Antibiotics and PPIs linked to increased risk of infectious diarrhea in children

March 7 2019

Prior antibiotic exposure and use of acid suppressing medications known as proton pump inhibitors (PPIs) may increase the risk for hospitalized children to contract dangerous *Clostridioides difficile* infections, according to a study published today in *Infection Control & Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America.

"In pediatric patients, hospital-acquired infections due to *C. difficile* have increased over the last 20 years. However, few studies have looked at risk factors for these infections in children," said Charles Foster, MD, a co-author and pediatric infectious diseases specialist at Cleveland Clinic Children's. "We found that antibiotic exposure and use of proton-pump inhibitors may be risk factors. Clinicians should continue to utilize antibiotics judiciously in hospitalized children to minimize the risk of *C. difficile* infection."

The incidence and healthcare burden of *C. difficile* infection in hospitalized children has increased in the past two decades, mostly attributed to the emergence of a new, hypervirulent strain of the bacteria. While the risk factors are well understood in adult patients, current understanding of pediatric *C. difficile* is complicated. Many infants and toddlers under the age of 2 are colonized with the bacteria, but do not develop clinical illness.

Researchers performed a meta-analysis and systematic review of 14 studies, including 10.5 million children, 22,320 of whom developed *C.*

difficile infection. Based on this meta-analysis, previous antibiotic exposure and PPI use appear to be the most important risk factors associated with *C. difficile* infection in children. Children with prior antibiotic exposure may have approximately twice the risk of developing *C. difficile* infection, compared to patients without a recent history of antibiotic exposure, but the association was not statistically significant after pooling studies with only adjusted data. Researchers said that PPIs are suspected risk factors for CDI because they suppress gastric acid, which may disrupt the normal gastrointestinal microbial diversity in children.

"Physicians should remain vigilant and continue judicious use of antibiotics and PPIs in hospitalized pediatric patients to minimize the risk of *C. difficile* infections," said Abhishek Deshpande, MD, Ph.D., a co-author and assistant professor of medicine at Cleveland Clinic Lerner College of Medicine. Dr. Deshpande has received research support from 3M, Clorox Company, and STERIS unrelated to this study.

The researchers note the limitation of this research, including use of unadjusted data. Additional high-quality epidemiologic studies are needed to better evaluate the risk factors for *C. difficile* in children.

More information: Scott Anjewierden et al, Risk factors for Clostridium difficile infection in pediatric inpatients: A meta-analysis and systematic review, *Infection Control & Hospital Epidemiology* (2019). DOI: 10.1017/ice.2019.23

Provided by Society for Healthcare Epidemiology of America

linked-infectious-diarrhea.html