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.

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.

Safety of Open Food Challenges in the Office Setting


PURPOSE OF THE STUDY. To examine the safety of open food challenges (OFCs) administered in an office setting.
Correlation of Serum Allergy (IgE) Tests Performed by Different Assay Systems
Jennifer Mbuthia and Cecilia P. Mikita

Pediatrics 2008;122;S191
DOI: 10.1542/peds.2008-2139FF

Updated Information & Services
including high resolution figures, can be found at:
/content/122/Supplement_4/S191.1

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
Allergy/Immunology
/cgi/collection/allergy:immunology_sub

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
/site/misc/Permissions.xhtml

Reprints
Information about ordering reprints can be found online:
/site/misc/reprints.xhtml