Mixed Lipid Emulsion Does Not Reduce Cholestasis in Infants

Parenteral mixed lipid emulsion does not reduce parenteral nutrition associated cholestasis in extremely low birthweight infants.

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May 8, 2018 – Extremely low birthweight infants administered a parenteral mixed lipid emulsion do not show a reduction in parenteral nutrition associated cholestasis according to the results of a recent randomized clinical trial.

Andreas Repa, MD, and colleagues from the Medical University of Vienna reported their findings in the March 2018 edition of *Journal of Pediatrics*.

Preterm extremely low birthweight (ELBW) infants typically require parenteral nutrition for at least 1 week of life. Parenteral nutrition associated cholestasis (PNAC) occurs frequently in preterm neonates and can result in liver failure.

Proinflammatory lipid emulsions containing soybean oil can trigger the development of PNAC. Newer parenteral lipid emulsions containing fish oil improve liver function in infants with PNAC, but parenteral fish oil is not approved for use by the Food and Drug Administration (FDA). Limited information exists on the development of PNAC after use of FDA-approved mixed lipid emulsions containing soybean oil, medium chain triglycerides, olive oil, and fish oil.

This current single-center controlled trial randomly assigned less than 5-day old ELBW infants to receive study therapy with a parenteral mixed lipid emulsion or standard therapy with parenteral soybean oil as a control. Parenteral lipids were provided until full enteral feeding was achieved.

From June 2012 to October 2015, 223 ELBW infants were randomly assigned. Baseline characteristics and the amount of lipid received during the study were the same between treatment groups.

The primary outcome was the incidence of PNAC. Secondary outcomes included morbidity and mortality through hospital discharge.

The incidence of PNAC was 10.1% in the mixed lipid emulsion group and 15.9% in the control group ($P = .2$).

Mortality and morbidities including elevated liver enzymes, retinopathy of prematurity, necrotizing enterocolitis, sepsis, and pulmonary hypertension were the same between the two treatment groups ($P > .05$).

The authors concluded, “the power to prove our hypothesis was lowered by an observed PNAC incidence of only 15.9% in the current trial, attributable to an accelerated weaning from parenteral nutrition. Our results cannot be generalized to infants with a substantially longer time on parenteral nutrition such as those with intestinal failure.”

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