Methods. Vaccination status of patients was obtained from data collected by the Vaccine Safety Datalink created by the National Immunization Program of the Centers for Disease Control and Prevention (CDC). Asthma cases, defined by criteria discussed in the article, were identified using computerized medical encounter forms and pharmacy databases. To differentiate between asthma and bronchiolitis, a child had to have at least 1 asthma diagnosis or medication after age one. Proportional hazards regression analyses were conducted to estimate relative risks of developing asthma according to vaccination status.

Results. A total of 18,407 children (11%) developed asthma, with a median age at onset of 11 months. The relative risks of asthma were the following: 0.92 for diphtheria, tetanus, and pertussis (DTP) vaccine; 1.09 for oral poliovirus vaccine (OPV); 0.97 for measles-mumps-rubella (MMR) vaccine; 1.18 for Haemophilus influenzae type b (Hib) vaccine; and 1.20 for hepatitis B vaccine (HBV). The Hib result was not consistent across health maintenance organizations. In a subanalysis restricted to children who had at least 2 medical encounters during their first year of life, the relative risks decreased to 1.07 for Hib and 1.09 for HBV.

Conclusions. There is no association between the DTP, OPV, or MMR vaccines and the risk of asthma. The weak associations for Hib and hepatitis B vaccines seem to be at least partially accounted for by health care utilization or information bias.

Reviewers’ Comments. Concerns regarding vaccine side effects and relative risks of illnesses from vaccinations are an important issue for parents, as demonstrated by the long debate about MMR and autism. As always, it is important to regard these results within the context of the article. Although the study found a small increased risk of asthma with Hib and hepatitis B vaccines, the authors state that there were potential limitations of their study including confounding factors, possible misclassification of asthma status, and relative short follow-up that may have led to an overestimate of these risks.

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TRENDS IN CHILDHOOD ASTHMA: PREVALENCE, HEALTH CARE UTILIZATION, AND MORTALITY

Purpose of the Study. The burden of asthma is larger for pediatric patients than for the rest of the population. The study objective was to assess changes in the burden of asthma among US children by providing a comprehensive description of trends in childhood asthma prevalence, health care utilization, and mortality using national data.

Study Population. Data from the National Center for Health Statistics included children with asthma 0 to 17 years old from 1980 to the most recent year data were available.

Methods. Asthma demographic data from the National Health Interview Survey (NHIS), the National Ambulatory Medical Care Survey, the National Hospital Ambulatory Medical Care Survey, the National Hospital Discharge Survey, and the Mortality Component of the National Vital Statistics Survey were used to describe trends in childhood asthma. Children were stratified by age group (0–4 years, 5–10 years, and 11–17 years) and by race/ethnicity when possible.

Results. Childhood asthma prevalence increased from 3.6% to 6.2% (average increase of 4.3% per year) from 1980–1996. A peak prevalence of 7.5% occurred in 1995. The largest increase in prevalence (and associated greater health care use) was in the 0 to 4-year-old age group. Asthma prevalence comparing non-Hispanic blacks and non-Hispanic whites showed a higher prevalence for non-Hispanic blacks by 15% in 1980–1981 and 29% in 1995–1996. Asthma attack prevalence was 5.4% in 1996 and remained plateaued from 1997–2000. Comparison to years before 1997 are precluded by changes in the NHIS design.

Conclusions. The increasing burden in childhood asthma may finally be plateauing. The disparities between black children compared with white children remains quite significant for asthma health care utilization and mortality.

Reviewers’ Comments. Could the dramatic and concerning increases in childhood asthma seen over the last 2 decades finally be leveling off? Despite this suggested trend, asthma remains the most common chronic disease of childhood. The 1997 redesign of the NHIS makes following asthma trends somewhat difficult but does emphasize the importance of tracking changes in future years. Perhaps most concerning is the continued increase in hospitalizations and racial disparities. Continuing research efforts are being supported to determine the multifactorial causes of asthma inception in a variety of specific populations including inner-city children and high-risk atopic children.

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ENVIRONMENTAL ALLERGENS

EARLY SENSITIZATION TO HOUSE DUST MITE IS A MAJOR RISK FACTOR FOR SUBSEQUENT DEVELOPMENT OF BRONCHIAL ASTHMA IN JAPANESE INFANTS WITH ATOPIC DERMATITIS: RESULTS OF A 4-YEAR FOLLOW-UP STUDY


Purpose of the Study. To clarify factors involved in the development of bronchial asthma (BA) in children with atopic dermatitis (AD).

Study Population. One hundred sixty-nine infants (age <12 months) with AD who had been seen in the pediatric outpatient clinics of Kyoto, Gunma, and Gifu University Hospitals and affiliated hospitals between August 1994 and July 1995. The infants had neither BA nor episodes of recurrent wheezing at time of registration.

Methods. Patients were followed for 4 years. The outcome of AD, development of BA, and changes in immunologic and other parameters were examined. Total immunoglobulin (IgE) levels and specific IgE against house dust mite (HDM), egg white, cow’s milk, wheat, rice, and soybean were examined using the CAP-RAST (radioallergosorbent test). Family history of AD and BA among relatives was obtained from interviews with the parents. Risk factors for the development of BA were analyzed for each follow-up year.

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Results. One hundred three children remained in the study at the 4-year follow-up. Thirty-five percent had been diagnosed with asthma by pediatric allergists and 10.7% had episodes of wheezing, but were not diagnosed with asthma. Eighty-five percent of patients had specific IgE levels against at least 1 of the following 5 food allergens (egg white, milk, wheat, soybean, and rice). HDM-specific IgE increased from 11% at registration to 59% at the 1-year follow-up and 87% at the 4-year follow-up. Severity of asthma was determined according to skin prick and blood tests, spirometry, and methacholine challenge. Severity of asthma symptoms, hospital admission for breathing challenges, and number of asthma attacks were higher in children who developed BA showed early appearance of HDM-specific IgE and persistently high levels of food-specific IgE. Male sex, a positive family history of BA, and the appearance of HDM-specific IgE were identified as significant risk factors for the early development of BA, but the significance of these parameters decreased afterward. A positive family history of AD, the outcome of AD, and the keeping of furred pets were also identified as risk factors during part of the follow-up years. During the 4-year follow-up period, AD cleared in 33.8%, improved in 51.4%, was unchanged in 11.7% and worsened in 2.9% of the patients.

Conclusions. The early appearance of HDM-specific IgE antibodies in early childhood is a major risk factor for the subsequent development of BA in children with AD. However, the influence decreases after longer follow-up.

Reviewer’s Comments. This study supports the idea that early atopic sensitization to food is a risk factor for subsequent inhalant sensitization and, therefore, a risk factor for the development of asthma. Risk factors appeared to shift during the 4-year follow-up, but this may have been influenced by the loss of 39% if the original study population. Furred animals also appeared to be a risk factor in the development of asthma, contrary to some recent studies claiming that a pet in the home might have some protective effect. Unfortunately, the authors did not obtain animal-specific IgE levels. Studies in infants with AD where occlusive bedding is used as an intervention to reduce HDM sensitization and possibly, by extension, asthma, would prove interesting.

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SENSITISATION TO AIRBORNE MOULDS AND SEVERITY OF ASTHMA: CROSS-SECTIONAL STUDY FROM THE EUROPEAN COMMUNITY RESPIRATORY HEALTH SURVEY


Purpose of the Study. To assess whether the severity of asthma is associated with sensitization to airborne molds rather than to other seasonal or perennial allergens.

Study Population. One thousand one hundred thirty-two adults 20 to 44 years old with current asthma and with skin prick test results.

Methods. Participating centers of the European Community Respiratory Health Survey of over 30 centers (13 countries) randomly selected samples of 20- to 44-year-olds. They completed a short postal questionnaire about asthma symptoms. Twenty percent of random subsamples from this group were invited to come to a test center for skin prick and blood tests, spirometry, and methacholine challenge. Severity of asthma was determined according to score based on forced expiratory volume in 1 second, number of asthma attacks, hospital admission for breathing problems, and use of corticosteroids in the past 12 months.

Results. The frequency of sensitization to molds (Alternaria alternata or Cladosporium herbarum, or both) increased significantly with increasing asthma severity (odds ratio: 2.34; 95% confidence interval: 1.56–3.52) for either severe or mild asthma). This association existed in all of the study areas (gathered into regions), although there were differences in the frequency of sensitization. There was no association between asthma severity and sensitization to pollens or cats. Sensitization to Dermatophagoides pteronyssinus was also positively associated with severity. In multivariable logistic regressions including sensitization to molds, pollens, D. pteronyssinus, and cats, the odds ratios for sensitization to molds were 1.48 (0.97 or 2.25) for moderate mild asthma and 2.16 (1.37–3.35) for severe mild asthma (P < .001).

Conclusions. Sensitization to molds is a powerful risk factor for severe asthma in adults. This should be taken into account in primary prevention, management, and patients’ education.

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β-ADRENERGIC AGONIST THERAPY

LOW-DOSE LEVALBUTEROL IN CHILDREN WITH ASTHMA: SAFETY AND EFFICACY IN COMPARISON WITH PLACEBO AND RACEMIC ALBUTEROL


Purpose of the Study. Racemic albuterol (RAC) consists of equal parts of (R-) and (S)-albuterol, with all the therapeutic activity being found in levalbuterol (LEV), the (R)-isomer. In addition to lacking bronchodilating activity, (S)-albuterol might have properties, suggested by in vitro studies, that might exacerbate airway reactivity and impair asthma control. The authors sought to determine if LEV results in improved safety and efficacy in children.

Study Population. Children 4 to 11 years old with asthma severity ranging from mild intermittent to moderate persistent were included if baseline forced expiratory volume in 1 second (FEV1) was between 40% and 85% of predicted with at least 15% reversibility to RAC at screening.

Methods. Children in this multicenter, randomized, double-blind study received 21 days of LEV (0.31 or 0.63 mg), RAC (1.25 or 2.5 mg), or placebo 3 times daily. Ventolin (GlaxoSmithKline, Research Triangle Park, NC) metered-dose inhalers (MDI) and Nebules (GlaxoSmithKline, Research Triangle Park, NC) were available as rescue medications. The primary endpoint was peak percent change in FEV1 after receiving study medication on day 21. Diary cards were kept, and the Pediatric Asthma Caregiver’s Quality of Life (QOL) Questionnaire was administered at
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Helen Skolnick

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