FOOD ALLERGY

Skin Prick Test to Egg White Provides Additional Diagnostic Utility to Serum Egg White-Specific IgE Antibody Concentration in Children


PURPOSE OF THE STUDY. To determine if skin-prick tests (SPTs) can differentiate children with low egg white–specific immunoglobulin E (IgE) levels who pass an oral egg challenge from those who fail.

STUDY POPULATION. The study was a retrospective analysis of oral egg challenges (N = 74) in children with egg allergy and low egg white–specific IgE antibody levels (<2.5 kIU/L).

METHODS. A retrospective analysis of serum egg white–specific IgE levels, SPT results, and egg oral food challenge (OFC) outcomes and clinical history in children with egg allergy were performed. Children were typically selected for OFC on the basis of low egg white–specific IgE levels (<2.5 kIU/L). Sixty-eight of the challenges were double-blind, placebo-controlled OFCs conducted in the Mount Sinai General Clinical Research Center (New York, NY), and 12 OFCs were open challenges conducted in outpatient clinics between April 2001 and April 2005. Children who passed their OFC were compared with those who failed for differences in age, gender, history of egg reaction, asthma, eczema, allergic rhinitis, oral allergy syndrome, family history of food allergy, and family history of any allergy.

RESULTS. Children who passed the egg OFC (n = 29) had a median wheal size of 3 mm (range: 0–9 mm) and a median egg/histamine index of 0.71 (range: 0.00–2.30), whereas those who failed (n = 45) had a median wheal size of 5 mm (range: 0–8 mm) and a mean egg/histamine index of 1.0 (range: 0.0–2.7), which demonstrated significance of P = .003 for SPT and P = .0009 for index. In patients with egg white-specific IgE levels of <2.5 kIU/L, an SPT wheal of 3 mm or an egg/histamine wheal-size index of 0.65 was associated with a 50% chance of passing an egg OFC. Children who passed their OFC did not differ from those who failed with regard to egg white–specific IgE levels, age, gender, or clinical history, except for allergic rhinitis, which was found in 82% of those who failed versus 55% of those who passed (P = .02).

CONCLUSIONS. In egg-allergic children, those with low egg white–specific IgE levels, a small SPT response, and a low egg/histamine index are more likely to pass egg OFCs. The size of the egg SPT wheal response may be used to predict the outcome of the egg OFC, thus aiding clinicians in timing of OFCs in egg-allergic patients.

REVIEWER COMMENTS. With the increasing prevalence of food allergy in young children, diet restriction is becoming an increasing burden for families of food-allergic children, which makes it important to test for tolerance as early as possible. The current study population represented more severely affected patients with comorbidities and demonstrated a high OFC failure rate of 62%. Although these findings provide new and useful information for clinicians who treat children with egg allergy, additional studies are needed to validate these findings prospectively and in different populations.

The Atopy Patch Test in the Diagnostic Workup of Suspected Food-Related Symptoms in Children


PURPOSE OF THE STUDY. To determine the utility of atopy patch tests (APTs) in the diagnostic evaluation of food allergy.

STUDY POPULATION. A cohort of 437 children (median age: 13 months; 90% with atopic dermatitis) who were referred for evaluation of suspected food allergy.

METHODS. Specific serum immunoglobulin E (sIgE) measurements, skin-prick tests (SPTs), APTs, and controlled oral food challenges were performed.

RESULTS. The outcomes of 873 oral challenges with cow’s milk, hen’s egg, wheat, and/or soy were analyzed. One thousand seven hundred single APTs were performed. As a single parameter, the APTs showed the best specificity compared with sIgE measurements, SPTs, or both. Combining the APT with either the SPT or sIgE measurement resulted in improved sensitivity and specificity. Decision points for sIgE measurement and for the SPT showed lower values when combined with a positive APT result. By including the APT in the evaluation, only between 0.5% and 7.0% (99% predicted probability) and between 6% and 14% (using 95% predicted probability) of children would fulfill the criteria for avoiding an oral food challenge.
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Anna Nowak-Wegrzyn

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