Lipid resuscitation therapy (LRT)
Intralipid® / LipidRescue™ Therapy

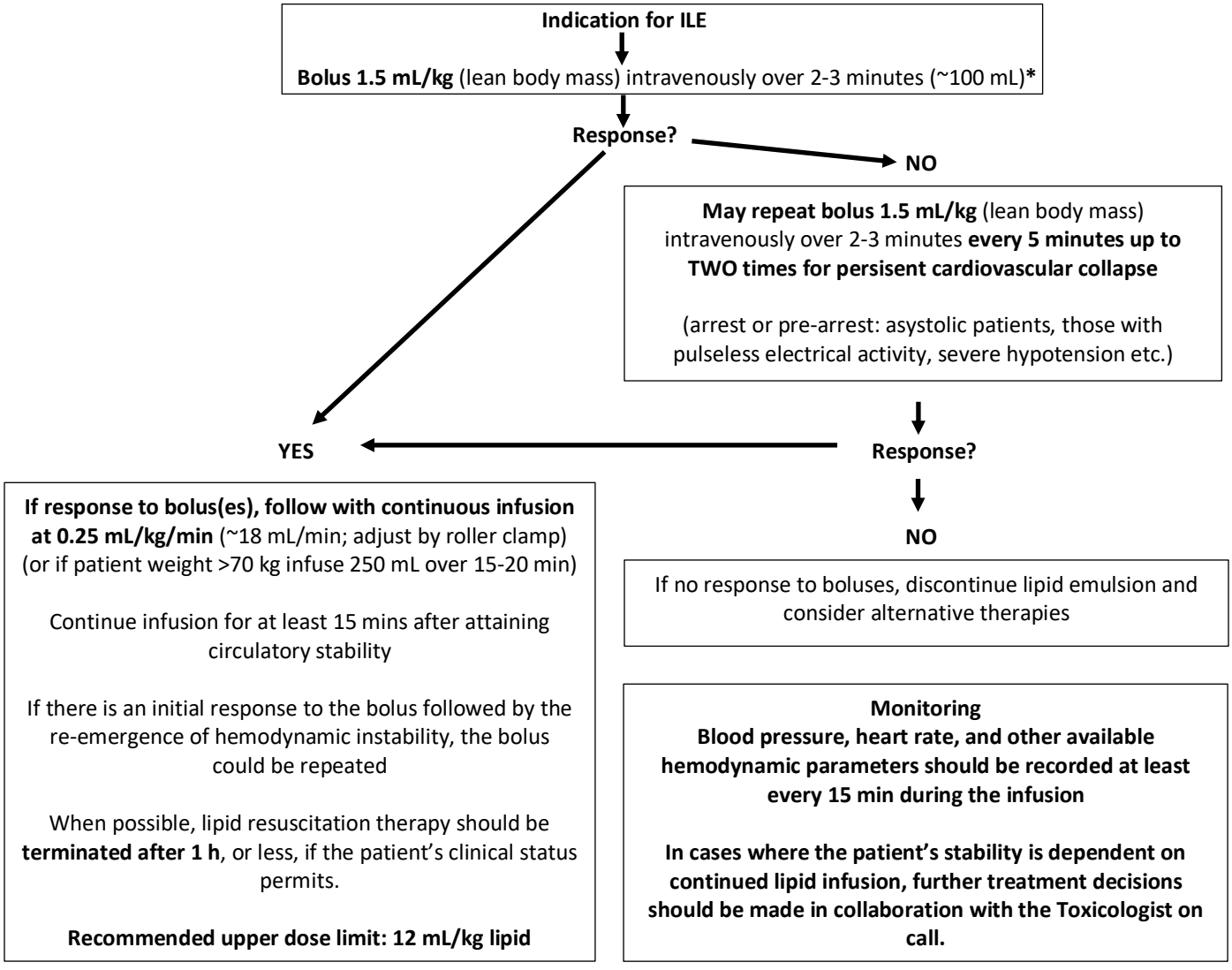
Indication

- Administration of a lipid emulsion with the intent of reducing the clinical manifestations of toxicity from excessive doses of lipid-soluble cardiotoxic medications
- May be considered for patients with hemodynamic, or other instability (e.g., intractable seizures), not responsive to standard resuscitation measures (e.g. fluid replacement, inotropes, and pressors, etc.)

Initial Focus

- Airway management: ventilate with 100% oxygen
- Seizure suppression: benzodiazepines are preferred
- Basic and Advanced Cardiac Life Support (BLS/ACLS): may require prolonged effort

20% Lipid Emulsion Infusion (values in parenthesis are for a 70 kg patient)



***May be infused via peripheral or central line; in-line filter NOT required; any method of infusion acceptable (manual, IV roller clamp, pump)**

Avoid:

- vasopressin, calcium channel blockers, β-blockers, or local anesthetics
- propofol in patients with cardiovascular instability

Contraindications: Hypersensitivity to fat emulsion and severe egg or legume (soybean) allergies
Reported possible complications: Laboratory interference, fat overload syndrome, pancreatitis, ARDS

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Supplemental Information

*Administration notes can be found on the Canadian Antidote Guide website or app:

- https://www.ciusss-capitalenationale.gouv.qc.ca/en/antidotes/lipid-emulsion
- Note that dosing recommendations may be slightly different from different sources

Why avoid vasopressin, calcium channel blockers, β-blockers, or local anesthetics?

- toxin-induced cardiovascular collapse is different from other causes of cardiac arrest, therefore raising peripheral vascular resistance with vasopressors (e.g. vasopressin) can impair cardiac output and impede resuscitation
- CCB and BB reduce cardiovascular contractility and should be avoided when there is cardiovascular instability
- the recommendation to avoid local anesthetics is in the context of treatment for local anesthetic toxicity

What about propofol?

- should not be used when there are signs of cardiovascular instability since it has cardiovascular depressant effects and decreases systemic vascular resistance
- the lipid content of propofol is too low (10% lipid emulsion) to provide benefit as a form of lipid rescue

How long does lab interference last?

- since the half-life of triglycerides is short (approximately 15 minutes), laboratory interference should dissipate after a few hours
- reports of laboratory interference from lipemia range from 1-25 hours post lipid emulsion dose
- notifying the lab that the patient received lipid emulsion will help the lab process and report the samples as accurately as possible

Prolonging the duration of lipid infusion

- this decision should only be made **in consultation with the Poison Centre Toxicologist on call**
- in cases where the patient's stability is dependent on continued lipid infusion, longer periods of treatment may be appropriate
- if additional lipid infusion is required to maintain patient stability, a reduction in rate to 0.025 mL/kg/min (i.e., 1/10 the initial rate) may be sufficient, and reduce the potential for adverse effects from prolonged high lipid infusion rates

References:

Canadian Antidote Guide: https://www.ciusss-capitalenationale.gouv.qc.ca/en/antidotes/lipid-emulsion

LipidRescue resuscitation for drug toxicity. http://www.lipidrescue.org/, 2012.

Neal JM, Neal EJ, Weinberg GL, American Society of Regional Anesthesia and Pain Medicine Local Anesthetic Systemic Toxicity checklist: 2020 version *Regional Anesthesia & Pain Medicine* 2021;**46:**81-82.

https://www.asra.com/docs/default-source/guidelines-articles/local-anesthetic-systemic-toxicity-rgb.pdf?sfvrsn=33b348e_2

American College of Medical Toxicology Position Statement: Guidance for the Use of Intravenous Lipid Emulsion, J Med Toxicol. 13(1): 124–125, 2017.

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