PREVIOUS ATTEMPTS have been made to establish wheat IgE levels that would predict clinical reactivity and prognosis. This study, in attempting to do that, included the largest population of wheat-allergic patients that has yet been described. Patients were included on the basis of a retrospective chart review and, because the inclusion criteria did not require an oral food challenge, it is possible that at the time of initial enrollment some of the patients were no longer allergic to wheat. Tolerance was appropriately determined by food challenge; however, not all patients were challenged. This might have been because a patient had a convincing reaction after an unintentional exposure to wheat, but the authors did not make that clear. In addition, some patients had ingestion reactions while trying wheat at home, which, as the authors acknowledged, raises the possibility that wheat allergy was overdiagnosed. Another limitation is that the population (in which 90% of the children included had other food allergies) might not be representative of the general population. The authors found that peak wheat-specific IgE levels were helpful in determining prognosis. However, in clinical practice, it is difficult to determine whether the peak wheat-specific IgE level for an individual patient has been reached. Because some patients with higher specific IgE levels do tolerate wheat, the authors acknowledge that wheat IgE is less helpful in predicting clinical reactivity and prognosis, compared with other foods.

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High Levels of IgG₄ Antibodies to Foods During Infancy Are Associated With Tolerance to Corresponding Foods Later in Life


PURPOSE OF THE STUDY. To examine the serum and salivary antibody responses to food-elimination diets and to identify immunologic parameters related to oral tolerance.

STUDY POPULATION. Prospective study of 89 children <2 years of age with eczema.

METHODS. Children with eczema were examined at 3 time points, that is, at enrollment, after a 6-week treatment period, and at 4.5 years of age. Treatment included topical emollients and/or steroids for all children and a 6-week egg- and/or milk-elimination diet for 60 of the 89 children in the cohort of children who were diagnosed with an allergy to 1 or both foods. Laboratory data...
included skin-prick testing (SPT) to food allergens; total and specific serum immunoglobulin E (IgE) levels; serum IgA, IgG1, and IgG4 antibodies to ovalbumin and β-lactoglobulin; total IgA levels; and saliva IgA levels. At study completion, children were categorized as being egg or milk tolerant if the food was reintroduced into the diet after passage of a challenge in the clinic or at home.

RESULTS. Of the 89 participating children, 60 were prescribed elimination diets that were based on SPT results, as follows: 24 egg, 11 milk, and 25 both. At study completion (4.5 years of age), 37 of 49 previously egg-allergic and 11 of 36 previously milk-allergic children were considered to be tolerant. Children who were egg or milk tolerant at 4.5 years of age had significantly higher levels of ovalbumin- or β-lactoglobulin–specific IgG4 at enrollment, respectively. Tolerant children also had higher food-specific IgG4/IgE ratios at 4.5 years. The highest IgG4/IgE ratios were found in children who had circulating milk- and/or egg-specific IgE antibodies but negative SPT results at enrollment. There was no significant difference between total or food-specific IgE levels at enrollment between the tolerant and non-tolerant groups; however, children in the tolerant group had significantly lower food-specific IgE antibodies at 4.5 years, compared with those in the nontolerant group. There were no significant differences in total IgA, saliva IgA, or food-specific IgA levels between groups at enrollment or at 4.5 years.

CONCLUSIONS. High food-specific IgG4 antibodies at <2 years of age and high IgG4/IgE ratios were related to oral tolerance to milk and egg at 4.5 years of age.

REVIEWER COMMENTS. This study demonstrates that early immunologic markers may be indicators of oral tolerance acquisition among a subset of children with eczema and milk and/or egg allergy. These data may be useful in conjunction with other measures such as serum-specific IgE levels, history of past reactions, and SPT to predict future oral tolerance acquisition. One weakness of the study was the fact that participants did not undergo a diagnostic food challenge to confirm clinical reactivity at enrollment, and recommendations for food elimination were made on the basis of SPT results. It is likely that elimination diets were prescribed for some participants who were actually clinically tolerant at enrollment despite having a positive SPT result. Future studies to determine the utility of immunologic markers should confirm clinical reactivity by performing a diagnostic food challenge or confirming a convincing history of past reactions.

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The Use of Serum-Specific IgE Measurements for the Diagnosis of Peanut, Tree Nut, and Seed Allergy

PURPOSE OF THE STUDY. The authors of this study sought to determine the usefulness of peanut-, tree nut–, and seed-specific immunoglobulin E (IgE) measurements for the diagnosis of symptomatic allergies and to learn more about the relationships among these foods.

STUDY POPULATION. Children and adults (N = 324) referred to a private allergy practice and to an academic center allergy clinic for evaluation of suspected IgE-mediated peanut, tree nut, or seed (sesame seed, mustard seed, poppy seed, rapeseed, and cottonseed) hypersensitivity were enrolled in the study. Patients ranged in age from 2.4 months to 40.2 years (median: 6.1 years). The male/female ratio was 198:126. Atopic dermatitis occurred at some point in life in 57% and asthma in 58%. Many had or “outgrew” other food allergies.

METHODS. Patients answered a questionnaire about their perceived food allergies. Allergen-specific diagnoses were based on questionnaire, medical history, and, when relevant, skin-prick test results and serum-specific IgE levels. Sera were analyzed for specific IgE to peanuts, tree nuts, and seeds by ImmunoCAP (Phadia AB, Uppsala, Sweden).

RESULTS. Seventy-two percent of the patients had convincing histories of peanut allergy. Of these, 86% had sensitization to ≥1 tree nut, with 34% having clinical allergy. The majority of study patients had never ingested tree nuts, which made it difficult to determine the true prevalence of these nut allergies. Tree nut clinical allergy occurred with a frequency ranging from 16.4% for walnut to 1.5% for Brazil nut. Seventeen percent of the patients reported reactions to sesame seed. The ranges of increased serum-specific IgE levels for each food varied widely among patients with positive histories. The relationship between diagnoses and allergen-specific IgE levels was estimated through logistic regression, with curves illustrating the likelihood of receiving a positive clinical diagnosis in relation to the specific IgE concentration. Positive predictive values (95%) were established for peanut and walnut (13 and 18.5 kUA/L, respectively) but with sensitivities of just 60% and 17%, respectively. High correlations were found between IgE results for walnut and pecan and between those for cashew and pistachio.

CONCLUSIONS. Quantification of food-specific IgE is a valuable tool that can aid in the diagnosis of symptomatic food allergy and might decrease the need for double-blind, placebo-controlled, food challenges.
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/content/124/Supplement_2/S121.2.full.html