New approach may prevent deadly intestinal disease in preemies

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The auditory environment of the intensive care unit can cause physiological stress in preterm infants. Researchers believe it can also affect children's subsequent development. Credit: Pixabay/CC0 Public Domain

Scientists from Stanley Manne Children's Research Institute at Ann &

Robert H. Lurie Children's Hospital of Chicago and colleagues found that an investigational protein replacement—recombinant human insulin-like growth factor 1 and its binding protein-3 (rhIGF-1/BP3)—protected neonatal mice from necrotizing enterocolitis (NEC), a deadly intestinal disease that often strikes extremely premature infants. Results were published in the journal *Pediatric Research*.

"Our preclinical evidence is encouraging and paves the way to a clinical trial of rhIGF-1/BP3 for prevention of NEC," said senior author Isabelle De Plaen, MD, a scientist at Manne Research Institute, neonatologist at Lurie Children's, and Professor of Pediatrics at Northwestern University Feinberg School of Medicine.

"The rhIGF-1/BP3 is already in Phase II clinical trials for preventing bronchopulmonary dysplasia (BPD) and retinopathy of prematurity (ROP), both of which are severe complications affecting the lungs and eyes in extremely premature babies. Our results could help add NEC to these clinical trials."

Previous studies have shown that low levels of the naturally occurring insulin-like growth factor 1 (IGF-1) are associated with increased risk of BPD, ROP and NEC in preemies.

In Dr. De Plaen's study, supplementing with rhIGF-1/BP3 protected intestinal microvasculature development and decreased inflammation, which might be how NEC was prevented. Her group's previous research has shown that defective intestinal microvascular development significantly contributes to NEC.

"Currently we don't have curative therapy for NEC, so prevention is a highly promising approach," said Dr. De Plaen. "Our goal is to spare premature infants from this devastating disease and other complications of prematurity."

More information: *Pediatric Research* (2024)

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