Blood test predicts severity of peanut and seafood allergies

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A new blood test promises to predict which people will have severe allergic reactions to foods according to a new study led by Mount Sinai researchers and published online today in the *The Annals of Allergy, Asthma & Immunology*.

To detect food allergies, physicians typically use skin prick tests or blood tests that measure levels of allergen-specific IgE (sIgE), a protein made by the immune system. However, these tests cannot predict the severity of allergic reactions. Oral food challenges, in which specific allergens are given to patients to ingest under physician supervision to test for signs or symptoms of an allergic reaction, remain the gold standard for diagnosing food allergy even though the tests themselves can trigger severe reactions.

In the newly published study, Mount Sinai researchers from The Mindich Child Health and Development Institute and the Jaffe Food Allergy Institute report that by counting the numbers of one type of immune cell activated by exposure to a food, a simple, safe blood test can accurately predict the severity of each person's allergic reaction to it. The immune cell measured is the basophil, and the blood test, the basophil activation test or BAT, requires only a small blood sample and provides quick results.

"While providing crucial information about their potential for a severe allergic reaction to a food, having blood drawn for BAT testing is a much more comfortable procedure than food challenges." says first author Ying Song, MD. "Although food challenges are widely practiced, they carry the risk of severe allergic reactions, and we believe BAT testing will provide accurate information in a safer manner," says Dr. Song, also a researcher in the Jaffe Food Allergy Institute at The Mount Sinai Hospital.

"Although the blood basophil activation test has been shown to be an important addition to the tools available for discriminating between allergic and non-allergic individuals and predicting the severity of food allergy reactions, at this time it is only approved for research purposes," says senior author Xiu-Min Li, MD, Professor of Pediatrics at the Icahn School of Medicine.

Investigators took blood samples from 67 patients, ages 12 to 45 years, who also underwent a food challenge with a placebo or with peanut, tree nut, fish, shellfish, or sesame. The goal was to see if the BAT test results would correlate with food challenge results. The study was double blinded, so neither researchers nor patients knew which person received a placebo or one of the allergens, which were administered at random.

Before the randomized food challenge, researchers collected blood from all patients and analyzed the results, which showed a strong correlation between BAT testing data and food challenge severity scores. This finding provides evidence that BAT testing can reduce the need for food challenges not only for peanut, but also for tree nut, fish, shellfish, and sesame and perhaps for other foods.

Provided by The Mount Sinai Hospital

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