

# 3-1 Anaphylaxis v.3

- Unexplained hypotension
- Unexplained bronchospasm (*wheeze may be absent if severe*)
- Unexplained tachycardia or bradycardia

- Angioedema (*often absent in severe cases*)
- Unexpected cardiac arrest where other causes are excluded
- Cutaneous flushing in association with one of more of the signs above (*often absent in severe cases*)

## START

- 1 Call for help. Note the time. Stop or do not start non-essential surgery.
- 2 Call for cardiac arrest trolley, anaphylaxis treatment pack and investigation pack.
- 3 Remove all potential causative agents and maintain anaesthesia.
  - Important culprits: antibiotics, neuromuscular blocking agents, patent blue.
  - Consider chlorhexidine as cause (impregnated catheters, lubricants, cleansing agents).
  - Consider i.v. colloids as a possible cause.
  - Change to inhalational anaesthetic agent (if not already).
- 4 Give 100% oxygen and ensure adequate ventilation:
  - Maintain the airway and, if necessary, secure it with tracheal tube.
- 5 Elevate patient's legs if there is hypotension.
- 6 If systolic blood pressure < 50 mmHg or cardiac arrest, start CPR immediately.
- 7 Give drugs to treat hypotension (Box A):
  - **Hypotension may be resistant and may require prolonged treatment.**
  - Give adrenaline bolus and repeat as necessary.
  - Consider starting an adrenaline infusion after three boluses.
  - If hypotension resistant, give alternate vasopressor (e.g. metaraminol, noradrenaline infusion +/- vasopressin)
  - Give glucagon in  $\beta$ -blocked patient unresponsive to adrenaline.
- 8 Give rapid i.v. crystalloid: 20 ml.kg<sup>-1</sup> initial bolus, repeated until hypotension resolved.
- 9 Give hydrocortisone as part of resuscitation (Box B).
- 10 If bronchospasm is persistent, consider → 3-4
- 11 Take 5-10 ml clotted blood sample for **serum tryptase** as soon as patient is stable.
  - Plan for repeat sample at 1-2 hours and >24 hours.
- 12 Give chlorphenamine when feasible (Box B).
- 13 Plan transfer of the patient to an appropriate critical care area. Note tasks in Box D.
- 14 Prevent re-administration of possible trigger agents (allergy band, annotate notes/drug chart)

### Box A: DRUGS TO TREAT HYPOTENSION IF CARDIAC ARREST → 2-1

- Adult adrenaline: i.v. 50  $\mu$ g (= 0.5 ml of 1:10 000)  
i.m. 0.5 mg (= 0.5 ml of 1:1000) if i.v. not possible
- Paediatric adrenaline: i.v. 1.0  $\mu$ g.kg<sup>-1</sup> (0.1 ml.kg<sup>-1</sup> of 1:100 000)  
[1:100 000 solution made by diluting 1 ml of 1:10 000 up to 10 ml]
- If no i.v. access, intraosseous adrenaline dose same as i.v.
- Suggested adrenaline infusion regimes (adult):  
5 mg in 500 mL dextrose = 1:100 000, titrate to effect  
3 mg in 50 mL saline. Start at 3 ml.h<sup>-1</sup> (= 3  $\mu$ g.min<sup>-1</sup>), titrate to maximum 40 ml.h<sup>-1</sup> (= 40  $\mu$ g.min<sup>-1</sup>)
- Glucagon (adult): 1 mg, repeat as necessary
- Vasopressin (adult): 2 units, repeat necessary (consider infusion)

### Box B: OTHER DRUGS

- |                                 |   |
|---------------------------------|---|
| • Hydrocortisone i.v. doses:    | • Chlorphenamine i.v. doses:                    |
| • Adult: 200 mg                 | • Adult: 10 mg                                  |
| • Child 6-12 years: 100 mg      | • Child 6-12 years: 5 mg                        |
| • Child 6 months-6 years: 50 mg | • Child 6 months-6 years: 2.5 mg                |
| • Child <6 months: 25 mg        | • Child <6 months: 250 $\mu$ g.kg <sup>-1</sup> |

### Box C: CRITICAL CHANGES

#### CARDIAC ARREST → 2-1

### Box D: DON'T FORGET

- Repeat testing for serum tryptase at 1-2 hours and >24 hours.
- Liaise with hospital laboratory about analysis of samples.
- Liaise with department anaphylaxis lead regarding referral to a specialist allergy or immunology centre to identify the causative agent (see [www.bsaci.org](http://www.bsaci.org) for details).
- Inform the patient, surgeon and general practitioner.
- Report to MHRA ([www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard)).
- NAP6 online resource:  
<http://www.nationalauditprojects.org.uk/NAP6-Resources#pt>