Local Anaesthetics

Local anaesthetic (LA) toxicity almost always results from therapeutic error

Toxicity / Risk Assessment

Clinical toxicity is usually secondary to inadvertent intravascular administration rather than OD

Bupivacaine is more cardiotoxic than other LAs

Maximum recommended doses for local infiltration

Bupivacaine – 2 mg/kg (3mg/kg with adrenaline)

Lignocaine – 4 mg/kg (7mg/kg with adrenaline)

Ropivacaine – 3 mg/kg

Prilocaine – 7 mg/kg

- Topical or oral lignocaine < 6mg/kg
- Toxicity can occur at lower doses if administered IV

<u>Clinical features:</u>

Early: dizziness, perioral numbness, anxiety, tinnitus,

Severe: CNS: confusion, seizures, coma

CVS: CV collapse/arrhythmias

Respiratory depression/apnoea

Methemoglobinemia can occur (prilocaine, benzocaine lignocaine most commonly implicated)

Management

Supportive care is the mainstay of management with attention to airway and cardiovascular state.

Hypoxia and acidosis exacerbates CNS and CVS toxicity.

Central nervous system toxicity:

- Seizures: diazepam 5 mg IV every 5 minutes as necessary

Cardiovascular toxicity:

- Ventricular arrhythmias: 1-2 mmoL/kg IV 8.4% NaHCO3 every 2 minutes until perfusing rhythm
- Hypotension: 20 mL/kg IV crystalloid followed by inotropes as required
- Consider intravenous lipid emulsion in severe cardiovascular toxicity (see below)

Cardiac arrest

- ACLS, prolonged CPR to achieve ROSC may be required (> 1 hour)
- 1-2 mmoL/kg IV 8.4% NaHCO3, can be repeated every 2 minutes
- Intravenous lipid emulsion 20% 1.5 ml/kg IV over one minute, then infuse 15 mL/kg/hour

Do not exceed 12 mL/kg cumulative dose (see separate guideline)

- Consider ECMO early in treatment resistant cardiac arrest (discuss with clinical toxicologist)

Methaemoglobinaemia: 1-2 mg/kg methylene blue IV over 5 minutes (see separate guideline)

Disposition:

- All patients should be observed for at least 4 hours following a potentially toxic dose of a LA