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Parenteral Fish Oil Lipid Emulsions in Retinopathy of Prematurity

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Retinopathy of prematurity (ROP) is one of the leading causes of visual morbidity worldwide.1 Low GA and low-birth weight (BW) are the two main established risk factors in ROP.2 Other possible risk factors such as retinal differentiation and maturation, and structural stability are disrupted in preterm birth. Docosahexaenoic acid (DHA) is an omega-3 fatty acid which is synthesized from α-linolenic acid (ALA). Fish-oil lipid emulsions contain omega-3 fatty acids such as DHA.3 This fatty acid is required for brain growth and neurodevelopment.4It was shown that 20% of the total fatty acid contents of the infant retina is composed of DHA.5 Preterm infants already lack third-trimester lipid store as DHA accumulation mainly occurs between 26 and 40 weeks.

In a retrospective, observational study, we aimed to evaluate the effect of replacement of soybean oil emulsion(INTRAlipid) with fish oil emulsion (SMOFlipid) on ROP severity and the need for treatment.

Three hundred and forty-one infants were enrolled in this study. One hundred and eighty-seven infants received INTRAlipid regimen , and 154 infants received SMOFlipid. Regarding different stages, although there was no significant difference between ROP stages among the two groups (P = 0.41), in subgroup analyses, Stage 3 occurred significantly lower in the SMOFlipid group compared to the INTRAlipid group (14% vs. 9%; P = 0.04). Need for the treatment with either laser or anti-VEGF was lower in the SMOFlipid group than in the INTRAlipid group, although it was not significant (15.4% vs. 20.9%; P = 0.51).

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