

Cutting-edge discovery points to potential treatment for NEC in preemies

April 18 2019

Cutting-edge discovery in the lab of Catherine Hunter, MD, from Stanley Manne Children's Research Institute at Ann & Robert H. Lurie Children's Hospital of Chicago offers a new direction toward treatment of necrotizing enterocolitis (NEC) - a devastating intestinal emergency that occurs in up to 10 percent of premature infants. NEC is a leading cause of overall infant mortality in the United States, according to the Centers for Disease Control and Prevention (CDC).

Dr. Hunter and colleagues found that a protein that causes pores in the intestine (called claudin 2) is increased in NEC, which makes the [intestinal wall](#) more permeable and allows bacteria to enter, which can result in sepsis or possibly death. They also found that they can prevent this process in an [animal model](#) by inhibiting a special molecule (called ROCK) that upregulates claudin 2. They used an inhibitor that is currently in adult clinical trials for prevention of cardiac injury, but has never been studied in intestinal disease. Results were published in *Scientific Reports*.

"Now that we have identified a cellular mechanism that causes this life-threatening disease in premature newborns, we are pursuing a new potential treatment strategy to stop NEC in its tracks," says Dr. Hunter, a Manne Research Institute scientist and pediatric surgeon at Lurie Children's, who also is an Associate Professor of Surgery at Northwestern University Feinberg School of Medicine. "Our exciting discovery brings us closer to solving the complex jigsaw puzzle that is NEC."

One of the theories on why NEC develops holds that in preemies the intestinal barrier is not strong enough to defend against bacteria that lives in the gut. Findings from Dr. Hunter's lab explain what makes the intestinal wall porous and vulnerable to bacteria, which causes inflammation and intestinal tissue damage characteristic of NEC. These insights will help develop treatments to strengthen the intestinal barrier in [premature babies](#).

The study used animal models, [cell lines](#) and human intestinal samples, which allowed Dr. Hunter and colleagues to confirm that their findings are relevant to patients.

"In our lab, we always try to incorporate human tissue in studies, in order to see if our discoveries in animal models apply to people," says Dr. Hunter. "We are very grateful to families who participate in these studies with us. This is one of the important ways we can move forward in understanding NEC and developing treatment."

Dr. Hunter will present this research at the NEC Symposium on June 2 in Ann Arbor, Michigan.

More information: Guillermo Ares et al, Caveolin 1 is Associated with Upregulated Claudin 2 in Necrotizing Enterocolitis, *Scientific Reports* (2019). [DOI: 10.1038/s41598-019-41442-4](https://doi.org/10.1038/s41598-019-41442-4)

Provided by Ann & Robert H. Lurie Children's Hospital of Chicago

Citation: Cutting-edge discovery points to potential treatment for NEC in preemies (2019, April 18) retrieved 19 April 2024 from <https://medicalxpress.com/news/2019-04-cutting-edge-discovery-potential-treatment-nec.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.