



To: ALL HEALTH CARE PROFESSIONALS
From: Ron Kirschner, MD, Medical Director
Subject: Lipid Resuscitation/Lipid Rescue Revisited
Date: 7/1/15

- 20% lipid emulsion (Intralipid®) has been administered for decades as a source of parenteral nutrition.
- IV lipid emulsion (ILE) was first used to treat local anesthetic systemic toxicity by anesthesiologists after bupivacaine was inadvertently injected into a vessel during regional nerve block.
- Since 2008, ILE has also been given for non-anesthetic poisonings, sometimes followed by dramatic improvement. This treatment is often referred to as 'lipid resuscitation' or 'lipid rescue.'
- The primary mechanism is thought to be redistribution of lipid-soluble drug into fat droplets and away from target tissues; ILE may work by other mechanisms as well.
- There are potential complications: Fat overload can be associated with pulmonary injury, pancreatitis, and clogged dialysis filters. Lipemic serum may also make many crucial lab tests uninterpretable.
- Therefore, ILE is generally reserved for patients who are hemodynamically unstable due to toxicity from a lipophilic drug, and not responding to standard therapy.
- As a recent *Annals of Emergency Medicine* commentary points out, ILE regimens developed for local anesthetic systemic toxicity (LAST) may require modification when used to treat oral overdoses.
- For LAST, ILE is typically given as a 1.5 mL/kg bolus over 2-3 minutes followed by an infusion of 0.25 mL/kg for about an hour.
- For oral overdoses we recommend giving the 1.5 mL/kg bolus followed by an infusion of 0.25 mL/kg/min for 3 minutes, which should then be reduced to 0.025 mL/kg/min for up to 6.5 hours. A target triglyceride concentration of 1% (1000 mg/dL) has been suggested.
- The rate could be increased (or additional boluses given) in the event of hemodynamic collapse.
- We also recommend keeping ILE in the ED and ICU so that it can be accessed rapidly if a patient has hemodynamic instability thought to be from overdose of a lipid-soluble drug. Please call the poison center to discuss specific cases and ILE dosing.

References

- Fettiplace MR. Confusion about infusion: Rational volume limits for IV lipid emulsion during treatment of oral overdoses. *Ann Emerg Med* 2015, in press.
- Johnson-Arbor K. Prolonged laboratory interference after administration of IV lipid emulsion therapy. *J Med Toxicol* 2015; 11: 223.

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