Refractory Anaphylaxis in Adults - Summary Clinical Guideline

Reference no.: CG-T/2023/011

Refractory anaphylaxis is defined as anaphylaxis requiring ongoing treatment (due to persisting respiratory or cardiovascular symptoms) despite two appropriate doses of IM adrenaline. When refractory anaphylaxis occurs critical care support should be sought early.

Maintenance adrenaline therapy is critical, using a low dose IV adrenaline infusion. IV adrenaline should be given only by experienced specialists in an appropriate setting. If an IV adrenaline infusion cannot be administered immediately continue to give IM adrenaline after every 5 minutes while life threatening cardiovascular and respiratory features persist.

Adrenaline therapy should be supported with fluid resuscitation. Give further fluids as necessary. A large volume (up to 3-5 litres in adults) may be required for severe anaphylactic shock.

SEE ACCOMPANYING SUMMARY CLINICAL GUIDELINE FOR MANAGEMENT OF ANAPHYLAXIS IN ADULTS.

Please refer to the full clinical guideline for further management, including tryptase measurement, adrenaline autoinjector prescription, safe discharge and referral to the Adult Allergy Clinic.

Figure 2: Resuscitation Council UK Treatment Algorithm for Refractory Anaphylaxis

Resuscitation Council UK

GUIDELINES 2021

Refractory anaphylaxis

No improvement in respiratory or cardiovascular symptoms despite 2 appropriate doses of intramuscular adrenaline

Establish dedicated peripheral IV or IO access

Seek expert[1] help early
Critical care support is essential

Give rapid IV fluid bolus
e.g. 0.9% sodium chloride

&

Start adrenaline infusion
Adrenaline is essential for treating all aspects of anaphylaxis

Give IM* adrenaline every 5 minutes until adrenaline infusion has been started
*IV boluses of adrenaline are not recommended, but may be appropriate in some specialist settings (e.g. peri-operative) while an infusion is set up

Give high flow oxygen
Titrate to SpO_2 94–98%

Monitor HR, BP, pulse oximetry and ECG for cardiac arrhythmia
Take blood sample for mast cell tryptase

Follow local protocol
OR
Peripheral low-dose IV adrenaline infusion:
- 1 mg (1 mL of 1 mg/mL [1:1000]) adrenaline in 100 mL of 0.9% sodium chloride
- Prime and connect with an infusion pump via a dedicated line

DO NOT 'piggy back' on to another infusion line
DO NOT infuse on the same side as a BP cuff as this will interfere with the infusion and risk extravasation

- In both adults and children, start at 0.5–1.0 mL/kg/hour, and **titrate according to clinical response**
- Continuous monitoring and observation is mandatory
- ↑↑ BP is likely to indicate adrenaline overdose

Continue adrenaline infusion and treat ABC symptoms
Titrate according to clinical response

[1]Intravenous adrenaline for anaphylaxis to be given only by experienced specialists in an appropriate setting.

A = Airway

Partial upper airway obstruction/stridor:
Nebulised adrenaline (5mL of 1mg/mL)

Total upper airway obstruction:
Expert help needed, follow difficult airway algorithm

B = Breathing

Oxygenation is more important than intubation

If apnoeic:
- Bag mask ventilation
- Consider tracheal intubation

Severe/persistent bronchospasm:
- Nebulised salbutamol and ipratropium with oxygen
- Consider IV bolus and/or infusion of salbutamol or aminophylline
- Inhalational anaesthesia

C = Circulation

Give further fluid boluses and titrate to response:
Child 10 mL/kg per bolus
Adult 500–1000 mL per bolus
- Use glucose-free crystalloid (e.g. Hartmann's Solution, Plasma-Lyte®)

Large volumes may be required (e.g. 3–5 L in adults)

Place arterial cannula for continuous BP monitoring

Establish central venous access

IF REFRACTORY TO ADRENALINE INFUSION
Consider adding a second vasopressor **in addition** to adrenaline infusion:
- Noradrenaline, vasopressin or metaraminol
- In patients on beta-blockers, consider glucagon

Consider extracorporeal life support

Cardiac arrest – follow ALS ALGORITHM
- Start chest compressions early
- Use IV or IO adrenaline bolus (cardiac arrest protocol)
- Aggressive fluid resuscitation
- Consider prolonged resuscitation/extracorporeal CPR

Reference no.: CG-T/2014/011

Appendix 1

NHS
University Hospitals of Derby and Burton
NHS Foundation Trust

Patient name: ……

ID/NHS number: ……

DOB: ……...

Address:……
……
……

Suspected Anaphylaxis Referral Form (Adults)*

Anaphylaxis caused exclusively by a drug should be referred to a regional drug allergy clinic (QMC/Glenfield/Birmingham Heartlands). DO NOT refer to general allergy clinic. Please see guidelines.

Date of reaction: ……..

Referral source: ……

Symptoms and clinical signs:
……
……
……
……

Emergency treatment delivered:
……
……
……

Possible trigger (state if unknown):
……

Management of patients meeting criteria for Suspected Anaphylaxis	**Tick when complete**
Tryptase sample on arrival*	
Second tryptase sample 1-2 hours later*	
Adrenaline auto-injector x2 dispensed	
Advice and guidance given (see below)	
*not later than 4 hours post reaction	

Advice on Discharge for Patients with Suspected Anaphylaxis

1. Explain the symptoms of anaphylaxis
2. Provide the patient with **two** adrenaline auto-injectors (unless certain anaphylaxis was exclusively due to a drug reaction)
3. Show them how to use it and signpost to company on-line training videos
4. When to use it (wheeze, SOB, throat closure, feeling faint, abdominal pain or vomiting in presence of other allergic symptoms)
5. What to do if anaphylaxis occurs (print appendix 2: MHRA "Correct use of your AAI" leaflet)
6. Risk of a biphasic reaction
7. Trigger avoidance if relevant
8. Offer referral to RDH Allergy clinic and advise them of the following patient support group:
   Anaphylaxis UK (http://www.anaphylaxis.org.uk/)

Please email a completed referral to dhft.RespiratorySecretaries@nhs.net or send in the post to the Respiratory Secretaries, Medicine Office Suite A, Off Ward 408, Level 4, RDH**. Burton site referrals: please enclose copies of the ED notes and ambulance paperwork. Referrals without adequate clinical information will be returned.**