CONCLUSIONS. There is a correlation between median egg-specific IgE levels and the severity of reaction during oral food challenge to egg. These levels may be helpful in predicting a potential reaction to egg.

REVIEWER COMMENTS. It is often assumed that reaction severity correlates with the food-specific IgE level, but most studies have refuted this notion. Here, a relationship was determined. However, it is difficult to assess the clinical utility of these results, because there was considerable overlap of the ranges of egg-specific IgE levels between groups. These findings may be more relevant to the controlled setting of a diagnostic food challenge rather than to the community setting in which a large or uncontrolled dose of egg might be ingested. In a real-life setting, a severe reaction may occur even with a low egg-specific IgE level, particularly if one considers patient-dependent factors such as concurrent diagnosis of asthma or personal history of a previous severe reaction.

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Correlation of Serum Allergy (IgE) Tests Performed by Different Assay Systems

PURPOSE OF THE STUDY. To compare the allergen-specific immunoglobulin E (IgE) testing performed on 3 different assays (Turbo-MP [Aglient Technologies Co, Santa Clara, CA], Immulite 2000 [Siemens Medical Solutions Diagnostics, Tarrytown, NY], and ImmunoCAP [Pharmacia, Uppsala, Sweden]) to determine if IgE levels derived from different assays are equivalent.

STUDY POPULATION. The study was a prospective analysis of serum from 50 atopic patients (median age: 7.25 years) using the 3 different allergen-specific assays (ImmunoCAP, Turbo-MP, and Immulite 2000).

METHODS. Patients being seen at the Mount Sinai pediatric allergy and immunology practice who were already having blood drawn for routine management were eligible, and the additional serum was aliquoted into 3 samples and sent to 3 different commercial laboratories, each of which used a different assay system. Of the 50 patients enrolled, 42 were diagnosed with food hypersensitivities, 5 avoided specific foods because of a history of positive skin-prick tests or serum-specific IgE, and 3 had no history of food hypersensitivity. Samples were evaluated for specific IgE to egg white, milk, peanut, cat, birch pollen, and dust mite (Dermatophagoides farinae). The results were analyzed by using the ImmunoCAP as the reference system, because published data regarding decision points for the major food allergens used this assay system. Values that fell outside of the 20% limits of agreement were determined for each allergen.

RESULTS. Significant differences were found in the measurement of allergen-specific IgE levels in identical serum samples when using these 3 assays. Immulite 2000 values were consistently higher than the reference standard for all allergens measured; however, levels for D farinae were not statistically significant. Turbo-MP showed variability without a trend toward overestimation or underestimation for milk and peanut, overestimated egg-specific IgE levels, and underestimated specific IgE levels for birch pollen. Although all 3 have a similar distribution of results consistent with the population studied, minor differences in the sources of allergens used may have contributed to the different IgE levels observed.

CONCLUSIONS. Clinicians cannot substitute a commercial allergen-specific IgE assay for another when making clinical decisions about whether to proceed to an oral food challenge or in monitoring IgE levels of an individual patient over time. The published data that are widely used are based on the ImmunoCAP assay, and the IgE levels obtained by 2 other assays (Turbo-MP and Immulite) are not equivalent.

REVIEWER COMMENTS. Most published data concerning relationships of food allergy to food-specific IgE test results were determined by using the ImmunoCAP assay. Although the IgE measurements between the different assays may correlate well on a statistical basis, the study considered the differences in absolute values, particularly around decision points widely used by clinicians. The article shows that applying decision points determined by 1 assay to test results obtained from a different assay could lead to erroneous advice about management. The authors indicated that additional studies should be performed to examine reproducibility of the results and determine assay-specific decision points for these different testing assays. This study highlights the fact that knowing what assay is used, in addition to obtaining a careful clinical history, is an important part of the evaluation of a child with possible food allergies.

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Safety of Open Food Challenges in the Office Setting

PURPOSE OF THE STUDY. To examine the safety of open food challenges (OCFs) administered in an office setting.
STUDY POPULATION. A total of 109 patients aged ≤18 years who underwent OFCs at the Duke University pediatric allergy-immunology clinic, excluding patients with a history of severe symptoms with previous reactions, were studied. Patient-selection criteria were based on the clinical history, results of skin-prick tests, and food-specific immunoglobulin E (IgE) levels that were much lower than those previously published levels predictive of a high likelihood of a clinical reaction.

METHODS. The authors performed a retrospective medical chart review of OFCs.

RESULTS. Among a total of 150 OFCs, most of which were to milk (n = 39), peanut (n = 37), and egg (n = 29), there were 40 positive test results (27% of all challenges) in 33 patients. Reactions were mild-to-moderate in 92% of the positive challenges. Cutaneous reactions occurred in 68% of the positive challenges, followed by gastrointestinal tract reactions (45%) and upper respiratory tract reactions (38%), excluding laryngeal symptoms. No patient had cardiovascular involvement, received epinephrine, or required hospitalization. Interventions included observation or antihistamine only for 92% of the positive challenges. Food-specific IgE values did not correlate with reaction severity. Of the 23 OFCs to milk, egg, and peanut without a history of clinical reactions, 8 were positive. For negative challenges, median prechallenge food-specific IgE levels approached previously published positive. For negative challenges, median prechallenge food-specific IgE levels approached previously published positive. For negative challenges, the basis of food-specific IgE levels that approach negative predictive values and a lack of adverse reactions was a lack of association between the food-specific IgE level and severity of a reaction, prechallenge skin-prick tests and careful review of the clinical history should be used. Every challenge should be approached with appropriate precautions (emergency medications and equipment readily available) to treat potentially severe reactions.

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Specific Oral Tolerance Induction in Food Allergy in Children: Efficacy and Clinical Patterns of Reaction

PURPOSE OF THE STUDY. To evaluate the efficacy of oral tolerance induction as a treatment for cow’s milk and egg allergies.

STUDY POPULATION. Forty-seven children aged 0.6 to 12.9 years with positive double-blind, placebo-controlled food challenges to milk or hen’s egg were included in this German study. Children with severe eczema were excluded.

METHODS. Subjects were randomly assigned to specific oral tolerance induction or continued avoidance. Treatment involved home escalation over at least 67 days from a dose of 1 drop of cow’s milk to 250 mL or from 5 mg of lyophilized hen egg powder to 3500 mg. Subjects continued home dosing for a median of 21 months total, after which time they underwent a secondary period of avoidance for 2 months followed by a food challenge.

RESULTS. At follow-up challenge, 9 (36%) of 25 children in the specific-oral-tolerance-induction group showed permanent tolerance, 3 (12%) of 25 were tolerant with regular intake, 4 (16%) of 25 were partial responders, and 9 (36%) of 25 did not complete the treatment because of adverse effects. In the control group, 7 (35%) of 20 children were tolerant at the study end. Allergen-specific IgE levels decreased in children who developed tolerance both in the control (P < .05) and treatment (P < .001) groups.

CONCLUSIONS. Specific oral tolerance induction may be a valid treatment option for patients with persistent food allergy. However, only a minority of patients had evidence of persistent tolerance once treatment was stopped, with some unable to tolerate the therapy and others seeming to be only transiently desensitized.

REVIEWER COMMENTS. Allergen-specific immunotherapy with injected extracts has proven too dangerous to be a viable treatment method for food allergy. Sublingual or oral immunotherapy, as described here, is a promising alternative to strict avoidance. Although one third of the patients in this study had to withdraw because of adverse effects, the remaining patients were able to incorporate the allergen into their diet at some level. This treatment modality is highly promising, but it is still experimental, carries the potential for significant risk, and requires close monitoring by experienced physicians. Several studies of oral and sublingual immuno-
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