Delayed Pediatric Appendicitis Treatment Leads To Complications, Death

An in-hospital delay of appendicitis treatment beyond two days was linked to an increased likelihood of complications, including perforation and abscess formation, longer hospitalization, increased costs, and more rarely, death, according an abstract presented at the American Academy of Pediatrics (AAP) National Conference and Exhibition in Boston last weekend.

In *Missed Opportunities in the Treatment of Pediatric Appendicitis*, researchers reviewed National Inpatient Sample (NIS) data on nearly 800,000 appendectomies, the most common inpatient surgical procedure in children. The study identified 17,737 children under age 18 who experienced delayed treatment, with a mean time interval from hospital arrival to appendectomy of 4.5 days. These children had an increased perforated appendicitis (22.6 percent compared to an 18.9 percent rate for children receiving more immediate treatment) and a 20-fold increase in mortality – 0.68 percent versus 0.03 percent. Mean hospital stays for the delayed treatment group were more than 10 days compared to 2.89 days; and total cost was $54,172 versus nearly $18,000 for children treated within two days of hospital admission.

"An in-hospital delay of two days was associated with a significant increase in complicated appendicitis requiring more extensive procedures," said Justin Lee, MD, lead author of the study. The increase in procedures included a 13-fold increase in drainage procedures, a six-fold increase in cecectomies and 14-fold increase in hemicolectomies – both surgeries to remove a portion of a child's colon. The risks are especially acute for children living with other diseases.

"Another very important finding is the higher incidences of co-morbid diseases in the delayed treatment group," said Dr. Lee. Children with acute lymphoblastic leukemia, acute myelogenous leukemia, neutropenia and ovarian cyst without torsion were more likely to receive treatment two days after hospitalization.

"These specific comorbid conditions may suggest that there is a high-risk group of patients who may present with more advanced stages of disease or missed diagnosis during hospitalization," Dr. Lee said. "Future systemic approaches to early identification of those at highest risk may decrease in-hospital delay, while also reducing economic burden of complicated appendicitis and surgical complications."

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