Study: Child care, family history linked with increased risk of acute otitis media

by Melissa Jenco, News Content Editor

Incidence of acute otitis media (AOM) has declined since the introduction of pneumococcal conjugate vaccine, researchers found.

However, the most common risk factors like family history and child care attendance have stayed the same, according to the study "Epidemiology of Acute Otitis Media in the Postpneumococcal Conjugate Vaccine Era" (Kaur R, et al. Pediatrics. Aug. 7, 2017, https://doi.org/10.1542/peds.2017-0181).

There are more than 5 million cases of AOM each year in the U.S., and it is the most common reason children are prescribed antibiotics.

To study changes in the epidemiology of AOM, researcher followed 615 children from ages 6 months to 36 months from June 2006 to June 2016. Children regularly provided nasopharyngeal and blood samples. Researchers used tympanocentesis and bacterial culture of middle ear fluid to confirm cases of AOM and treated most with amoxicillin-clavulanate for five days.

At age 1, 23% of the children had experienced AOM, and 3.6% had it at least three times, according to the study. By age 3, 60% had experienced at least one episode, and 24% had the infection three or more times.

Researchers compared findings to a 1989 prospective cohort study in which more than 80% of 3-year-olds had had AOM, and over 40% had at least three episodes.

Since that time, the definition of AOM has become stricter, and pneumococcal conjugate vaccines (PCV7 and PCV13) have been developed. The vaccines protect against Streptococcus pneumoniae (Spn), one of the three main otopathogens that cause AOM along with Haemophilus influenzae (Hflu) and Moraxella catarrhalis (Mcat).

The team found the proportion of AOM cases related to Spn declined after the introduction of PCV7 in 2001 and dropped again following the 2010 introduction of PCV13. In the meantime, the proportion of Mcat-related cases increased.

There also has been an increase in antibiotic-resistant strains for all three otopathogens, especially in children who are otitis-prone (at least three episodes in six months or four in one year), according to the study.

Authors noted "the otopathogens mix has undergone multiple dynamic changes that likely will continue in the years ahead."

What hasn’t changed significantly are the risk factors for AOM. The team found being male (first year of life only), being non-Hispanic white, having a family history of AOM and child care attendance all were associated with increased risk of AOM.

Children were more likely to be otitis-prone if they were male, attended child care or had a family history of AOM, according to the study. They had a 70% chance of experiencing a second episode if the first occurred before age 1 year. Researchers found a protective effect from breastfeeding in first 6 months.

The authors of related commentary, who include former AAP Pediatric Research in Office Settings Director Richard Wasserman, M.D., M.P.H., FAAP, said the report contains compelling findings. But they noted the treatment methods used in the study don’t follow AAP guidelines.
"The take-home for practicing clinicians is clear: keep using PCV and keep following the evidence-based AAP guidelines, which reflect the most comprehensive review of evidence regarding treatment," they wrote. "For researchers, a head-to-head clinical trial between different antibiotic choices and durations is greatly needed to provide working clinicians with the best evidence for managing AOM in the 21st century."

Resource
- Information for parents on ear infection symptoms and treatment