Diagnosing **Food Allergy** in Children

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Diagnosing food allergy is more complicated than simply ordering a test. Ordering food allergy testing in the absence of clinical history can lead to confusion and misinterpretation. A number of factors must be considered before making a diagnosis of food allergy:

- Patient symptoms
- History of other allergic conditions
- Physical examination
- Skin prick test
- Food specific serum Immunoglobulin E (sIgE) testing
- Oral food challenge

We will briefly touch on some key areas of concern when conducting food allergy testing, with a focus on IgE testing and misdiagnosis of food allergies.

IgE-mediated Food Allergy vs. Food Intolerances – What's the Difference?

A common concern from parents is whether their child may have a food allergy. An important distinction for practitioners to clarify is whether the clinical history truly supports food allergy prior to initiating testing.

In this document, food allergy refers to IgE-mediated reactions, which occur with every ingestion of a food, appear apidly (minutes to 1-2 hrs) and may involve any of the symptoms in the table below.

Parents and patients often confuse intolerance (such as difficulty with digestion, abdominal pain or bloating) or other unrelated chronic symptoms with food allergy.

Parents also frequently raise concern for food allergy based upon common childhood symptoms such as gastroesophageal reflux, changes in bowel patterns, and rashes.

Symptoms of IgE-mediated Food Allergy

Symptoms can involve any organ system but most often involve the skin or gastrointestinal tract. Histamine is a main mediator of food allergy reactions and the symptoms will vary based upon which part of the body is involved.

SKIN	GASTROINTESTINAL	RESPIRATORY	OTHER
• Pruritus • Acute urticaria • Acute angioedema (lips, face, eyes)	• Nausea • Vomiting • Acute diarrhea	• Sneezing/nasal congestion • Cough • Wheezing • Chest tightness	• Acute change in demeanor • Impending sense of doom • Hypotension/ syncope

Serum Food-specific IgE (sIgE) Testing – When to Test

A detailed clinical history is the best test to determine if food allergy is present. Food allergy testing by itself is not diagnostic for food allergy. **There are no clinical scenarios in which a wide array of unrelated food sIgE (panel) testing is indicated or useful.**

When to consider testing

1. If the patient has a convincing clinical history for IgE-mediated allergic reaction.
2. If the reaction seems to stem from cow's milk, egg, wheat, soy, peanut, tree nuts, fish, and shellfish. Over 90% of allergic reactions to food are accounted for by these foods.

When NOT to test

1. If the child is eating the food on a regular basis without any problems – they are not allergic!
2. If symptoms are vague, related to chronic conditions (such as eczema or reflux) or an intolerance rather than IgE-mediated allergy is suspected.
3. For non-IgE mediated conditions.
4. To "test for everything, just to see."

Pitfalls of IgE Testing

Despite the utility of IgE testing, indiscriminate use of food sIgE testing and sIgE panels is never indicated and obtaining sIgE as a screening test for food allergy is not recommended due to its low positive predictive value. Many more children are sensitized (have detectable IgE) to foods than are truly allergic.

Detectable food-specific IgE indicates sensitization. Symptoms with ingestion AND sensitization indicates possible allergy. IgE tests can ONLY indicate the likelihood of allergy being present, do NOT indicate severity of reaction, and have high rates of false positive test results.

Results are not as simple as "positive" or "negative". Higher values indicate greater likelihood of allergy being present in the context of the clinical history but cannot determine the severity of future reactions.

There are no 'cut off' levels that determine if someone is truly allergic. Interpretation of food sIgE testing requires an understanding of the clinical history, variability in results according to each food, and the multiple factors that can lead to falsely elevated and clinically insignificant results (i.e. elevated peanut IgE in a patient with birch tree pollen allergy). Levels have different meaning depending upon the food.

Lastly, many laboratories provide 'classes' along with the actual level. These class designations are completely arbitrary and have no meaning – the absolute level is the only result that should be used in medical decision making.

Pitfalls of Overdiagnosis Food Allergy

Test results are frequently misinterpreted, leading to:

- Misdiagnosis of food allergy or other medical problems
- Unnecessary avoidance
- Increased cost of health care
- Decreased quality of life
- Negative psychosocial impact on families and increased anxiety
- Risk of developing new food allergy*

DID YOU KNOW?

Infants and young children with atopic dermatitis often show sensitization on sIgE testing to foods they are currently tolerating or have never tried. Children who are tolerating foods but advised to avoid or remove from their diet based on testing alone have a risk of developing food allergy to that food upon reintroduction.

[continued]

WHEN TO REFER TO AN ALLERGIST

Any medical professional who diagnoses a child with food allergy is obligated to offer evidence-based education and support to the family to help them understand risk from ingestion, avoidance strategies, recognition and treatment of allergic reactions, as well as prognosis. Misinformation surrounding risk from various exposures as well as management of anaphylaxis is common. As such, at the time of initial diagnosis it is crucial to provide families with the information they need to positively and proactively manage their child's food allergy. Consider referral if:

- Your practice lacks the time or resources for education and support to food allergy families
- There are questions surrounding the interpretation of sIgE results
- Parental suspicion of food allergy persists (especially due to difficult or perplexing symptoms), despite a lack of supportive history
- Clinical suspicion of multiple food allergies arises
- The child has asthma or other allergic conditions and a confirmed IgE-mediated food allergy (children with asthma are at higher risk of severe reactions)
- Strong clinical suspicion of IgE-mediated food allergy exists, but allergy test results are negative

References:

1. What are the pitfalls of food allergy panel testing? Available at: https://www.aaaai.org/conditions-and-treatments/videos/allergy/food-allergy-testing . Accessed March 15, 2019.
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3. Guidelines for the diagnosis and management of food allergy in the United States: report of the NIAID-sponsored expert panel. J Allergy Clin Immunol. 2010 Dec;126(6 Suppl):S1-58. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3123497/)

Referrals and Consultations

Online: NationwideChildrens.org

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W163771 2/2020