Intralipid in lipophilic drug over dose: Dissecting fact from fiction

Sir,

We would like to share our views with regards to the case reported by Kute *et al*.,[1] and the comments made by Sanaei-Zadeh.[2] Intralipid emulsion (ILE) is an emerging and fascinating antidote against lipophilic drugs. Also, it is endorsed as an antidote in cardiac arrest secondary to local anesthetic agent and even in cases of intoxication with other lipophilic drugs when conventional resuscitative therapies have failed. Despite overwhelming growth of evidences for the use of ILE, many questions remain unanswered including the optimal dosage, formulation of lipid emulsion, patient safety aspects, and hazards of this agent. End-users shall remember that it is contraindicated in patients with known egg allergy, disorders of fat metabolism, liver disease, and acute myocardial infarction.

In patients receiving total parenteral nutrition for an extended period of time, high triglycerides resulting from ILE infusion may alter immunity, lung function, and hemodynamics. With bolus dosing and at high doses as short-term rescue, ILE can theoretically result in hyperlipidemia, pulmonary injury, hepatosplenomegaly, thrombocytopenia, hyperlipidemia-induced pancreatitis, and fat embolism. Also, ILE lowers blood oxygen content, increases shunting, and causes pulmonary vasoconstriction. We, as yet do not know the acceptable upper limit of lipid infusion. Suggestions made from previous anecdotal experience may not be sufficient for all cases.[3] Standard long-chain triglyceride and mixtures of long and medium-chain triglyceride emulsions have both been used to reverse local anesthetic toxicity. Nevertheless, Ruan *et al*.,[4] had questioned the optimal formulation of lipid emulsion.We experienced reoccurrence of cardiotoxicity 50 min after administration of intralipid in a case of verapamil overdose which aroused the suspicion of rebound toxicity. Because of lipemia, it may be difficult to carry out laboratory studies or it may produce spurious results.[5] Clogging of lipid molecules in the dialysis filters was noticed after administration of ILE, despite using heparin to prime the system and/or epoprostenol infusion.[6] With the current gaps in our understanding, there is a need for more studies to explore the mechanisms and limitations of lipid in resuscitation, and to determine best practices and clinical guidelines before incorporating ILE in regular practice.[7] However, these guidelines require frequent debate, and revision based on upcoming experimental literature and clinical experience. Hence, it is suggested to undertake clinical trials with this agent.

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