

# Antibiotic use in infants linked to asthma

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New research indicates that children who receive antibiotics before their first birthday are significantly more likely to develop asthma by age 7. The study, published in the June issue of CHEST, the peer-reviewed journal of the American College of Chest Physicians (ACCP), reports that children receiving antibiotics in the first year of life were at greater risk for developing asthma by age 7 than those not receiving antibiotics. The risk for asthma doubled in children receiving antibiotics for nonrespiratory infections, as well as in children who received multiple antibiotic courses and who did not live with a dog during the first year.

“Antibiotics are prescribed mostly for respiratory tract infections, yet respiratory symptoms can be a sign of future asthma. This may make it difficult to attribute antibiotic use to asthma development,” said lead study author Anita Kozyrskyj, PhD, University of Manitoba, Winnipeg, MB. “Our study reported on antibiotic use in children being treated for nonrespiratory tract infections, which distinguishes the effect of the antibiotic.”

By using a prescription database, Dr. Kozyrskyj and colleagues from the University of Manitoba and McGill University in Montreal were able to monitor the antibiotic use of 13,116 children from birth to age 7, specifically noting antibiotic use during the first year of life and presence of asthma at 7. The reason for antibiotic use was categorized by lower respiratory tract infection (bronchitis, pneumonia), upper respiratory tract infection (otitis media, sinusitis), and nonrespiratory tract infection (urinary infections, impetigo). Risk and protective factors also were noted, including gender, urban or rural location, neighborhood

income, number of siblings at age 7, maternal history of asthma, and pets reported living in the home.

Within the study group, 6 percent of children had current asthma at age 7, while 65 percent of children had received at least one antibiotic prescription during the first year of life. Of the prescriptions, 40 percent of children received antibiotics for otitis media, 28 percent for other upper respiratory tract infections, 19 percent for lower respiratory tract infections, and 7 percent for non-respiratory tract infections. Results showed that antibiotic use in the first year was significantly associated with greater odds of asthma at age 7. This likelihood increased with the number of antibiotic courses, with children receiving more than four courses of antibiotics having 1.5 times the risk of asthma compared with children not receiving antibiotics. When researchers compared the reason for antibiotic use, their analysis indicated that asthma at age 7 was almost twice as likely in children receiving an antibiotic for nonrespiratory tract infections compared with children who did not receive antibiotics.

Maternal asthma and presence of a dog during the first year of life were both associated with asthma risk. Children who received multiple antibiotic courses and who were born to women without a history of asthma were twice as likely to develop asthma than those not receiving antibiotics. Furthermore, absence of a dog during the birth-year doubled asthma risk among children taking multiple courses of antibiotics.

“Dogs bring germs into the home, and it is thought that this exposure is required for the infant's immune system to develop normally. Other research has shown that the presence of a dog in early life protects against the development of asthma,” said Dr. Kozyrskyj. “Exposure to germs is lower in the absence of a dog. The administration of an antibiotic may further reduce this exposure and increase the likelihood of asthma development.”

“Antibiotics are frequently prescribed for young children for both respiratory and nonrespiratory infections,” said Mark J. Rosen, MD, FCCP, President of the American College of Chest Physicians.

“Understanding the relationship between antibiotic use and asthma can help clinicians make more informed decisions about treatment options for children.”

Source: American College of Chest Physicians

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