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Fish oil containing lipid emulsions prevention on parenteral nutrition associated cholestasis in very low birth weight infants: a meta analysis

Jin Rong Li
Sichuan University, China

Background: The effect of fish oil-containing lipid emulsions on preventing parenteral nutrition-associated cholestasis (PNAC) in very low birth weight (VLBW) infants is not known. Thus, we conducted a meta-analysis to identify any prevention effect.

Methods: PubMed, EMBASE, and CENTRAL were searched up to 26 January 2021 for studies related to the preventive effect of fish oil-containing lipid emulsions and fish oil-free lipid emulsions on cholestasis in VLBW infants. Revman 5.3 was used to synthesize the results. A fixed-effect model was used to summarize the data when the heterogeneity was non-significant (I2 < 50%), and a random-effects model was used when the heterogeneity was significant (I2 > 50%).

Results: Of the 728 articles, 11 randomized controlled trials met the inclusion criteria. The meta-analysis indicated that fish oil-containing lipid emulsion reduced the occurrence of PNAC significantly with risk ratio (RR) = 0.53, 95% confidence interval (CI) 0.36–0.80, P = 0.002. The heterogeneity was non-significant with I2 = 23%. Subgroup analysis based on parenteral nutrition duration and median birth weight was performed. The synthesis results for patients with parenteral nutrition duration exceeding 14 days revealed I2 = 35% (P = 0.15) and pooled RR = 0.47, 95% CI 0.30–0.73, P = 0.0008; and for patients with duration less than 14 days revealed I2 = 0% (P = 0.72) and pooled RR = 1.14, 95% CI 0.39–3.35, P = 0.81.The synthesis for patients with birth weight more than 1000 g revealed I2 = 0% (P = 0.41) and pooled RR = 0.55, 95% CI 0.26–1.18, P = 0.12; and for patients with birth weight below 1000 g revealed I2 = 44% (P = 0.11) and pooled RR = 0.53,95% CI 0.33–0.85, P = 0.009.

Conclusion: The fish oil-containing lipid emulsion can reduce the occurrence of PNAC in VLBW infants based on the available original randomized controlled trial studies, especially for patients with parenteral nutrition duration exceeding 14 days and extremely low birth weight infants. Future studies should be performed before a definitive conclusion can be established.

References

1. Hu, R., Qiu, Y., Li, Y., & Li, J. (2022). A novel frameshift mutation of DVL1- induced Robinow syndrome: A case report and literature review. Molecular Genetics & Genomic Medicine, 10, e1886. https://doi.org/10.1002/mgg3.1886

2. Sha Lin, Xintian Hua, Jinrong Li and Yifei Li Novel Compound Heterozygous PKLR Mutation Induced Pyruvate Kinase Deficiency With Persistent Pulmonary Hypertension in a Neonate: A Case Report. Front. Cardiovasc. Med., 26 April 2022 Sec. Pediatric Cardiology https://doi.org/10.3389/fcvm.2022.872172

3. Huang L, Xiong F, Li J, Yang F. An analysis of hearing screening test results in 2291 premature infants of Chinese population. Int J Pediatr Otorhinolaryngol. 2017 Apr;95:15-19. doi: 10.1016/j.ijporl.2017.01.027. Epub 2017 Jan 27. PMID: 28576525.

E: lijinrong224@163.com