

Management of Severe Local Anaesthetic Toxicity

Applicable to (please mark with an X)					
Group-wide		LUHFT-wide		Liverpool Women's	x
Aintree Hospital		Broadgreen Hospital	LCL	Royal Liverpool Hospital	

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Associated Documents	<ul style="list-style-type: none"> • Obstetric Epidural Analgesia Guideline • Gynaecology Post-Operative Epidural Infusion Guideline • Trust Anaphylaxis Policy • Adult and Paediatric Resuscitation Policy
Evidence Base and References e.g. Regional or National Guidelines such as NICE or Royal College.	<ul style="list-style-type: none"> • AAGBI Quick Reference Handbook (QRH) , The Association of Anaesthetists of Great Britain and Ireland Anaesthesia Guidelines
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What is new in this version?

Latest Version	Page	Changes Made	Date
5.0	3-4	Major change- Updated with the latest AAGBI QRH flowchart for the management of severe local anaesthesia toxicity	18/08/25

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1 Guidance

a) Guidelines for the Management of Severe Local Anaesthetic Toxicity

3-10 Local anaesthetic toxicity v.2

Signs of severe toxicity:

- Sudden alteration in mental status, severe agitation or loss of consciousness, with or without tonic-clonic convulsions.
- Cardiovascular collapse: sinus bradycardia, conduction blocks, asystole and ventricular tachyarrhythmias may all occur.
- Local anaesthetic toxicity may occur some time after an initial injection.

START

- 1 Stop injecting the local anaesthetic (remember infusion pumps).
 - 2 Call for help and inform immediate clinical team of problem.
 - 3 Call for cardiac arrest trolley and lipid rescue pack.
 - 4 Give 100% oxygen and ensure adequate lung ventilation:
 - Maintain the airway and if necessary secure it with a tracheal tube.
 - Avoid hypercarbia – consider mild hyperventilation.
 - 5 Confirm or establish intravenous access.
 - 6 If circulatory arrest:
 - Start continuous CPR using standard protocols (→ 2-1) but:
 - Give intravenous lipid emulsion (Box A).
 - Use smaller adrenaline dose ($\leq 1\mu\text{g.kg}^{-1}$ instead of 1 mg)
 - Avoid vasopressin.
 - Recovery may take >1 hour.
 - Consider the use of cardiopulmonary bypass if available.
- If no circulatory arrest:
- Conventional therapies to treat hypotension, brady- and tachyarrhythmia.
 - Consider intravenous lipid emulsion (Box A).
- 7 Control seizures:
 - Small incremental dose of benzodiazepine is drug of choice.
 - Thiopental or propofol can be used, but beware negative inotropic effect.
 - Consider neuromuscular blockade if seizures cannot be controlled.

Box A: LIPID EMULSION REGIME

USE 20% Intralipid® (propofol is not a suitable substitute)

Immediately

- Give an initial i.v. bolus of lipid emulsion 1.5 ml.kg^{-1} over 2-3 min (~100 ml for a 70 kg adult)
- Start an i.v. infusion of lipid emulsion at $15\text{ ml.kg}^{-1}.\text{h}^{-1}$ (17.5 ml.min^{-1} for a 70 kg adult)

At 5 and 10 minutes:

- Give a repeat bolus (same dose) if:
 - cardiovascular stability has not been restored or
 - an adequate circulation deteriorates

At any time after 5 minutes:

- Double the rate to $30\text{ ml.kg}^{-1}.\text{h}^{-1}$ if:
 - cardiovascular stability has not been restored or
 - an adequate circulation deteriorates

Do not exceed maximum cumulative dose 12 ml.kg^{-1} (70 kg: 840 ml)

Box B: CRITICAL CHANGES

Cardiac arrest → Check already done 1 to 5, then → 6

Box C: AFTER THE EVENT

Arrange safe transfer to appropriate clinical area
Exclude pancreatitis: regular clinical review, daily amylase or lipase
Report case on your local critical incident system and to the relevant national system (these vary between each devolved nation and in Ireland)

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3-10

b) Storage of Intralipid at LWH

Obstetrics = In controlled drug cupboard

Gynaecology theatres = In recovery-controlled drug cupboard

Gynaecology wards = In HDU cupboard. HDU nurse will have the key.

c) Table for Lipid Emulsion (20%) Therapy

Patient Weight (kg)	INITIAL BOLUS (mls) - 1.5mls/kg over 2-3 minutes - 2 further boluses can be given 5 minutes apart	CONTINUOUS INFUSION (ml/hr) - 15ml/kg/hr - Start concurrently with bolus	INCREASED INFUSION DOSING (ml/hr) - 30mls/kg/hr - Started any time after 5 mins if stability not restored or deterioration
50	75	750	1500
60	90	900	1800
70	105	1005	2010
80	120	1200	2400
90	135	1350	2700
100	150	1500	3000
120	180	1800	3600
140	210	2100	4200

d) When to stop the Infusion

1. When cardiovascular stability has been restored for approximately 10 minutes
2. When the maximum cumulative dose has been achieved = 12mls/kg

Appendix One: References

- AAGBI Quick Reference Handbook 3-10 (Updated June 2023)
- The Association of Anaesthetists of Great Britain and Ireland Anaesthesia Guidelines

Appendix Two: Document History and Version Control

Version	Date	Comments	Author/Job Title
1.0	Nov 08	Guideline Creation	S Brown
1.2	Nov 10	Reviewed and updated	E Djabetty / P Barclay
2.3	Nov 13	Reviewed and updated	E Djabetty / P Barclay
2.4	Jan 15		C Chevannes
3.0	Jan 18	Reviewed and updated	G Graney
3.2	Apr 21	No changes required review date extended to 3 yearly	G Graney
4.0	Jun 24	Reviewed with minor formatting changes.	Anaesthetic consultant
5.0	18/08/25	Reviewed and updated	Mahmoud Elhefnawy, Locum Consultant Anaesthetist