PURPOSE OF THE STUDY. As one dimension of the hygiene hypothesis, early infections may protect against the development of atopic disease. However, there are few long-term follow-up studies of the influence of early respiratory infections. This study investigates associations between early respiratory infections and diagnosed asthma, allergic rhinitis, and skin-prick sensitization in children at 10 years of age.

STUDY POPULATION. A total of 2540 Norwegian children were followed prospectively from birth to the age of 10 years in the Oslo Birth Cohort.

METHODS. Information on child’s health and environmental exposures, including experiences with respiratory infections, was recorded at birth and at 6 and 12 months. Current symptoms and “ever” doctor-diagnosed asthma and allergic rhinitis were compared with these early life exposures. A subset of the cohort underwent skin-prick testing.

RESULTS. “Ever” diagnosis of asthma was positively associated with measures of early life infection. Current asthma was related to lower respiratory tract infection (adjusted odds ratio [aOR]: 2.1; 95% confidence interval [CI]: 1.3–3.0) and croup (aOR: 2.3; 95% CI: 1.3–4.2) in the first year. ORs for allergic rhinitis and skin-prick sensitization were smaller but “mainly positive.” Birth order and child care attendance at 1 year of age were not significantly associated with any of the studied outcomes.

CONCLUSIONS. Early respiratory infections did not protect against the development of atopic disease during the first 10 years of life. Rather, infections increased the risk for asthma at age 10.

REVIEWER COMMENTS. The hygiene hypothesis has been used to explain an inverse relation between early-life infection and allergic disease. Although a number of studies have described the relationship of early childhood infections and atopic disease, few have done so prospectively. This study, with its ORs near 1 with narrow CIs, shows a positive relationship of infections to atopy. Thus, it does not support the view of protection with increasing infection, bringing to light that this relationship is not as simple or direct as was first described. Additional prospective studies with long-term follow-up are required to further define this relationship. In addition, these results support previous conclusions that early childhood infection may be associated with an increased risk for future development of asthma. There continues to be many unanswered questions regarding the risks in susceptible hosts.

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Anne Marie Singh, MD
Mark H. Moss, MD
Madison, WI

Exposure to Pets, and the Association With Hay Fever, Asthma, and Atopic Sensitization in Rural Children


PURPOSE OF THE STUDY. To evaluate the effect of exposure to animals on the development of hay fever, asthma, and atopy.

STUDY POPULATION. Cross-sectional study of 2618 families of Swiss, German, and Austrian decent, living in a rural location. Families were assigned to 1 of 2 categories: farming and nonfarming.

METHODS. Information was collected by standardized questionnaire and interview. Mattress dust was collected and measured for content of endotoxin and cat allergen. Specific immunoglobulin E levels to multiple common allergens and immunoglobulin G4 to cat were measured.

RESULTS. Complete data were available for 812 children. Among them, 319 were farmers’ children and 493 were nonfarmers’ children. In the entire group, early (<1 year-old) and current exposure to cats was associated with a reduced risk of wheezing and grass pollen sensitization. Current contact with dogs was inversely associated with hay fever, asthma, and sensitization to cat allergen and grass pollen. Early exposure to dog did not have any significant effects. When farm-animal contact was controlled for, most of these associations were weakened but were strongest in farmers’ children.

CONCLUSIONS. There was an inverse relationship between dog exposure and asthma, hay fever, and allergy. However, much of this protective effect was explained by exposure to farm animals.

REVIEWER COMMENTS. There are several studies that report pet exposure to be associated with a reduced risk for atopic disease. In this study, the primary outcome of decreased clinical manifestations of atopy was confounded by exposure to farm animals. Although the exposure to pets did not show an overall statistically significant association, the results approached significance, and a larger study population may have revealed significant differences. Also, the study ultimately found that animal exposure is most likely to provide a protective effect when the total level of exposure is highest (ie, those children exposed to pets and farm animals).

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Justin Skripak, MD
Robert A. Wood, MD
Baltimore, MD
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Justin Skripak and Robert A. Wood

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