DRUG ALLERGY

Prevalence of Confirmed Immediate Type Drug Hypersensitivity Reactions Among School Children

PURPOSE OF THE STUDY. To determine the frequency of immediate-type drug hypersensitivity reactions (iDHR) among children with parent-reported drug allergies.

STUDY POPULATION. Eligible participants included all students attending grades 6 through 8 in 34 randomly selected schools in Ankara, Turkey, during the 2010–2011 school year.

METHODS. Investigators conducted a cross-sectional survey of students attending grades 6 through 8 to assess the prevalence of confirmed iDHR. One-step cluster sampling design was used to randomly select the 34 schools participating in the study. After completing a questionnaire, caregivers of children with symptoms suggestive of iDHR were contacted by telephone for further questioning. After telephone interview, subjects with a history compatible with iDHR were invited for a full diagnostic evaluation with skin testing, specific immunoglobulin E, and/or provocation testing.

RESULTS. Investigators found that of the 10,059 subjects included in the final analysis, 7.87% (792 children) reported a history of drug allergy, and antibiotics were implicated in 57.7% of cases. The most common symptoms reported were dermatologic. Mean age and gender of children with parent-reported iDHR were not significantly different from those with no history of iDHR; however, children with parent-reported iDHR were significantly more likely to have physician-diagnosed atopic disease. Detailed telephone surveys revealed that only 1.16% (117 children) had a clinical history suggestive of iDHR. Of this sample, only 7 subjects were confirmed to have iDHR after diagnostic testing. Four children whose parents did not consent to diagnostic testing already had confirmed drug allergy based on testing done in other facilities. Consequently, only 11 (0.11%) of the 10,059 subjects in the study had confirmed iDHR.

CONCLUSIONS. The authors concluded that parental over-reporting of drug allergies is common, and patients with suspected drug allergy should undergo diagnostic testing for confirmation, including specific immunoglobulin E and/or skin testing, and if results of both are negative, provocation testing.

REVIEWER COMMENTS. This study reveals that the vast majority of reported drug reactions among children do not represent true drug allergy and suggests that the history of drug allergy alone is not sufficient to make an accurate diagnosis. This study also highlights the importance of diagnostic testing to avoid prescribing alternative medications that may be less effective, more costly, or have more adverse side effects.

Safely Diagnosing Clinically Significant Penicillin Allergy Using Only Penicilloyl-Poly-Lysine, Penicillin, and Oral Amoxicillin

PURPOSE OF THE STUDY. To evaluate if it is adequate to identify clinically significant penicillin allergy by using only the commercially available penicilloyl-poly-lysine and penicillin skin tests followed by an oral amoxicillin challenge.

STUDY POPULATION. A total of 500 sequential subjects with a history of penicillin allergy evaluated at the Kaiser Permanente Health Care Program were included in this study. A potential case of allergy to penicillin was defined as any penicillin class antibiotic allergy entry in the drug allergy section of the electronic medical record. The mean age of participants was 40.7 years, with a range of 1.1 to 93.4 years (25% were 14 years of age or younger).

METHODS. Subjects were evaluated by skin testing with penicilloyl-poly-lysine and penicillin performed by registered nurses. If the skin-prick test was positive (wheat >5 mm in diameter), no intradermal testing was done. If it was negative, then intradermal testing was performed. Patients with positive testing were told to continue to avoid penicillins. All patients who had negative skin tests underwent an oral amoxicillin challenge, followed by 1 hour of observation.

RESULTS. Only 4 subjects (0.8%) had a positive skin test result, all with intradermal testing. Only 4 persons (0.8%) had an acute objective oral amoxicillin challenge
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
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