ASRA Guidelines in local anaesthetics systemic toxicity management (LAST)

1. If signs and symptoms of LAST occur, prompt and effective airway management is crucial to prevent hypoxia and acidosis, which are known to potentiate LAST

2. If seizures occur, they should be rapidly halted with benzodiazepines, If benzodiazepines are not readily available, small doses of propofol or thiopental are acceptable. Future data may support the early use of lipid emulsion for treating seizures.

3. Although propofol can stop seizures, large doses further depress cardiac function; propofol should be avoided when there are signs of CV compromise. If seizures persist despite benzodiazepines, small doses of succinylcholine or similar neuromuscular blocker should be considered to minimize acidosis and hypoxemia.

4. If cardiac arrest occurs, we recommend standard Advanced Cardiac Life Support with the following modifications :
    - If epinephrine is used, small initial doses (10-100µg boluses in the adult) are preferred.
    - Vasopressin is not recommended
    - Avoid calcium channel blockers and β-adrenergic receptor blockers
    - If ventricular arrhythmias develop, amiodarone Is preferred; treatment with local anaesthetics (lidocainee) is not recommended

5. Lipid emulsion therapy
    - Consider administering at the first signs of LAST, after airway management
    - Dosing :
        i. 1.5ml/kg 20% lipid emulsion bolus
        ii. 0.25ml/kg per minute of infusion , continued for at least 10 mins after circulatory stability attained
        iii. If circulatory stability is not attained, consider rebolus and increasing infusion to 0.5 ml/kg per minute
        iv. Approximately 10ml/kg lipid emulsion for 30 mins is recommended as the upper limit for initial dosing

6. Propofol is not a substitute for lipid emulsion

7. Failure to respond to lipid emulsion and vasopressor therapy should prompt institution of cardiopulmonary bypass (CPB). Because there can be considerable lag in beginning CPB, it is reasonable to notify the closest facility capable of providing it when CV compromise is first indentified during an episode of LAST.

AAGBI Safety Guideline

Management of Severe Local Anaesthetic Toxicity

1 Recognition

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 (LA) toxicity may occur some time after an initial injection

2 Immediate management

- Stop injecting the LA
- Call for help
- Maintain the airway and, if necessary, secure it with a tracheal tube
- Give 100% oxygen and ensure adequate lung ventilation (hyperventilation may help by increasing plasma pH in the presence of metabolic acidosis)
- Confirm or establish intravenous access
- Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses
- Assess cardiovascular status throughout
- Consider drawing blood for analysis, but do not delay definitive treatment to do this

3 Treatment

IN CIRCULATORY ARREST

- Start cardiopulmonary resuscitation (CPR) using standard protocols
- Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment
- Consider the use of cardiopulmonary bypass if available

GIVE INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Continue CPR throughout treatment with lipid emulsion
- Recovery from LA-induced cardiac arrest may take >1 h
- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

WITHOUT CIRCULATORY ARREST

Use conventional therapies to treat:

- hypotension,
- bradycardia,
- tachyarrhythmia

CONSIDER INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

4 Follow-up

- Arrange safe transfer to a clinical area with appropriate equipment and suitable staff until sustained recovery is achieved
- Exclude pancreatitis by regular clinical review, including daily amylase or lipase assays for two days
- Report cases as follows:
  - in the United Kingdom to the National Patient Safety Agency (via **www.npsa.nhs.uk**)
  - in the Republic of Ireland to the Irish Medicines Board (via **www.imb.ie**)

If Lipid has been given, please also report its use to the international registry at **www.lipidregistry.org**. Details may also be posted at **www.lipidrescue.org**

Your nearest bag of Lipid Emulsion is kept.....