

CONCLUSIONS. This large-scale study found that farm living in the first 5 years of life was associated with a lower prevalence of allergic rhinitis and that this protective effect continued throughout adulthood. Increased urbanization also was associated with an increased prevalence of allergic rhinitis until 60 years of age.

REVIEWER COMMENTS. Limitation of this study include self-report of allergic rhinitis and lack of a more expanded panel of questions regarding other childhood exposures. However, the results highlight the potential importance of the early childhood environment in shaping future burden of allergic disease. It has been theorized that the protective effect of farm living might be a result of exposure to endotoxin, a cell wall component of Gram-negative bacteria, which promotes nonallergic T-helper 1 responses and a shift away from T-helper 2 responses. These results show the persistence of this protective effect well into adulthood.

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Pre- and Post-natal Exposure to Antibiotics and the Development of Eczema, Recurrent Wheezing, and Atopic Sensitization in Children Up to the Age of 4 Years

Dom S, Droste JH, Sariachvili MA, et al. *Clin Exp Allergy*. 2010;40(9):1378-1387

PURPOSE OF THE STUDY. To investigate the relationship of indirect prenatal and postnatal antibiotic exposure and the subsequent development of eczema, recurrent wheeze, and atopic sensitization in early childhood.

STUDY POPULATION. The study population of 773 children was obtained from a prospective project regarding the Influence of Perinatal Factors on the Occurrence of Asthma and Allergies (PIPO cohort) in Belgium. Of 2006 women recruited at 20 weeks of pregnancy, 1072 agreed to participate (total cohort population: 1128 children).

METHODS. Children were included in the current study if information on antibiotic exposure and at least 1 health outcome was available. History of maternal antibiotic use during pregnancy and breastfeeding was queried at home visits during pregnancy and after delivery. Postal questionnaires queried patient antibiotic exposure at 1 year and subsequently every 6 months until the age of 4 years. Biannual questionnaires also queried the diagnoses of eczema or recurrent wheeze in children. Atopic sensitization was assessed via *Dermatophagoides pteronyssinus*-, cat-, dog-, egg-, and cow's milk-specific immunoglobulin E (IgE) at 1 and 4 years and birch- and timothy grass-specific IgE at 4 years. Atopic sensitization

was defined as at least 1 positive specific IgE result. Parental *D pteronyssinus*-, cat-, dog-, birch-, timothy-, mugwort-, and *Cladosporium herbarum*-specific IgE were quantified. Gender, parental allergic history, parental educational level, pet exposure, tobacco use during pregnancy, birth weight, maternal age at birth, breastfeeding history, number of older siblings, day care attendance, environmental tobacco exposure, and lower respiratory tract infection history were also queried. Chronology of exposures and outcomes were considered independently.

RESULTS. Prenatal antibiotic exposure was significantly positively associated with eczema but not associated with recurrent wheeze or atopic sensitization. Antibiotic exposure through breastfeeding had a positive, but not statistically significant, association with recurrent wheeze. Neither eczema nor atopic sensitization was significantly associated with antibiotic exposure through breastfeeding. There was a negative association between patient use of antibiotics in the first year of life and eczema and atopic sensitization and between patient use of antibiotics after the first year of life and recurrent wheeze, eczema, and atopic sensitization.

CONCLUSIONS. Indirect exposure to antibiotics during pregnancy or through breast milk increases the risk for allergic symptoms in children, whereas direct exposure is protective.

REVIEWER COMMENTS. The authors acknowledged potential study limitations to include selection bias, selective attrition, and misclassification of the chronology of antibiotic exposure and outcomes. Future studies on both outcomes associated with indirect antibiotic exposure in children and associations between the chronology of antibiotic exposure and atopic disease outcomes in childhood are needed.

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Impaired Fetal Growth Decreases the Risk of Childhood Atopic Eczema: A Swedish Twin Study

Lundholm C, Ortqvist AK, Lichtenstein P, Cnattingius S, Almquist C. *Clin Exp Allergy*. 2010;40(7):1044-1053

PURPOSE OF THE STUDY. Previous studies have revealed an association between high birth weight and gestational age and increased risk for subsequent atopic eczema. These researchers sought to evaluate associations between fetal growth and risk of atopic eczema or allergic rhinitis in a prospective twin cohort.

STUDY POPULATION. Data were collected via telephone interviews between October 2004 and July 2007 from

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