Allergic Reaction

Anaphylaxis

Anaphylaxis is a life-threatening systemic hypersensitivity reaction with **A** (stridor) **B** (bronchospasm) and / or **C** (shock) involvement.
Reaction may be **biphasic** (recurrence of symptoms within 72 hours).
Death has never occurred > 6 hours from exposure (usually < 5 mins if iv, 10-15 mins if venom and 30-35 mins if ingested)

Causes:

- Drugs – antibiotics, NSAIDs, contrast media, suxamethonium, opiates, gelofusin
- Food – common in children; nuts, egg, milk, shellfish, legumes
- Venom
- Latex
- Idiopathic (ie no cause identified)
- Rare – exercise induced, semen

Systemic Allergic Reactions

Angioedema – May be **allergic** (mast-cell mediated, associated with urticaria) or **non-allergic** (bradykinin-mediated, without urticaria, typically more gradual onset).
Causes include C1 esterase inhibitor deficiency, ACE inhibitors (20%), NSAIDs, statins, SLE, lymphoma and idiopathic (40%)

Urticaria – May be **acute** or **chronic** (occurring daily for > 6 weeks, rarely associated with allergy).
Causes of acute = allergy, viral or bacterial infections, idiopathic
Causes of chronic = idiopathic (75%, often triggered by stress), SLE, thyroiditis, physical stimuli (heat, cold, exercise, sunlight), menstruation, urticarial vasculitis (lasting > 36 hours and causing bruising / pain), urticaria pigmentosa (reddish brown macules)

Urticaria

Pruritic migratory erythematous plaques, occurs alone or in association with angioedema

If any signs of anaphylaxis, follow anaphylaxis algorhythm

Treatment

- Antihistamines:
  Loratadine 10 mg po
  Chlorpheniramine 4 mg po
- Consider prednisolone 40 mg od for 3 days if **severe** and unresponsive to antihistamines

Investigations

Not usually required

Discharge

Ask GP to refer to Allergy Clinic (see below) if any red flags present:

- Rash > 6 weeks (chronic)
- Painful
- Fixed staining (non-blanching areas within urticaria)
- Allergy to foods, insect venom or drugs

Ask the GP to organise blood tests prior to clinic if chronic:

- FBC
- CRP
- U&E
- C3 & C4
- ANA
- TFTs & thyroid antibody

Angiodema

Deep muco-cutaneous swelling affecting face, throat, bowel, digits and genitals

If signs anaphylaxis (urticaria, bronchospasm, rapid onset), follow anaphylaxis algorhythm

MOVE TO RESUS

Known C1 esterase deficiency?

No

Treatment

- If mild, no treatment needed, resolves within hours / days
- Discontinue potential triggers eg ACEIs
- Consider antihistamines / steroids but unlikely to respond if no allergic signs
- **If severe:**
- 1st line: Icatibant 30 mg in 3 mL sc
- 2nd line: FFP 2 – 4 units

Investigations ONLY if no clear trigger:

- C3 (low in SLE)
- C4 (low in SLE, C1e deficiency)
- C1e inhibitor
- D dimer
- FBC, CRP, LFT

OR if anaphylaxis:

- Tryptase
  (as per anaphylaxis regime)

Yes

Treatment

- C1 esterase concentrate 20 units / kg iv over 10 mins
- Repeat dose at 2 hours may be required
- 2nd line: Icatibant 30 mg in 3 mL sc
- 3rd line: FFP 2 – 4 units

Icatibant and C1 esterase concentrate obtained via on-call pharmacist

Investigations

Not usually required

Anaphylaxis

A: stridor, hoarse voice, throat closure
B: DIB, chest tightness, wheeze, cyanosis
C: signs of shock - pre-syncope or syncope, pale, clammy, reduced GCS
May be associated erythema, urticaria, angioedema, itch, nausea, vomiting, abdominal pain, diarrhoea

MOVE TO RESUS

Treatment

- Adrenaline 0.5 mL of **1:1000** (**500 mcg**) im
- Repeat at 3-5 minute intervals if required
- If peri-arrest / shock not responding to im treatment, titrate 0.5 mL **1:10,000** (**50 mcg**) iv – **seek senior advice**
- **Fluids:** 500 – 1000 mL bolus 0.9% saline (20 mL/kg) if signs of shock despite adrenaline
- **Antihistamines:** Chlorpheniramine 10 mg iv
- **Steroids:** Hydrocortisone 200 mg iv
- **Nebulisers:** 5 mg salbutamol if wheeze – repeat as required. Stridor neb adrenaline 5 mL 1:1000 (5 mg)
- **General:**
  - Stop iv drug if potential cause / remove allergen
  - Patients on β blockers with refractory hypotension may require glucagon 2 – 10 mg iv, followed by an infusion of 50 mcg/kg/hr
  - Stop β blockers (discuss with senior)

Investigations

- **Tryptase:** (yellow top) – take as soon as possible following emergency treatment, plus a 2nd sample within 1 – 2 hours (no later than 4 hours post onset)
- FBC, VBG
- ECG (NB non-specific ST ECG changes are common post adrenaline and with anaphylaxis)

Exclusions to CDU admission?

- Use of 3 or more doses of im adrenaline (needs HDU)
- Use of iv adrenaline
- Refractory shock
- Severe bronchospasm at any time
- Known biphasic reaction
- Co-morbidity requiring in-patient admission

No → **Admit CDU**

Yes → **Refer Medics / ICU**

Medication on Discharge for Anaphylaxis

- Epipen x 2, 0.3 mg
- Prednisolone 40 mg od for 3 days
- Antihistamine eg chlorpheniramine 4 mg qds or Loratadine 10 mg od for 3 days (or until resolved)

Follow-up

Urticaria = Allergy Clinic: Dr Runa Ali, RLH, FAX: 0208 983 2279

- Chronic urticaria > 6 weeks (ask GP to refer)
- Allergy to foods, insect venom or drugs
- Urticarial vasculitis

Angioedema = Immunology Clinic: Dr Hilary Longhurst, RLH, FAX: 0203 246 0283

- C1 esterase inhibitor deficiency
- Isolated angioedema

Anaphylaxis = Allergy Clinic

Allergic Reaction

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Reference Documents

Anaphylaxis CG134, NICE, December 2011