

## ANTIBIOTIC SKIN TESTING FOR CHILDREN LABELED WITH TYPE 1 HYPERSENSITIVITY: A USEFUL CLINICAL TOOL

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**INTRODUCTION:** Children are often unnecessarily labeled as being allergic to antibiotics that may potentially be life saving. Aside from penicillin, good diagnostic testing has not been available in pediatrics to differentiate between type 1 hypersensitivity and other causes of adverse reactions to antibiotics.

**OBJECTIVE:** We sought to determine the safety of antibiotic skin testing of children and to describe its potential clinical impact.

**METHODS:** A retrospective chart review was performed of patients between 0 and 18 years of age who were seen in our clinic over a 2-year period with a history of a possible immunoglobulin E-mediated reaction to various antibiotics other than penicillin. We included patients with either extremely limited antibiotic options or complex medical issues that require antibiotics. We did not perform testing if there was a history of a convincing immunoglobulin E-mediated or serum sickness-like reaction. Skin testing was performed by using nonirritating concentrations of the antibiotic in question that have been used in adults. If skin-prick testing results were negative, we performed intradermal testing. A provocative challenge was offered if all skin-testing results were negative.

**RESULTS:** of 28 visits, 23 met our inclusion criteria; 4 (17%) of 23 could not be skin-tested. Of those who were skin-prick-tested, all 19 (100%) had a negative result, and 17 (89%) of 19 also had a negative intradermal test. Of those 17 (88%), 15 patients agreed to undergo provocative challenge, 14 (93%) of whom were then unlabeled as allergic to the respective antibiotic.

**CONCLUSIONS:** Skin-prick testing is a novel tool in pediatrics that may have an important clinical impact in the accurate diagnosis of antibiotic allergies by guiding provocative challenges.

## MILK-SPECIFIC IMMUNOGLOBULIN E/TOTAL IMMUNOGLOBULIN E RATIO AS A PREDICTOR OF POSITIVE ORAL FOOD CHALLENGES IN CHILDREN WITH ALLERGY TO COW'S MILK

Submitted by George Konstantinou

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**INTRODUCTION:** Skin-prick test wheal size and serum-specific immunoglobulin E (IgE) levels are able to predict, to an extent, the presence of allergy to certain foods. Nevertheless, the predictive value of these markers is not enough to substitute for oral food challenges, which suggests the need for improvement.

**OBJECTIVE:** The goal was to determine the prognostic value of specific IgE/total IgE (tIgE) ratio in patients with allergy to cow's milk by using receiver operating characteristic (ROC) analysis.

**METHODS:** Thirty-four open challenges were performed in children with a mean age of 18.4 months (range: 10.3–69.2 months) who had a previously diagnosed IgE-mediated allergy to cow's milk to reintroduce milk into their diet. Specific IgE levels, assessed by ImmunoCAP fluorescence enzyme immunoassay (Pharmacia Corp, Bridgewater, NJ), were obtained, and skin-prick tests were performed just before the challenge. The specific IgE (f2)/tIgE ratio was evaluated as a potential predictor of a positive challenge and compared with f2 alone by using ROC analysis.

**RESULTS:** Of 34 challenges, 6 (17.6%) results were positive. Prechallenge milk-specific IgE levels and the f2/tIgE ratio were significant predictors ( $P_{f2} = .007$ ;  $P_{ratio} = .008$ ) of a positive challenge outcome. After ROC analysis, f2 provided a discrimination (between positive and negative provocations) of 0.8601 (ROC area under the curve); however, the f2/tIgE ratio provided a significantly greater discrimination of 0.9464. Values of the f2/tIgE ratio that are  $>0.1121$  provide a 100% diagnostic accuracy (probability of a positive provocation result).

**CONCLUSIONS:** The f2/tIgE ratio may be a novel, promising predictor of positive oral food-challenge results and should be evaluated prospectively in a larger sample.

## BREASTFEEDING AND ATOPIC DISEASE IN CHILDHOOD: THE GENESIS STUDY

Submitted by Yannis Manios

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**INTRODUCTION:** The prevalence of asthma and atopic disease in childhood is increasing yearly. A pro-

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