SUSPECTED ANAPHYLAXIS DURING ANAESTHESIA

ANAPHYLAXIS IS A LIFE-THREATENING CRISIS

- Prompt diagnosis requires early recognition of signs & symptoms.
- Early treatment with adrenaline & fluid replacement is crucial
- Severe anaphylaxis can lead to cardiovascular collapse and death

Immediate Management

- **CALL FOR HELP** and crash cart, note the time.
- Maintain the airway and administer oxygen 100%. Intubate and ventilate with oxygen if necessary.
- Elevate the patient's legs if there is hypotension.
- If appropriate, start cardiopulmonary resuscitation immediately according to Pediatric Life Support algorithm.
- Administer Epinephrine.

The Allergy Immunology Joint Task Force on Practice Parameters (JTFPP) published a 2023 practice parameter update for anaphylaxis. Intramuscular epinephrine is now advised, preferably in the anterolateral part of the thigh in preference to deltoid.

A simplified approach for epinephrine administration is now advised in children based on their body weight (bw). (2023 guidelines)

- < 15 kg bw: inject 0.1 mg (0.1 mg/0.1 mL) or 0.15 mg injector (2023 GL)
- 15–30 kg bw: Inject 0.15 mg (0.15 mg/0.15 mL)
- > 30 kg bw: Inject 0.3 mg (0.3 mg/0.5 mL)

Repeat every 5-15mins.use should be limited to those patients with hypotension unresponsive to IV fluids or in cardiovascular collapse at a dose of 0.01 mg/kg over 5 minutes.

Consider starting a low dose intravenous infusion of epinephrine 0.1 ugs /kg/min (maximum 1 ug/kg/min).

Secondary management

- Corticosteroids and antihistamine should be used only after epinephrine administration.
- Corticosteroids (Hydrocortisone i.v. 2-4 mg/kg (max dose 200mg)) are of no proven value but may help in preventing biphasic reactions.
- Antihistamines may be helpful in treating pruritis
- If there is persistent wheeze (bronchospasm) treat with an i.v. infusion of salbutamol. If a suitable breathing system connector is available, a metered-dose inhaler may be appropriate.
- If the blood pressure does not recover despite epinephrine infusion, consider:
    - IV vasopressin (bolus 0.03 units/kg then 2 units/h); titrate according to BP
- Administer 20 ml/kg crystalloid at a high rate (large volumes may be required).

Immediate Investigations

If facilities available send sample for Mast cell tryptase. Levels increase within 15 mins, peak at 3 hours and return to baseline at 6-8 hours
Take three blood samples in plain tubes (brown top) at following times

1. immediately after the reaction has been treated (within 1 hour of the reaction), and.
2. up to 6 hours after the reaction
3. 24 h after the reaction

It is essential to state the time on samples (and time from onset of reaction) and record this in the notes.

Postoperative monitoring

The patient should be monitored for a minimum 4 hours after last dose of adrenaline because of danger of biphasic response. Biphasic reaction occurs in 3-20% of patients.

Later Investigations and management:

- C1 inhibitor for functional assay (C1INH)
- Urine VMA
- Radioallergosorbent test (RAST) or cutaneous antigen testing by a specialist
- Ensure detailed analysis and proper documentation of events surrounding the suspected anaphylactic reaction.

References:

1. Suspected anaphylactic reactions associated with anaesthesia, revised edition 2009. Association of Anaesthetists of Great Britain and Ireland.
2. Australian and New Zealand Anaesthetic Allergy Group Anaphylaxis Management Guidelines. Last modified on: 21 April 2016 http://anzaag.com/Mgmt%20Resources.aspx
3. Frith K, Smith J, Joshi P, Ford LS, Vale S. Updated anaphylaxis guidelines: management in infants and children. Aust Prescr. 2021 Jun;44(3):91-95. doi: 10.18773/austprescr.2021.016. Epub 2021 Jun 1. PMID: 34211247; PMCID: PMC8236874.
4. Jeffrey F Linzer, Sr, Chief Editor: Kirsten A Bechtel, MD. Pediatric Anaphylaxis, Medscape. Updated: Feb 27 2004. https://emedicine.medscape.com/article/799744-overview (site accessed September 24)
5. Royal Childrens Hospital >Clinical Practice Guidelines> Anaphylaxis. https://www.rch.org.au/clinicalguide/guideline_index/anaphylaxis/ (site accessed September 24)