|  |
| --- |
| 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. |

|  |
| --- |
| 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 ml.kg–1.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 ml.kg–1.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) |

START.

❶ Stop injecting the local anaesthetic (remember infusion pumps).

❷ Call for help and inform immediate clinical team of problem.

❸ Call for cardiac arrest trolley and lipid rescue pack.

❹ 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.

❺ Confirm or establish intravenous access.

❻ **If circulatory arrest:**

* Start continuous CPR using standard protocols (**→** **2-1**) **but**:
* **Give** intravenous lipid emulsion (Box A).
* **Use smaller adrenaline dose** (**≤** **1µg.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).

**❼** 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.

• Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses

• Assess cardiovascular status throughout

• Consider drawing blood for analysis, but do not delay definitive treatment to do this

• Recovery from LA-induced cardiac arrest may take >1 h

• Propofol is not a suitable substitute for lipid emulsion

• Lidocaine should not be used as an anti-arrhythmic therapy Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment

• Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses

• Assess cardiovascular status throughout

• Consider drawing blood for analysis, but do not delay definitive treatment to do this

• Recovery from LA-induced cardiac arrest may take >1 h

• Propofol is not a suitable substitute for lipid emulsion

• Lidocaine should not be used as an anti-arrhythmic therapy Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment

|  |
| --- |
| Box B: CRITICAL CHANGES |
| Cardiac arrest → Check already done ❶ to ❺, then → ❻ |

|  |
| --- |
| 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) |

**Association of Anaesthetists 2023. www.anaesthetists.org/qrh** Subject to Creative Commons license CC BY-NC-SA 4.0. You may distribute original version or adapt for yourself and distribute with acknowledgement of source. You may not use for commercial purposes. Visit website for details. The guidelines in this handbook are not intended to be standards of medical care. The ultimate judgement with regard to a particular clinical procedure or treatment plan must be made by the clinician in the light of the clinical data presented and the diagnostic and treatment options available.

3-10