Local anaesthetic toxicity

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 1 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:
  o cardiovascular stability has not been restored or
  o an adequate circulation deteriorates

At any time after 5 minutes:
• Double the rate to 30 ml.kg\(^{-1}\).h\(^{-1}\) if:
  o cardiovascular stability has not been restored or
  o an adequate circulation deteriorates

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

Box B: CRITICAL CHANGES

If cardiac arrest, continue lipid emulsion and → 2-1

Box C: AFTER THE EVENT

Arrange safe transfer to appropriate clinical area
Exclude pancreatitis: regular clinical review, daily amylase or lipase
Report cases to MHRA: https://yellowcard.mhra.gov.uk/

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.
   • Hyperventilation may help reduce acidosis.
5. Confirm or establish intravenous access.
6. If circulatory arrest:
   • Start continuous CPR using standard protocols.
   • Give intravenous lipid emulsion (Box A).
   • 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 with small incremental dose of benzodiazepine, thiopental or propofol.