)

Allergy specialist referral

Refer patients with anaphylaxis for specialist review

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