

Abstract Title:

The effect of SMOFlipid vs Intralipid on liver enzyme, total bilirubin, and triglyceride levels in adults receiving parenteral nutrition for seven days

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Objective: Patients on total parenteral nutrition (TPN) are at risk of developing parenteral nutrition associated liver disease (PNALD). This study investigated the association between two different intravenous lipid emulsions (ILE) on selected markers of liver function.

Methods: Retrospective chart review of hospitalized adults who received either Intralipid (n=47) or SMOFlipid (n=47) as the ILE in their TPN solution during the two years prior to September 8th, 2014 for the Intralipid group and the two years after for the SMOFlipid group. Liver function was assessed by comparing baseline and endpoint serum lab values for alanine transaminase (ALT), alkaline phosphatase (ALP), total bilirubin (TB), and triglyceride (TG) within and between each group. Data was analyzed using paired and independent two-sided t-tests.

Results: No significant changes in ALT, ALP, TB, and TG within and between each group.

Conclusion: A smaller magnitude of elevation of TG levels can be seen with patients on SMOFlipid compared to those on Intralipid. Further study utilizing a larger sample size, a longer time period, and expansion to multiple hospitals is required to better investigate the clinical outcome of the population of patients on Intralipid and on SMOFlipid.

Significance to the field of Dietetics: In September 2014, Hamilton Health Sciences (HHS) changed their standard lipid in TPN from Intralipid to SMOFlipid. This decision was based on literature (Klek et al., 2012 and Praedelli et al., 2012) that demonstrated an association between SMOFlipid and reduced incidence of PNALD, represented by a smaller magnitude of elevation in biochemical markers used to diagnose PNALD. Anecdotally, patients who receive TPN at HHS have a smaller magnitude of increase in ALT, ALP, TB, and TG with SMOFlipid than with Intralipid. Clinical evidence for this is paramount for Dietetics as it would inform clinicians of the appropriate solution to use to reduce PN-associated health risks.