Long-term Outcomes in Pediatric-Onset Esophageal Eosinophilia

PURPOSE OF THE STUDY. There are limited data reporting the natural history of pediatric eosinophilic esophagitis (EoE). Specifically, data describing quality of life in children with EoE as they progress into adulthood are incomplete. This study attempted to characterize long-term clinical outcomes in patients with pediatric EoE.

STUDY POPULATION. The cohort consisted of 3817 pediatric patients who underwent an esophageal biopsy at a large pediatric children’s hospital between 1982 and 1999. An age-matched control group was recruited from a local university.

METHODS. A nested case-control study of patients retrospectively identified histologic EoE (≥15 eosinophils/high-power field) and chronic esophagitis (<15 eosinophils/high-power field). Once cohorts were identified, they were sent an introductory letter, consent form, and study questionnaires. The 4 study questionnaires included the validated 12-item Short-Form Health Survey, Mayo Dysphagia Questionnaire, Reflux Disease Questionnaire, and general medical questionnaire developed by the study’s authors.

RESULTS. A total of 666 subjects of the original cohort of 3817 were identified as having reflux esophagitis. One hundred ninety-eight (30%) fit criteria of EoE (rEoE) and 468 (70%) were classified as having chronic esophagitis (CE). Forty-two of the 198 in the rEoE group and 67 of the 468 in the CE group completed the study and were included in the analysis. Quality of life was significantly decreased in both the rEoE group and the CE group compared to controls (P < .001). Rates of dysphagia and food impaction were significantly increased in the rEoE group compared to the controls. Increased esophageal eosinophil counts during childhood were predictive of dysphagia during early adulthood (odds ratio, 1.6; 95% confidence interval [CI], 1.1–2.5; P < .05). Food allergy (odds ratio 2.7; 95% CI, 1.2–6.0; P < .01), allergic rhinitis (odds ratio, 3.5; 95% CI, 1.8–6.8; P < .001), and asthma (odds ratio, 2.1; 95% CI, 1.02–4.3; P = .04) were associated with dysphagia. Food impaction was more common among patients with reported food allergy (odds ratio, 3.1; 95% CI, 1.2–7.8; P = .02).

CONCLUSIONS. EoE is associated with reduced quality of life and persistent symptoms 15 years after presentation. Increased esophageal eosinophil counts, food allergy, and atopy in childhood increase the rate of dysphagia in early adulthood.

REVIEWER COMMENTS. Limited data are available on the long-term outcome of untreated EoE. This study highlights the need to identify and appropriately manage pediatric patients with EoE to prevent long-term sequelae.

Exploring Potential Noninvasive Biomarkers in Eosinophilic Esophagitis in Children

PURPOSE OF THE STUDY. While eosinophilic esophagitis (EoE) has been well described as an emerging disease in children and adults, the requirement for invasive procedures (ie, endoscopy and biopsies) to diagnose and monitor patients led these investigators to ascertain whether certain noninvasive biomarkers would be useful to differentiate EoE from non-EoE diseases.

STUDY POPULATION. Study participants included a cohort of 61 children, mean age 7.5 ± 4.4 years, who were evaluated in a children’s university hospital and diagnosed with EoE. This group was compared with 20 children of similar age who underwent endoscopy but had normal biopsy results.

METHODS. All participants had baseline measurements of eosinophil activity: serum interleukin-5, serum eosinophil-derived neurotoxin (EDN), and stool EDN. The cohort of children with EoE had repeat measurements of
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.
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