reaction. There were 15 patients (3.0%) who had subjective oral challenge reactions, either acute transient itching or dizziness. Eleven (73.3%) had multiple drug intolerance syndrome, and none had severe reactions or objective signs. In 90 days of follow-up, 68 subjects (13.6%) who had negative testing were exposed to 88 courses of penicillins; new reactions were reported after 4 courses (4.5%), 3 (75%) occurring in subjects with multiple drug intolerance syndrome.

CONCLUSIONS. This study found that penicillin skin testing, using only penicilloyl-poly-lysine and penicillin, followed by oral amoxicillin challenge if negative on skin testing can safely identify clinically significant immunoglobulin E–mediated penicillin allergy.

REVIEWER COMMENTS. This study reinforces previous reports that very few patients with a history of penicillin allergy have positive testing, and of those with negative testing the likelihood of a reaction is extremely small, with a minimal chance of a severe reaction. It demonstrates that skin testing using only commercially available penicilloyl-poly-lysine and penicillin skin tests followed by an oral amoxicillin challenge is a safe and effective way to evaluate patients with reported penicillin allergy. The authors comment that allergists in the United States should be testing and challenging hundreds of thousands of persons annually, because there is widespread overreporting of penicillin allergy, with >20 million Americans having a history of an allergy to penicillin. Referral for penicillin allergy testing would allow more appropriate use of relatively narrow-spectrum penicillin class antibiotics.

ATOPIC DERMATITIS

Asthma and Frequency of Wheeze: Risk Factors for the Persistence of Atopic Dermatitis in Children

PURPOSE OF THE STUDY. Atopic dermatitis is known to be a risk factor for asthma. A recent study in an adolescent population suggests that asthma is associated with both the incidence and persistence of atopic dermatitis. This study also raised the question of whether the natural history of atopic dermatitis varies depending on the age of onset. The purpose of this study was to determine whether children with atopic dermatitis and a diagnosis of asthma were more likely to have persistence of skin disease and whether this finding was associated with frequency of wheeze.

STUDY POPULATION. A total of 1041 children ages 2 to 18 years of age, who were enrolled in an observational cohort study on pediatric eczema (Pediatric Eczema Elective Registry), had a diagnosis of asthma at enrollment, and completed a questionnaire 3 years after enrollment.

METHODS. Information was collected via questionnaire on the presence of atopic dermatitis, need for medications for the condition, presence of asthma, and frequency of wheezing. Information was collected biannually. The primary outcome of interest was the self-reported persistence of atopic dermatitis symptoms. The primary covariate of interest was asthma at baseline and frequency of wheezing in the previous 6 months, based on self-report.

RESULTS. Overall, 934 (90%) of the 1041 children who reported asthma at enrollment had asthma at the 3-year follow-up. The frequency of wheezing progressed over time; 76.3% noted ≥1 episode of wheezing in the previous 6 months; this figure increased to 88.7% at 3 years. At enrollment, those with a diagnosis of asthma were 30% less likely to be rash-free compared with those with no history of asthma and wheeze. At enrollment and throughout the study period, there was an association between the frequency of wheezing and the presence of rash as well as the need for skin medications. Increased frequency of wheezing was associated with a decreased chance of resolution of the rash and an increased need for medications.

CONCLUSIONS. This study suggests that those children with a diagnosis of asthma and more frequent wheezing will have more persistent atopic dermatitis.

REVIEWER COMMENTS. This study provides useful prognostic information for physicians caring for patients with asthma and atopic dermatitis. Parents of children with asthma and atopic dermatitis are likely to have persistent skin disease, especially with more severe asthma. This study does not tell us, however, whether improved control of asthma would have an effect on the persistence of skin disease.

Cytokine Biomarker Candidates in Breast Milk Associated With the Development of Atopic Dermatitis in 6-Month-Old Infants

PURPOSE OF THE STUDY. The authors identified various breast milk cytokines and chemokines that appeared to be related to the presence of infantile atopic dermatitis (AD).

STUDY POPULATION. Japanese infants with and without a history of AD at 6 months of age were recruited from
January 2007 to May 2008. Each cohort had 49 infants; 35% of the study population and 47% of the control population were female. About 41% were exclusively breast-fed in each group; the remainder was breast- and formula-fed.

METHODS. The authors compared the chemokine/cytokine profiles in breast milk delivered to infants who developed AD and those who did not. Mothers completed questionnaires regarding their personal atopic histories and feeding methods throughout the study period until the infant was 6 months of age. History of AD was defined as itchy eczema at 6 months of age and having lasted for at least 2 months. Various chemokines and cytokines were measured from the maternal colostrum (collected within 4–5 days after birth) and mature milk (collected 1 month postpartum). In addition, maternal serum total immunoglobulin E (IgE) as well as specific IgE to house dust mite and Japanese cedar pollen were measured.

RESULTS. There were significant differences between the study and control populations in the concentrations of interleukin (IL)-1β and IL-12p40 in the colostrum. There were significantly higher levels of IL-4, eotaxin, granulocyte colony-stimulating factor, granulocyte macrophage colony-stimulating factor, interferon-α2, and MIP-1α in the mature milk of the study group. Maternal atopic history and IgE levels were not related to cytokine/chemokine concentrations in the breast milk. Logistic regression analyses indicated that high levels of eotaxin in the mature milk were a risk factor for developing AD at 6 months of age.

CONCLUSIONS. The results suggest that several mature breast milk pro-inflammatory chemokines/cytokines, including those more characteristic of allergic inflammation (especially eotaxin), are potential biomarkers for development of AD in early infancy.

REVIEWER COMMENTS. Previous studies have usually indicated that breastfeeding, compared with whole milk–based formulas, is generally protective of atopic disease, particularly AD. However, there are conflicting studies, some indicating that breastfeeding may be a risk factor for AD. This study, although limited by small size and the study design being cross-sectional, suggests that breast milk inflammatory biomarkers may play a role by affecting infantile intestinal and immune system development. In particular, they reported that eotaxin, which is involved in the chemotaxis and activation of eosinophils, was a risk factor for developing AD. Whether a biomarker or a causal factor, these insights may provide better avenues for prediction and prevention of atopic disease.

Mental Health Comorbidity in Patients With Atopic Dermatitis

PURPOSE OF THE STUDY. To quantify the mental health burden associated with pediatric atopic dermatitis (AD) in the United States. Recent data suggest that children with AD might be at an increased risk of mental health disorders.

STUDY POPULATION. Data were analyzed from the 2007 National Survey of Children’s Health, a survey reporting on the health status of 91,642 children aged 0 to 17 years. The analysis was limited to those children who had seen a health care provider in the past year (n = 79,667).

METHODS. Data were used from the 2007 National Survey of Children’s Health, which was designed to estimate the prevalence of various child health issues, including physical, emotional, and behavioral factors. The lifetime prevalence of provider-diagnosed mental health conditions was calculated for those with and without a history of AD, as determined by parental report. AD severity (mild, moderate, severe) was based on parent/guardian assessment of the skin disease. The mental health disorders assessed in the study were chosen based on previous associations with AD and included attention-deficit disorder (ADD) or attention-deficit/hyperactivity disorder (ADHD), depression, anxiety, and behavioral or conduct problems, such as oppositional defiant disorder, conduct disorder, autism, Asperger’s disorder, pervasive developmental disorder, or other autism spectrum disorders.

RESULTS. Children with AD reported seeing mental health care providers more often (12.12%) and receiving more mental health therapy (11.31%) than their peers without AD (7.89% and 6.61%, respectively; P < .0001). The odds of developing a mental health disorder was higher among children with AD than control subjects and included ADHD (odds ratio [OR] 1.87; 95% confidence interval [CI], 1.54–2.27), depression (OR 1.81; 95% CI, 1.33–2.46), anxiety (OR 1.77, 95% CI, 1.36–2.29), conduct disorders (OR 1.87, 95% CI, 1.46–2.39), and autism (OR 3.04, 95% CI, 2.13–4.34). The prevalence of each mental health disorder also strongly correlated with disease severity in a dose-dependent manner.

CONCLUSIONS. This study found strong associations between AD and several mental health disorders in the US pediatric population. The data showed that children with AD have an increased prevalence of ADHD, depression, anxiety, conduct disorder, and autism compared with their peers without AD. Children with more severe skin disease appear to be at greatest risk.

REVIEWER COMMENTS. This study is the first comprehensive evaluation of the mental health burden associated with pediatric AD in the United States. The results indicate that children with AD are at an increased risk for mental health disorders, and health care providers should be
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