eosinophil activity for up to 24 weeks while being treated with either an inhaled or oral corticosteroid. Corticosteroid treatments consisted of an initial 4-week treatment followed by an 8-week taper and 12-week period off medication.

RESULTS. Serum EDN was significantly higher at baseline in children with EoE compared to normal controls and EDN levels significantly decreased by week 4 in the cohort treated with either inhaled or oral corticosteroids. However, serum EDN did not correlate with either symptom scores or eosinophil density on biopsy at baseline or week 4, and EDN levels did not significantly change from weeks 4 to 24. Serum interleukin-5 and stool EDN levels did not differentiate normal children from children with EoE at baseline.

CONCLUSIONS. In a cohort of untreated children with EoE, serum EDN levels were increased compared to normal controls at baseline; however, serum EDN, serum IL-5, or stool EDN at other time points during or after corticosteroid therapy did not correlate with symptom scores or eosinophil density on biopsy.

REVIEWER COMMENTS. EoE has gained recognition as a clinical disease distinct from gastroesophageal reflux disease, but the lack of a validated clinical scoring index, the absence of approved drugs for treatment, and the requirement for invasive techniques to diagnose and monitor patients heighten the necessity for noninvasive modalities to monitor patients. Unfortunately, this study is consistent with other studies to date demonstrating that only elevated serum EDN at presentation is a useful noninvasive marker. For now, children may still require repeat endoscopies and biopsies as a disparity remains between eosinophil density and clinical symptoms after initiation of many therapeutic interventions.


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DRUG ALLERGY

Clinical Outcome in the Use of Cephalosporins in Pediatric Patients With a History of Penicillin Allergy

PURPOSE OF THE STUDY. To determine whether children with a diagnosed penicillin allergy were at increased risk for adverse drug reactions to cephalosporins.

STUDY POPULATION. The charts were reviewed of 173 Mayo Clinic patients (91 boys) under the age of 18 years (mean age, 4.1 ± 3.1 years) who had a history of penicillin allergy, and underwent penicillin skin testing, and subsequently took a cephalosporin.

METHODS. This was a retrospective chart review of pediatric patients who exhibited symptoms consistent with IgE-mediated adverse reactions to penicillin. Penicillin allergy skin testing included skin prick and intradermal testing using penicillin, its major and minor determinants, and amoxicillin with appropriate positive and negative controls. A skin test wheal size of 3 mm or greater was considered positive. Patients were given cephalosporins from 1 to 160 months (median, 14 months) after their penicillin reaction.

RESULTS. A total of 21 (12%) patients tested positive to penicillin; 12 (57%) of them received a first-generation cephalosporin, and the remainder received second- through fourth-generation cephalosporins. None of the penicillin skin test–positive patients exhibited adverse drug reactions. Among the remaining 152 (88%) study patients who had negative penicillin skin testing results, a first-generation cephalosporin was given 59% of the time. Only 1 (0.7%) had an adverse drug reaction involving eyelid swelling in response to cephalaxin about 6 years after his penicillin reaction.

CONCLUSIONS. Among 173 children with a history of penicillin allergy, only 1 child experienced an allergic reaction to a cephalosporin.

REVIEWER COMMENTS. Literature cites about a 7% to 20% cross-reactivity of cephalosporins in penicillin-allergic patients, with first-generation cephalosporins like cephalaxin having a higher risk of reaction due to side chain similarity. This article, which looked at 173 cases, provides some guarded reassurance that, in most cases, cephalosporins may be safely administered to children with a history of penicillin allergy. In addition, the 1 cephalosporin reaction in a child who tested negative for penicillin allergy should remind us that individuals may develop an allergy to the cephalosporin without penicillin allergy. However, the study is limited by the fact that children with positive tests who were never given cephalosporins (because of preconceived risks) would not have been included, and the risk is likely higher in this group as indicated in prior studies. Testing is available and should be pursued.


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ANAPHYLAXIS

Provoking Allergens and Treatment of Anaphylaxis in Children and Adolescents: Data From the Anaphylaxis Registry of German-Speaking Countries

PURPOSE OF THE STUDY. To characterize provoking allergens, clinical features, accompanying factors, and treatment modalities for children presenting with anaphylaxis.
STUDY POPULATION. Data were analyzed from the anaphylaxis registry of German-speaking countries, which included 197 reported anaphylactic reactions from children and adolescents between 2006 and 2009. This database is based on an online questionnaire for providers of allergy specialty care in Germany, Austria, and Switzerland.

METHODS. The questionnaire included demographic data, clinical symptoms, the cause of reaction, accompanying or possible aggravating factors, history of previous reaction, and treatment. To focus on reactions that involved life-threatening symptoms, only children who experienced reactions with at least 1 pulmonary or cardiovascular symptom were included in the analysis.

RESULTS. The most frequently affected organ systems involved in anaphylaxis cases of children and adolescents were the skin (89%) and respiratory tract (87%). Cardiovascular (47%) and gastrointestinal manifestations (43%) were noted less frequently. The most common triggering allergens were foods (58% of cases), followed by insect venoms (24%) and drugs (8%). Peanut was the most frequent food allergen provoking anaphylaxis, followed by tree nuts, cow’s milk, and egg. Accompanying or aggravating factors, such as exercise, drug use, coexisting infection, psychological stress, and menses, were noted in 18% of all cases. Only 26% had a history of a previous reaction. Treatment data demonstrated that antihistamines were given 87% of the time and corticosteroids were given 85% of the time, but epinephrine was given only 22% of the time.

CONCLUSIONS. Use of registry data can provide insight into the features of children presenting with anaphylaxis. Food allergens were the most common triggers for anaphylaxis and possible aggravating factors were noted in nearly 1 in 5 cases, with exercise being the most common. The low frequency of epinephrine administration suggests ongoing need for education for both families and physicians.

REVIEWER COMMENTS. This study aimed to characterize children with life-threatening anaphylactic reactions by selecting those with cardiovascular and/or pulmonary involvement. Consistent with other studies, food allergens (most commonly peanut) were the most frequent trigger for reaction. The rate of accompanying or aggravating factors suggests that these should be considered in evaluation of all children with anaphylaxis. The low rate of epinephrine use is concerning, especially given that this study focused on more severe reactions, although this is consistent with most other studies of anaphylaxis from around the world.

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The Use of Adrenaline Autoinjectors by Children and Teenagers

PURPOSE OF THE STUDY. To evaluate the rate at which adrenaline autoinjectors are used during anaphylactic reactions by patients who have had them prescribed, and to assess the number of devices used for each reaction.

STUDY POPULATION. Participants (N = 969) were children and teenagers aged 18 years or less who had been prescribed an adrenaline autoinjector for at least 1 year, recruited from 14 pediatric allergy clinics throughout the United Kingdom. The mean age of participants was 8 years, and approximately half had coexistent asthma.

METHODS. Subjects had been given an allergy management plan by an allergy physician and/or nurse instructing them when adrenaline should be administered. They were trained in administration with an appropriate trainer device. Participants completed a questionnaire for demographic data, atopic status, and details of allergic reactions.

RESULTS. Overall, 466 participants (48.1%) experienced an allergic reaction in the previous year. A total of 97 (10.1%), 41 (4.3%), 28 (2.9%), and 59 (6.2%) had experienced 2, 3, 4, or more than 4 reactions, respectively. The most common triggers were peanuts, tree nuts, egg, milk, shellfish, seafood, or fruits. Of 245 subjects experiencing anaphylaxis, only 41 (16.7%) received adrenaline. Of the participants who had reactions that did not meet the study definition of anaphylaxis, 6 (2.7%) used their adrenaline. Only 15.3% of participants with wheeze used their autoinjector. Of the 41 participants who experienced anaphylaxis and used their autoinjector, 13 (32%) received more than 1 dose of adrenaline. Of the 204 participants who did not use their adrenaline autoinjector, the most common reasons given for the lack of use were that they thought it was unnecessary (54.4%) or were unsure whether it was necessary (19.1%).

CONCLUSIONS. This study found that adrenaline autoinjector use is still widely underused. The study also found that 32% of those who used their autoinjector received a second dose.

REVIEWER COMMENTS. This study is alarming in that despite the use of emergency management plans and the use of autoinjector training devices in clinic, adrenaline is still widely underused by patients experiencing anaphylaxis. This has been a long-standing problem in our field, and we need to consider new options on how patient training and support can be improved. One such option may be an educational curriculum for parents designed by the Consortium of Food Allergy Research, available free of charge on their Web site (http://www.cofargroup.org/), that showed improved technique of using epinephrine.
Provoking Allergens and Treatment of Anaphylaxis in Children and Adolescents: Data From the Anaphylaxis Registry of German-Speaking Countries

Karen Robbins and Robert Wood

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