

Does the type of parenteral lipids matter? A clinical hint in critical illness.

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Abstract

Background & Aims: An altered lipid profile is common among intensive care unit (ICU) patients, but evidence regarding the impact of different fatty acid (FA) emulsions administered to patients requiring parenteral nutrition (PN) is scarce. This study aimed to compare the plasma triglycerides (TG) response to two types of commercial lipid emulsions: a structured mixture of long- and medium-chain triglycerides (LCT/MCT) or LCTs with n-9 FA (LCT+) in ICU patients.

Methods: In this retrospective observational study conducted in a multidisciplinary ICU: two groups were defined by the type of emulsion used. Inclusion criteria were: consecutive patients on PN staying ≥ 4 days with one TG determination before commencing PN and at least one during PN. Recorded variables included energy intake, amount and type of nutritional lipids, propofol dose, glucose and protein intake, laboratory parameters, and all drugs received. Hypertriglyceridemia (hyperTG) was defined as TG > 2 mmol/L.

Results: The dynamic impact of the emulsion was analyzed in 187/757 patients completing the inclusion criteria (112 LCT/MCT and 75 LCT+). The demographic variables, severity indices, diagnostic categories, and outcomes did not differ between the two groups. Seventy-seven patients (41%) presented hyperTG. Both groups received similar daily energy (1604 versus 1511 kcal/day), lipids (60 versus 61 g/day), and glucose intake (233 versus 197 g/day). There was no increase of TG concentration in those receiving the LCT/MCT emulsion compared to those receiving the LCT+ emulsion (0 and 0.2 mmol/L, respectively, $p < 0.05$).

Conclusion: LCT/MCT emulsions are associated with a less pronounced increase of plasma TG levels than LCT+ emulsions.