

Multicomponent intravenous lipid emulsion found to improve brain development in preterm infants

May 3 2024



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Preterm infants supported with a multicomponent intravenous lipid emulsion saw improved brain development compared to those given a

single-fat source, a new study finds. The research will be presented at the [Pediatric Academic Societies \(PAS\) 2024 Meeting](#), held May 2–6 in Toronto.

Soybean-only lipid emulsions traditionally have been used in [neonatal intensive care units](#) to provide intravenous nutritional support to [preterm infants](#), according to researchers. This study investigated the effects of newer multicomponent lipid emulsions, with fat sources derived from soybeans, olives, coconuts, and fish oil, on preterm brain development compared to soybean-only.

Researchers evaluated the impact of a variety of intravenous lipid emulsions on preterm brain development using [magnetic resonance imaging](#), [magnetic resonance spectroscopy](#), and early neurobehavioral assessments from 89 U.S. preterm infants born at or before 32 gestational weeks.

Researchers found that preterm infants receiving the multicomponent lipid emulsion demonstrated improved regional brain growth and biochemical markers of neuronal integrity, as well as superior neurobehavioral regulation, by term-corrected age. These findings could be due to the potential anti-inflammatory and antioxidant properties of the newer multicomponent lipids, the authors postulate.

"Preterm births account for more than 10% of all births in the United States, and the majority of very preterm infants experience neurological issues later in life," said Katherine Ottolini, MD, attending neonatologist in the Developing Brain Institute at Children's National Hospital and presenting author.

"Early lipid intake is critical for preterm [brain development](#), and our findings suggest that reformulated intravenous lipid products have the potential to enhance neurodevelopment in this particularly vulnerable

population."

Study authors recommend ongoing research on reformulated intravenous lipid emulsions be conducted to assess long-term neurodevelopmental effects.

More information: Abstract: Type of Intravenous Lipid Emulsion Affects Very Preterm Brain Development

Provided by American Pediatric Society

Citation: Multicomponent intravenous lipid emulsion found to improve brain development in preterm infants (2024, May 3) retrieved 25 July 2024 from <https://medicalxpress.com/news/2024-05-multicomponent-intravenous-lipid-emulsion-brain.html>

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