

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)