Essex Partnership University
NHS Foundation Trust

SECTION 16: TREATMENT OF ANAPHYLAXIS

Formulary and Prescribing Guidelines

16.1 Introduction

Anaphylaxis is an allergic response that may be immunologically mediated, a non-immunological response or idiopathic (i.e. no readily identifiable cause). People who have had a mild or moderate allergic reaction in the past are at risk of developing anaphylaxis. Certain groups may be at higher risk because of existing co-morbidity (for example asthma).

Anaphylaxis is most commonly caused by foods, medicines, radiographic contrast media, latex or insect stings[1]. Allergic reactions vary in severity from pruritus and urticarial (hives) to bronchospasm, circulatory collapse and death. Irrespective of this variation in presentation, the following points generally apply:

1. The severity of the anaphylaxis is directly related to the speed of onset[2]

2. The majority of mast cells are located in the cardiovascular system, upper and lower respiratory tract, cutaneous and gastro-intestinal system. Thus, the majority of patients will present with symptoms arising in those areas. For example, laryngeal oedema, stridor, wheezing, drops in BP, tachycardia (if not on a beta-blocker), flushing, nausea, vomiting, and abdominal cramping[2]

3. Time of onset depends on the route of administration of the trigger – an intravenous trigger will elicit a reaction faster than a bee sting, which in turn will provoke anaphylaxis more rapidly than an orally ingested trigger[2]. Fatal food reactions cause respiratory arrest typically after 30-35 minutes; insect stings cause collapse from shock after 10-15 minutes; and deaths caused by intravenous medication occurs most commonly within 5 minutes.

16.2 Recognition of Anaphylaxis[2]

Anaphylaxis is likely when all of the following three criteria are met:

- Sudden onset and rapid progression of symptoms
- Life-threatening Airway and/or Breathing and/or Circulation problems
- Skin and/or mucosal changes (flushing, urticarial, angioedema

Onset

Can be very rapid necessitating rapid assessment of the patient's status, determination of probable causative agent and determination of whether exposure to precipitating agent can be stopped.

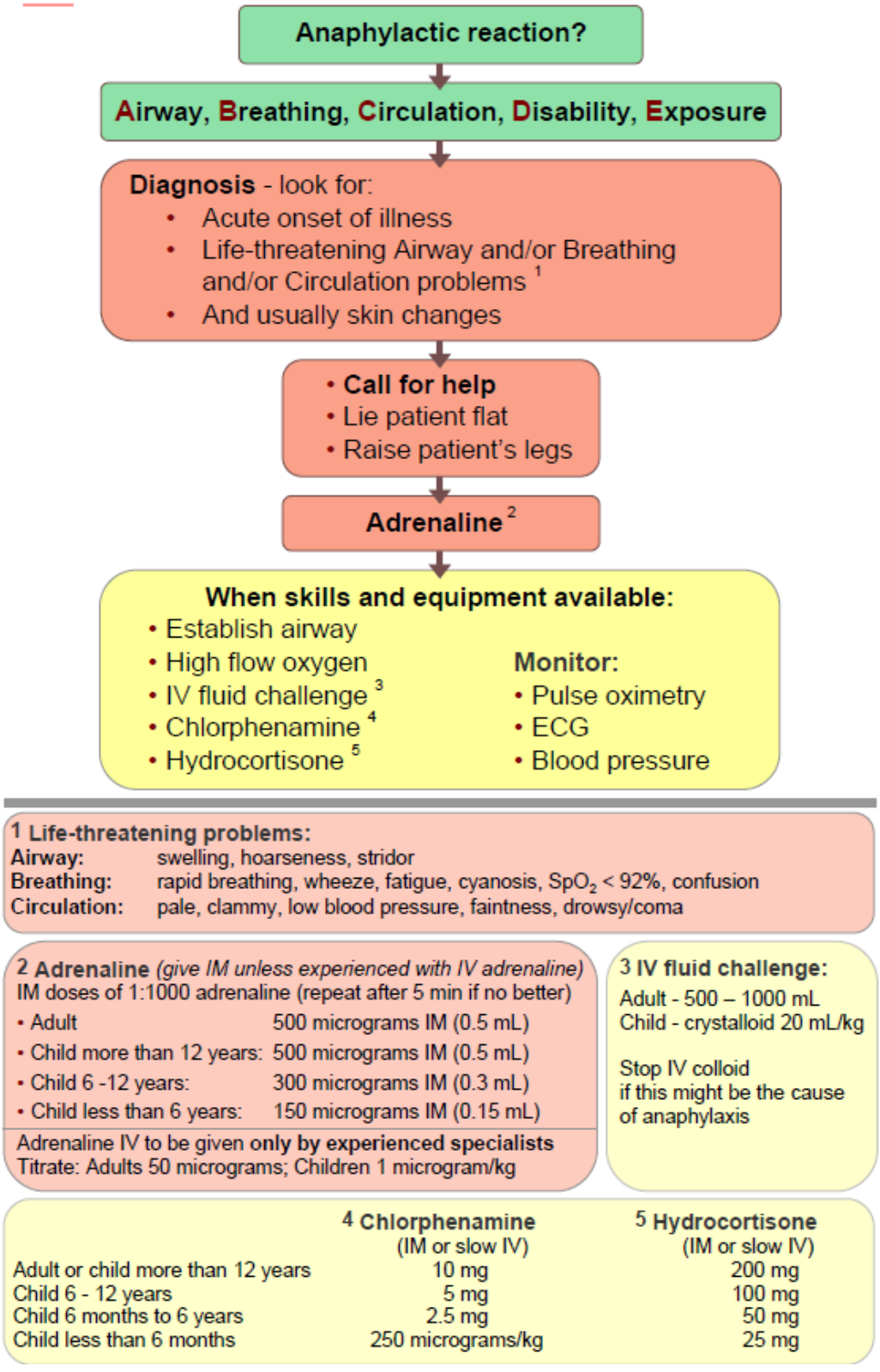
Presentation

- Cutaneous: flushed appearance, or urticarial (hives/nettle rash), itchy hands and feet, swelling of the hands, feet, lips, eye-lids and/or tongue.
- Cardiovascular: lowered BP, tachycardia, arrhythmia, and ischemia may be coupled with loss of consciousness
- Upper respiratory tract obstruction: laryngeal oedema (patient complains of a lump in the throat), hoarseness, stridor (inspiratory noise due to upper respiratory obstruction), and ultimately, if not treated, cyanosis and respiratory arrest.

- Lower respiratory tract obstruction: wheeze, shortness of breath, difficulty breathing, confusion due to hypoxia, respiratory arrest.

Symptoms such as respiratory stridor, breathing difficulties, cyanosis, and/or pronounced tachycardia and imminent collapse should alert the healthcare professional to an anaphylactic reaction.

16.3 Anaphylaxis Algorithm[2]



16.4 Management[2]

- Summon urgent medical assistance: if hospital-based, medical emergency to be called and emergency ambulance requested; if community-based, emergency ambulance to be called.

- **NEVER LEAVE THE PATIENT ALONE.** Monitor heart rate and respiration rate continuously. Check BP every 1-2 minutes and commence cardio-pulmonary resuscitation if cardiac or respiratory function ceases (refer to CLPG14/) Lie patient flat with legs raised. If the patient feels faint – they must not sit or stand up (can cause cardiac arrest)[2]. However, if the patient has breathing difficulties or respiratory distress sit in an upright position as this will make breathing easier[2]. Patients who are breathing and unconscious should be placed in the recovery position.

- Adrenaline to be administered intramuscularly – medical staff to determine the volume of adrenaline (1 in 1,000) (depending on age of patient, see table above). All nursing staff who administer adrenaline must have been trained on the **Intermediate Life support course (MERT)**. Alternatively, an adrenaline auto-injector may be used if this has previously been prescribed for the patient, if this is the only available adrenaline. The dose can be repeated if necessary at 5 minute intervals according to BP, heart rate and respiratory function.

- Secure airway by tilting chin and ensuring that the tongue is not blocking the airway. If condition deteriorates, then guedal airway to be inserted (by staff member trained in this procedure). Administer oxygen if available (at the highest concentration possible) at high flow rates (usually greater than 10 Litres/minute)[2]

- All patients who have experienced an anaphylactic reaction **must** be transferred to hospital for observation and follow-up treatment, even though they may appear to have made a full recovery.

Previous guidelines recommended adrenaline half dose adjustments in certain circumstances (e.g., in patients taking tricyclic antidepressants, monoamine oxidase inhibitors or beta blockers). The Working Group considered it unhelpful to have caveats such as this in the setting of an acute anaphylactic reaction. There is large inter-individual variability in the response to adrenaline. In clinical practice, it is important to monitor the response; start with a safe dose and give further doses if a greater response is needed, i.e., titrate the dose according to effect.). The BNF does still stipulate that patients taking beta-blockers may not respond (respiratory–wise) to adrenaline and may require intravenous salbutamol[1]. Additionally, adrenaline can cause severe hypertension and bradycardia in those taking non-selective beta-blockers[1].

Discharge

Before discharge from the EPUT inpatient ward, a healthcare professional with the appropriate skills and competencies should offer the patient (or, as appropriate, their parent and/or carer) the following, if these were not offered at the point of discharge from the acute hospital that formally diagnosed and treated the anaphylaxis:

- information about anaphylaxis, including the signs and symptoms of an anaphylactic reaction
- information about the risk of a biphasic reaction
- information on what to do if an anaphylactic reaction occurs (use the adrenaline injector and call emergency services)
- a demonstration of the correct use of the adrenaline injector and when to use it
- a prescription for 2 adrenaline injectors, with advice to carry the injectors with them at all times (unless these were supplied on discharge from the acute hospital)
- advice about how to avoid the suspected trigger (if known)
- information about the need for referral to a specialist allergy service and the referral process
- information about patient support groups

On discharge, inform the GP about the patient's diagnosis of anaphylaxis, and the treatment provided.

16.5 NICE Clinical Guidelines

NICE CG134. Anaphylaxis: assessment and referral after emergency treatment. Published date: 14 December 2011. Last updated: 24 August 2020.

NICE CG 183, September 2014. Drug allergy: diagnosis and management of drug allergy in adults, children and young people.

References

1) British National Formulary, Current Edition, Available at www.medicinescomplete.com/mc/bnf
2) 2) Resuscitation Council UK. Emergency treatment of anaphylactic reactions – guidelines for healthcare providers, January 2008, updated July 2012. Available at. http://www.resus.org.uk/pages/reaction.pdf
3) NICE CG134. Anaphylaxis: assessment and referral after emergency treatment. Published date: 14 December 2011 Last updated: 24 August 2020. https://www.nice.org.uk/guidance/cg134/ Accessed 18.11.2020