Knowledge of Intralipid© in Emergency Departments

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Intravenous Fat Emulsions

- Parenteral calorie source
- 1962 Intralipid® approved in Europe
- Emulsion soya bean oil, egg phospholipids, glycerine

- TPN (1960s)
- Drugs eg propofol (1989)
- Cardiotoxicity (1990s)
- CNS depression (2000s)
Mechanism of Action

• Lipid sink

• Metabolic

• Direct Inotropic
Background

• Animal reports: ↑ rate of recovery from Barbiturate Coma (1962)

• Lipid infusion shifts dose-response curve to lethal bupivacaine in rats: Weinberg et al (1998)

• ↑ survival in rabbits administered chlorpromazine: Kriegelstein et al (1974)

• Cave et al, review article EMA (2011)

42 case reports: possible benefit in life-threatening cardiotoxicity

19 LA: bupivacaine, mepivacaine, ropivacaine

23 non-LA: haloperidol, TCAs, Beta blockers & Ca channel blockers
Guidelines

• AAGBI: 20% Lipid Emulsion recommended for LA toxicity since 2007

• AHA: 2010 guidelines for drug toxicity

• Toxbase: LA, β blocker, CCB, TCA toxicity
Knowledge of Intralipid

- US survey 2006: Academic Anaesthetic Centres
  - 74% would not consider Lipid therapy in event of local anaesthetic toxicity

- Audit 2008: East Surrey Hospital, Redhill, UK
  - LA toxicity and Intralipid
  - General Surgeons, Orthopaedics, Emergency Personnel
  - 1.5% knew about Intralipid
  - Following educational programme ↑63%
Objective

To determine the awareness of Emergency Department doctors about using Intralipid© as a rescue therapy for acute drug toxicity.
Methods

• Survey Nov – Dec 2011

• Internet “Survey Monkey”; Face to Face, Telephone Interviews

• Email addresses: College of Emergency Medicine with permission.

• Opt out option; Verbal Consent

• Random sample of Anaesthetists for comparison
Survey Questions

• Is Intralipid© available in your hospital?

• Where is it stored?

• Have you ever used Intralipid © to treat drug toxicity?

• In your opinion, Intralipid © could treat cardiac toxicity due to which drugs?

• What guidelines would you use to calculate the required dose of Intralipid ©?
Results

• 74 Emergency Department (ED) doctors responded

• 60% of Irish Emergency Departments

• 67% Registrars or Consultants

• Comparative sample of 127 Anaesthetists
  (90% Registrars/Consultants)
Q1: Is Intralipid© available in your hospital?

![Bar chart showing the percentage of Anaesthetists and ED Doctors who know if Intralipid© is available in their hospital.]

- Yes
  - Anaesthetists: 90%
  - ED Doctors: 60%
- No
  - Anaesthetists: 0%
  - ED Doctors: 40%
- Don't Know
  - Anaesthetists: 10%
  - ED Doctors: 20%

EAPCCT June 1st; London 2012
Q2. Where is Intralipid© stored?

- 76% of ED physicians did not know where Intralipid was stored compared to 7% of Anaesthetists

Q3. Have you ever used Intralipid© to treat drug toxicity?

- 2 ED doctors (2.7%); Lignocaine Toxicity

- 8 Anaesthetists (6.7%);
  - 5 LA toxicity (1 Cardiac Arrest)
  - 3 TCA OD (ECG changes)
  - 2 Hydroxychloroquine OD (Cardiac arrest)
Q 4. In your opinion, Intralipid© could treat cardiac toxicity due to which drugs?

- Don’t know: 45%
- Lipid soluble: 23%
- Local anaesthetics: 16%
- Paracetamol: 10%
- Verapamil: 37%
- TCAs: 45%
- Other: 23%
Q5. What guidelines would you use to calculate the required dose of Intralipid?
CONCLUSIONS

• Lack of knowledge about Intralipid as a treatment option for drug cardiotoxicity.

• Limited experience: Efficacy may be reliant on case reports.

• Toxbase recommendations: Lack of awareness among ED physician

• Further Education required
REFERENCES


Thank You!
Lipid Solubility

<table>
<thead>
<tr>
<th>Drug</th>
<th>Octanol/water partition coefficient (Log P)</th>
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<tbody>
<tr>
<td>Bupivacaine</td>
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<tr>
<td>Ropivacaine</td>
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<td>Amitriptyline</td>
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<tr>
<td>Bupropion</td>
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<tr>
<td>clomipramine</td>
<td>4.71</td>
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</tbody>
</table>
Dose and duration

- Most used 20% IFE
- Boluses: 1-3ml/kg;
  Infusion: 0.2-0.5ml/kg/min
- Duration: 15min - 6 hrs.
- Greatest survival at 18.6ml/kg and duration infusion <30mins.¹,²

References