

# 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  $1.5\text{ ml.kg}^{-1}$  over 2-3 min (~100 ml for a 70 kg adult)
- Start an i.v. infusion of lipid emulsion at  $15\text{ ml.kg}^{-1}.\text{h}^{-1}$  ( $17.5\text{ ml.min}^{-1}$  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  $12\text{ ml.kg}^{-1}$  (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)