Local anaesthetic toxicity

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See also: Nerve blocks in the CED guideline

Background

- Toxicity occurs with high blood levels of the drug – due to accidental intravenous injection or excess absorption from the injection site.

- Rare. Less likely from topical or ingestion route than intravenous /subcutaneous, but potentially catastrophic. Early symptoms can progress rapidly to systemic signs and cardiovascular collapse and cardiac arrest.

- Cardiac arrest is particularly resistant to standard resuscitation protocols e.g. VF may not respond to defibrillation.

- Lipid therapy has been found to be a successful adjunct in management of LA-induced cardiac arrest and is recommended by the National Patient Safety Agency and Resuscitation Council. It should also be given to symptomatic patients to prevent continuation to cardio-respiratory collapse.

- Lipid therapy used is Intralipid 20% - though recommended treatment, there is no evidence on use of Intralipid in paediatric patients.

It is the clinicians’ responsibility to be aware of safe & best practice in injection / infiltration of local anaesthetics, including:

- **Maximum doses**
  - Lignocaine 1% 3 mg/kg = 0.3 ml/kg
  - Lignocaine 2% 3 mg/kg = 0.15 ml/kg
  - Lignocaine / adrenaline (1 : 200 000) 6 mg/kg lignocaine component = 0.6 ml/kg

- **Drawing back** prior to injecting anaesthetic - ?venous injection – if blood flash back, remove.

- **Signs of toxicity** (see below)

- **Management & Treatment of toxicity** (see below)
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**RECOGNITION**

**Signs of toxicity**
- **EARLY:** tingling lips, ringing in ears, light-headedness, confusion, nausea & vomiting, tachycardia, hypertension
- **LATER:** agitation then reduced consciousness, convulsions, CVS collapse – arrhythmias, bradycardia, hypotension, arrest – VF resistant to defib may occur; asystole

**MANAGEMENT**
- STOP injecting the anaesthetic
- Call for help
- ABC assessment
  - BLS & CPR as required
- Treat what see
  - Seizures – normal protocol
  - Arrythmias
- Establish IV access (large vein)
- Continue to monitor CVS
- **INTRALIPID PROTOCOL**

**INTRALIPID TREATMENT PROTOCOL**

**Intralipid 20%**
- 1.5ml/kg bolus over one minute
- Additional 1.5ml/kg bolus given after 3-5 minutes if no circulation no restored
- Follow immediately with infusion at rate of 0.25ml/kg/min
- Continue infusion until haemodynamically stable
- **Maximum total dose 8ml/kg**
References & Resources:

Anaesthesia UK: *Paediatric Regional Block Guidelines*


Lipid Rescue www.lipidrescue.org Last accessed 10 January 2013

Toxbase: *Lignocaine and other anaesthetics*
http://www.toxbase.org/Chemicals/Management-Pages/Lignocaine-and-other-anaesthetics---injection/ Last accessed 10 January 2013