Allergy

PREDICTION AND PREVENTION

Pets at Birth Do Not Increase Allergic Disease in At-Risk Children

PURPOSE OF THE STUDY. To investigate the relationship between pet keeping at birth and the risk of sensitization, wheeze, allergic rhinitis, and eczema over the first 12 years in a cohort selected for familial allergy.

STUDY POPULATION. A total of 620 infants were enrolled in a prospective birth cohort in Australia between 1990 and 1994. Eligible infants had at least 1 first-degree family member with a history of eczema, asthma, allergic rhinitis, or severe food allergy.

METHODS. Data on pet keeping, demographics, and cord blood samples were collected. Demographic information included parental smoking history, presence of carpets in the home, number of siblings, parental history of atopic diseases, and socioeconomic status. Information on childhood wheeze, eczema, allergic rhinitis, illnesses, contact with medical professionals, and medications was collected monthly from birth to 15 months; at 18 months; and at 2, 7, and 12 years. Skin-prick tests to food and environmental allergens were performed once on parents and in children at ages 2, 7, and 12 years. The presence of a cat or dog was defined by questionnaire response at birth and at 7 and 12 years. Multiple logistic regression analyses were used to investigate associations while adjusting for confounders. The exposure variables were the presence of cat controlled for dog, dog controlled for cat, or either a cat or dog at birth.

RESULTS. Exposure to cats or dogs at birth did not reveal a statistically significant effect on development of allergic disease. There was a trend toward reduction in risk of wheeze (adjusted odds ratio = 0.76; 95% confidence interval: 0.53–1.09) and allergic rhinitis (adjusted odds ratio = 0.71; 95% confidence interval: 0.49–1.02) after 7 years. Protective effects were stronger in children of fathers who were not allergic to cat or grass. Children of cat-sensitized fathers had a higher rate of allergic disease if an animal was present in the home at birth.

CONCLUSIONS. Cat or dog exposure at birth either decreased or had no effect on allergic disease in most children up to age 12.

REVIEWER COMMENTS. The effect of pets at birth and in early childhood on allergic disease in children is of great interest to parents. Studies have been conflicting. The current study provides longer follow-up than many previous studies, but limitations include a broad definition of allergic disease and limited allergy testing. Overall, this study provides reassurance that a family history of allergic disease does not increase the likelihood of developing allergies with prenatal exposure to animals. For many patient populations, the risk of developing allergic disease may be diminished. However, in families with a parent with known cat allergy, the risk of future allergies in offspring may be higher if a pet is in the home. Although we would not recommend that a family obtain a pet with the goal of allergy risk reduction in children, keeping a pet in the home should not be harmful in most cases and may be helpful in some. Parents with known pet allergy should keep animals outside the home for the sake of sensitized parents and unborn children.

Use of Antibiotics During Pregnancy Increases the Risk of Asthma in Early Childhood

PURPOSE OF THE STUDY. To investigate whether maternal use of antibiotics during pregnancy influences the development of asthma and eczema early in life.

STUDY POPULATION. The Copenhagen Prospective Study on Asthma in Childhood (COPSAC), a birth cohort of 411 infants born between 1998 and 2001 to mothers with a history of asthma. The COPSAC data were supplemented by data from the Danish National Birth Cohort (DNBC) consisting of 101,042 pregnant women and their children recruited between 1997 and 2003. Both cohorts were followed prospectively for 5 years.

METHODS. History of maternal exposure to antibiotics in the third trimester was obtained during the first COPSAC enrollment visit. Asthma exacerbations were defined as need for oral prednisolone, high-dose inhaled corticosteroids (ICS), or asthma hospitalization. In the DNBC data, investigators defined maternal antibiotic use as at least 1 filled antibiotic prescription during pregnancy. Asthma was defined as either an asthma hospitalization or an ICS prescription filled at least once.

RESULTS. In the COPSAC birth cohort, children of mothers who used antibiotics during the third trimester were at a significantly increased risk of developing early asthma exacerbation (hazard ratio [HR]: 1.98). Maternal use of antibiotics in the third trimester did not influence the child’s risk of eczema. An increased risk of asthma after maternal antibiotic exposure was confirmed via DNBC analysis: children of mothers exposed to antibiotics during pregnancy were at a higher risk of asthma hospitalization (HR: 1.17).

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