IMPACT OF LIPID FORMULATION ON LIVER COMPLICATIONS ASSOCIATED WITH PARENTERAL NUTRITION, INFLUENCING FACTORS

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Background

Parenteral nutrition is essential for patients unable to meet nutritional needs enterally, but its lipid composition may influence metabolic and hepatic complications. Modern lipid formulations aim to improve tolerance and enhance the safety of this therapy.

Purpose

The primary goal is to determine whether changing the lipid composition of parenteral nutrition reduces hepatobiliary disorders caused by nutrition.
A secondary goal is to study whether variables such as body mass index, duration of therapy, or caloric and lipid intake can influence liver damage caused by nutrition.

Materials & Methods

Retrospective observational study in a tertiary hospital of adult patients receiving nutritional support between 2021-22 and during 2024.

Lipid composition1 (LC1) (2021-2022)

- Refined olive and soybean oils

Lipid composition 2 (LC2) (2024)

- Medium-chain triglycerides and omega-3-rich fish oils
- Refined olive and soybean oils

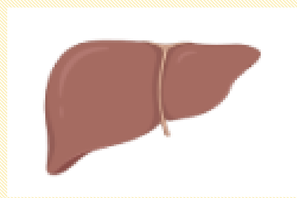
Demographic characteristics

- Sex
- Weight
- Height
- Body mass index

Nutritional data

- Energy requirements
- Stress factors
- Duration of nutritional support
- Caloric and lipid intake

Development of hepatobiliary disorders



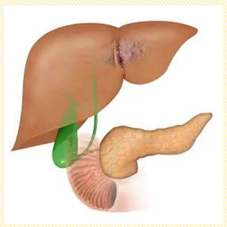
Was used for statistical analysis. Multiple logistic regression was performed with factors likely to cause liver complications.

Results

Table 1. Characteristics demographic and Nutritional data

Weight (kg)	66.4 (range 57-78.5)
Height (cm)	167 (range 160-173.5)
Body mass index (kg/m^2)	23.7 (range 21.2-27.2)
Basal energy requirement (kcals)	1.334 (range 1.020-1.873)
Total energy requirement (kcals)	1.738 kcal (range 1.326-2.395)
Mean caloric intake (kcal per kilogram)	24.29 ± 6.22
Mean lipid intake (gr per kilogram)	0.91 ± 0.22

HEPATOBILIARY DISORDERS



31.20% of patients with LC1

31.70% of patients with LC2

The new lipid formulation was not associated with significant changes in the risk of hepatic complications (OR = 0.99; 95% CI: 0.46-2.14).

The duration of therapy could not be demonstrated (OR = 1.03; 95% CI: 0.98-1.08) as a risk factor for developing hepatic complications.

Total caloric intake (OR = 1.09; 95% CI: 1.02-1.16) and lipid intake (OR = 10.78; 95% CI: 1.92-60.59) were shown to be risk factors for the development of hepatic complications.

Conclusions

In our population, no change in hepatobiliary complications has been observed with changes in lipid composition. It is possible that the sample size was insufficient.
Other variables such as caloric intake or overall lipid intake appear to play a role in the development of hepatobiliary complications, as has been reported in other studies.