Public Health. Data were taken from reports filed by school nurses monthly for all students from the 2003–2004 school year for these 3 school districts.

RESULTS. A total of 181 schoolchildren (0.83%) in the 3 districts were dispensed injectable epinephrine during the school year studied. Diagnoses listed for the prescription of epinephrine included peanut/tree nut allergy (65%), stinging-insect allergy (19%), seafood allergy (6%), and egg or dairy allergy (3%). A miscellaneous group (7%) included diagnoses for latex, chocolate, pollen, fruit, cold air, and ibuprofen allergy. Males were more likely to be dispensed epinephrine than females (odds ratio [OR]: 1.44; P < .02). White students were nearly 5 times more likely to have been dispensed epinephrine for peanut and tree nut allergy (OR: 4.5; P < .001) and almost 9 times more likely for stinging-insect allergy (OR: 8.7; P < .001). Seventy-five percent of students dispensed epinephrine for peanut or tree nut allergy were enrolled in prekindergarten through grade 5

CONCLUSIONS. Significant racial and socioeconomic differences for prescribing self-injectable epinephrine was seen in 3 school districts in Massachusetts.

REVIEWER COMMENTS. This study describes the racial and socioeconomic demographics of children prescribed injectable epinephrine but does not address the reasons for the disparity between affluent and nonaffluent or white and nonwhite populations. This study suggests that minority, socioeconomically disadvantaged students are being either underdiagnosed or undertreated for potential anaphylactic reactions that require epinephrine. Other studies have not shown racial differences in the incidence of food allergies, suggesting that other factors are involved in the lower rate of epinephrine dispensed to disadvantaged minority students.

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Alan B. Goldsobel, MD
San Jose, CA

DRUG ALLERGY

Immediate Allergic Reactions to Cephalosporins and Penicillins and Their Cross-Reactivity in Children


PURPOSE OF THE STUDY. To evaluate the frequency of anaphylactic reactions to cephalosporins and penicillins and their cross-reactivity in a pediatric population.

STUDY POPULATION. A prospective survey was conducted in a group of 1170 children with suspected immediate allergic reactions to cephalosporins and/or penicillins, which were examined during a period of 8 years.

METHODS. In vivo (skin tests and challenges) and in vitro tests (for specific immunoglobulin E) were performed with a standard concentration of penicillins and cephalosporins.

RESULTS. When 1170 children with a clinical history of allergy to penicillins and/or cephalosporins were tested in vivo for immediate hypersensitivity to β-lactams, 58.3% of cases overall were found to be skin- or challenge-test–positive. Among them, 94.4% of patients were positive to penicillins and 35.3% to cephalosporins. The frequency of positive reactions in the in vivo testing was in the range of 36.4% to 88.1% for penicillins and from 0.3% to 29.2% for cephalosporins. However, 31.5% of the penicillin-allergic children cross-reacted to some cephalosporin. If a child was allergic to a cephalosporin, the frequency of positive reactions to penicillin was 84.2%. The cross-reactivity between cephalosporins and penicillins varied between 0.3% and 23.9%. The cross-reactivity among different generations of cephalosporins varied between 0% and 68.8%, being the highest for first- and second-generation cephalosporins and 0% for third-generation cephalosporins.

CONCLUSIONS. The frequency of immediate allergic reactions to cephalosporins is considerably lower compared with penicillins, and the degree of cross-reactivity between cephalosporins and penicillins depends on the generation of cephalosporins, being higher with earlier-generation cephalosporins. The cross-reactivity among cephalosporins is lower compared with cross-reactivity between penicillins and cephalosporins.

REVIEWER COMMENTS. Penicillins and cephalosporins are common antibiotics inducing immunoglobulin E–mediated reactions in children. This large pediatric prospective study revealed that more than half of the children with a history of drug reaction to penicillin and/or cephalosporins were skin- or challenge-test–positive, unlike adults in whom the majority of those with a history of penicillin allergy are found to be skin test–negative. Almost one third of penicillin-allergic children are sensitized to cephalosporins. However, this sensitization was only to first- and second-generation cephalosporins; there was no cross-reactivity seen with third-generation cephalosporins. Interestingly, there was less cross-reactivity among the different cephalosporins. The results of this study can help guide antibiotic choices for penicillin-allergic children.

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Julie Wang, MD
New York, NY

Hypersensitivity Reactions to Paracetamol in Children: A Study of 25 Cases

PURPOSE OF THE STUDY. Reports of paracetamol (acetaminophen) allergic and nonallergic hypersensitivity reactions are rare. However, urticaria, angioedema, dyspnea, and allergic and nonallergic anaphylactic reactions have been reported in both children and adults in association with paracetamol administration. Most reactions to paracetamol occur in patients with a nonallergic hypersensitivity to nonsteroidal antiinflammatory drugs (NSAIDs). Alternatively, reactions may result from an allergic hypersensitivity to paracetamol, with tolerance of NSAIDs. This study reports an investigation of 25 children with suspected paracetamol hypersensitivity.

STUDY POPULATION. Twenty-five children, aged 8 months to 15 years, with a history of adverse reactions associated with paracetamol administration. In 12 of the 25 children studied, paracetamol adverse reactions were associated with concurrent administration of other medications or biological agents.

METHODS. Diagnosis of paracetamol hypersensitivity was based on either clinical history or the results of an oral challenge test. Reported reactions included urticaria, angioedema, conjunctivitis, dyspnea, and a maculopapular rash. Oral challenge tests with paracetamol were performed in the hospital setting. Paracetamol dosing was initiated at 1 mg and gradually increased until the appropriate cumulative dose for age and weight was achieved. An oral challenge with acetylsalicylic acid was performed in 1 child with a history highly suggestive of paracetamol hypersensitivity.

RESULTS. Paracetamol hypersensitivity was diagnosed in 1 patient (4%) on the basis of clinical history. The child reported accelerated reactions on 2 occasions, including facial angioedema, conjunctivitis, and dyspnea with wheezing, after isolated intake of paracetamol. Oral challenge to acetylsalicylic acid in this patient induced urticaria and angioedema. Oral challenges to paracetamol in the 24 other children studied were tolerated.

CONCLUSIONS. Results of this study of 25 children with suspected paracetamol hypersensitivity concur with those of previous reports: paracetamol hypersensitivity is rare and is associated with hypersensitivity reactions to antiinflammatory medications.

REVIEWER COMMENTS. Adverse reactions temporally associated with paracetamol may result from reactions to other medications or the underlying conditions for which these medications have been prescribed. Diagnostic evaluation of suspected paracetamol hypersensitivity is complicated further by the lack of validated, available skin or in vitro testing. Adverse reactions to paracetamol can be both allergic and nonallergic in nature. The results of this study underscore the need for careful evaluation for both paracetamol and NSAID hypersensitivity in children with a history suggestive of adverse reactions to paracetamol.

A Review of Evidence Supporting the American Academy of Pediatrics Recommendation for Prescribing Cephalosporin Antibiotics for Penicillin-Allergic Patients

PURPOSE OF THE STUDY. The American Academy of Pediatrics, in their evidence-based guidelines for treatment of otitis media and sinusitis, endorse the use of cephalosporin antibiotics for patients with reported allergies to penicillin. Many physicians, however, remain reluctant to prescribe such agents. This article reviews evidence in support of the American Academy of Pediatrics recommendations for administration of cephalosporins to penicillin-allergic children.

STUDY POPULATION AND METHODS. The author reviewed data from published studies related to penicillin and cephalosporin allergies in children and adults and in animal models.

RESULTS. Included in this review is an examination of the types and incidence of reactions to penicillins and cephalosporins, the frequency of cross-reactivity between these 2 groups of agents, and a thorough discussion of the clinical guidelines related to penicillin and cephalosporin allergy. Experimental and clinical studies that suggest that side chain–specific antibodies predominate in the immune response to cephalosporins, thereby explaining the lack of cross-sensitivity between most cephalosporins and penicillins. Specific recommendations for the treatment of patients on the basis of their responses to previously prescribed agents are summarized.

CONCLUSIONS. The author concludes that there is a low but measurable (0.5%) attributable risk associated with administration of a first-generation or selected second-generation cephalosporin to a patient with penicillin allergy. This increased risk is not present for third- or fourth-generation cephalosporins or for second-generation molecules with non–cross-reactive side chains.

REVIEWER COMMENTS. This is a very careful, comprehensive, and clinically useful review article. I recommend this article to physicians who would like to understand the evidence base and immunologic concepts underlying the use of cephalosporins in penicillin-allergic individuals.

Karla L. Davis, MD
Cecilia P. Mikita, MD
Washington, DC
Hypersensitivity Reactions to Paracetamol in Children: A Study of 25 Cases
Karla L. Davis and Cecilia P. Mikita
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