“Parenteral nutrition–associated cholestasis (PNAC) is linked with the administration of soybean-based intravenous fat emulsion (IVFE). IVFE reduction (IFER) may be an effective management strategy for PNAC; however, long-term associated neurodevelopmental outcomes (NDOs) for infants undergoing IFER have not been measured previously.” Blackmer et al (2014).

Reference:


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Abstract:

Introduction: Parenteral nutrition–associated cholestasis (PNAC) is linked with the administration of soybean-based intravenous fat emulsion (IVFE). IVFE reduction (IFER) may be an effective management strategy for PNAC; however, long-term associated neurodevelopmental outcomes (NDOs) for infants undergoing IFER have not been measured previously. This single-institution, prospective study examined the risk for negative NDOs and key predictors of NDOs associated with IFER.

Methods: Patients (2–5 years) treated with soybean-based IFER as neonates underwent NDO measurements, including Ages and Stages Questionnaires–3 (ASQ-3), Parents’ Evaluations of Developmental Status (PEDS), and Behavior Assessment System for Children, Second Edition Preschool, Parent (BASC-2 PRS-P). The relationship between NDOs and predictive variables was evaluated.

Results: A total of 25 children had a complete PEDS survey, and 17 were found to be “not at risk.” The BASC-2 PRS-P evaluation (n = 18 patients) showed that all 4 composite domains
fell within the normative developmental range, and 67%-89% of patients were observed to be “typically developing.” For the primary outcome measure, ASQ-3, 82.4%-94.4% of patients were “not at risk.” Logistical regression analyses were performed to examine risk factors contributing to negative NDOs. Of children completing all NDO studies, IFER-related variables (eg, development of essential fatty acid deficiency, duration of IFER, and mean IVFE dose) were not found to be predictors of adverse NDOs.

Conclusions: This study represents the first report of NDOs in pediatric patients treated with IFER. IFER-treated patients score within the normative range most of the time. IFER-related variables were not found to be associated with negative NDOs. The results set the stage for a larger, multicenter, prospective study.

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