

New predictor of health complications can identify high-risk preemies

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Michael Sherman, M.D., is professor emeritus in the Department of Child Health at the MU School of Medicine. Credit: MU Health

Premature infants have heightened risks of deadly diseases because their organs and immune systems are not fully developed. Necrotizing enterocolitis (NEC), a major gastrointestinal disease that causes the intestines to die, is a leading cause of death among these infants and is the most the common disease for babies born before 32 weeks. Now, University of Missouri researchers have found that the early and persistent presence of white blood cells during NEC, known as blood eosinophilia, is a predictor of life-threatening complications for preemies. Researchers say neonatologists in intensive care units should look for eosinophilia after the onset of NEC to reduce complications and shorten hospitalizations.

"Necrotizing enterocolitis is like Crohn's disease for babies, but even worse since it is lethal and can be incredibly expensive to treat," said Michael Sherman, M.D., professor emeritus in the Department of Child Health at the MU School of Medicine and co-author of the study. "Now, we have found a way to identify the onset of NEC [complications](#) sooner, which can potentially reduce the level of the complications and costs."

Sherman, along with Lila Wahidi, a fourth-year medical student at the MU School of Medicine and lead author of the study, compared the medical records of premature babies who had NEC with normal or elevated eosinophilia to health records of premature babies who had not developed NEC. They found that having elevated counts of eosinophils in the blood for five days or more is a strong predictor of late complications such as bowel rupture, fibrosis, surgeries and bowel

inflammation among premature infants with NEC.

In addition, the researchers found that the groups of [premature infants](#) who had high levels of eosinophilia were eight times more likely to experience fibrosis or intestinal strictures that cause serious digestion problems, and were likely to be born earlier than other preemies and had lower birth weights than the other groups.

"These findings will help neonatologists identify which babies with NEC will be high risk and require more intensive monitoring," said Wahidi. "NEC is an extremely expensive disease, and complications can lead to even more costs because of prolonged hospital stays."

Sherman and Wahidi said complications from NEC can lengthen the hospital stays of infants up to one year and in more severe cases can cause [infants](#) to develop neurological handicaps, causing them to require special education throughout childhood.

Sherman said research published in the late 1990s found that babies with NEC had medical bills up to \$200,000 higher than other [premature babies](#) who did not develop NEC. He said costs could possibly be four times that today.

In future studies, Sherman and Wahidi hope to find new therapies that can alleviate the complications caused by NEC.

The study, "Early Persistent Blood Eosinophilia in Necrotizing Enterocolitis is a Predictor of Late Complications," recently was published in *Neonatology*.

Provided by University of Missouri-Columbia

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