ALLERGY TESTS

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Allergy Testing in Atopic Disorders

Tests performed by the Virology/Immunology laboratory Auckland hospital. For results, use ward computer or phone Lablink: 903 5995 or (09) 307-8995

Skin Prick Tests

Skin prick tests to a wide range of airborne and food allergens can be performed in the Virology/Immunology laboratory at Auckland hospital. Skin testing for common aeroallergens and food allergens is also available through Diagnostic Medlab.

Please call the Paediatric Immunologist, Dr Jan Sinclair, or laboratory technologist Roy The (ext 6135) to discuss which tests are appropriate or to arrange an appointment for your patient.

Written referrals may be sent directly to the Immunology Laboratory (Fax 307-2826). In this case the patient will be contacted directly to make an appointment.

All referrals for anaesthetic allergy testing (both local and general) should be sent directly to the Anaesthetic Allergy Clinic, Department of Anaesthesia, Auckland Hospital.

Specific IgE (RAST)

Specific IgE tests are used to detect the presence of allergen specific IgE antibodies in the serum. A positive specific IgE test carries the same diagnostic implications as a positive skin prick test. There are, however, significant differences between these two types of tests. Some of these are:

1. Specific IgE testing is performed on serum samples, whereas skin prick testing requires the patient to be present in a diagnostic allergy laboratory for about 30 minutes.

2. Skin prick testing carries a very small risk of inducing anaphylaxis. This is a particular problem for fresh food testing, drugs and insect venom needing intradermal tests. Skin prick testing may be difficult in patients with widespread dermatitis, in infants and patients with dermatographism.
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(who develop weals to all allergens as well as the negative control). Specific IgE testing is advantageous in these clinical settings.

3. Skin prick tests, but not specific IgE tests, are affected by a patient taking anti-histamines. This necessitates a patient stopping oral anti-histamines several days prior to skin prick testing being performed.

4. The agreement between allergy skin tests and specific IgE tests is 85-95%, with specific IgE tests being less sensitive than skin prick tests. Both skin and RAST tests reflect sensitization but not necessarily allergic disease. Tests must be interpreted in context of the clinical history.

Skin prick and specific IgE testing can be performed in a number of different clinical scenarios:

**Allergic Rhinitis and Asthma**

Testing for possible underlying allergy should be considered in patients with significant rhinitis or asthma. Skin prick testing is the preferred method in the great majority of patients, because of its low cost and greater sensitivity (and consequently high negative predictive value). Positive skin prick tests do not need to be confirmed with specific IgE tests. Specific IgE tests are advantageous in patients who live in remote areas where skin tests may not be available.

**Atopic Eczema**

Food allergy is a contributing factor to eczema in 20-40% of children, proven on double blind placebo controlled challenge. Cows’ milk, egg, soy, peanut, wheat, fish, and cashew account for 90% of identified food allergies. Negative skin tests for these seven allergens has been shown to have a high negative predictive value for any food allergy contributing to atopic dermatitis. Skin prick testing may be difficult to interpret in children with extensive eczema.

**Bee and Wasp Venom Allergy**

Skin prick testing or specific IgE testing is not necessary for patients who have local reactions to stings, as immunotherapy is not indicated. Patients who have had systemic allergic reactions to bee or wasp in whom immunotherapy is being considered need to have skin prick testing or specific IgE testing in order to ensure that appropriate immunotherapy is administered.

Allergy skin tests for bee and wasp may involve intradermal tests, and is available through Lab Plus but not through community labs. RAST testing is also an appropriate first investigation. If there is a good history of a severe sting reaction but a negative RAST test, skin testing must be undertaken.

**Allergic Bronchopulmonary Aspergillosis**

Diagnosis of this uncommon but not rare condition has important therapeutic and prognostic implications. Current recommendations are for testing is to have both skin prick tests to Aspergillus extract and Aspergillus specific IgE performed.
Food Allergy

Specific IgE testing can be very valuable in establishing a diagnosis of IgE mediated food hypersensitivity. Specific IgE tests have particular value in infancy. The majority of food allergies are caused by a small number of foods, with milk, egg and peanut accounting for ~75% of allergies in young children, and fish, shellfish, other nuts, sesame and kiwifruit other common culprits. The likely offender can often be suspected on the basis of the presenting history, and confirmed by either skin testing or specific IgE testing. Milk and egg allergy rarely persist to adulthood, however peanut, fish and shellfish allergy frequently do. A wide range of food allergens are available, and testing with more unusual foods is sometimes required.

Penicillin Allergy

Positive penicillin specific IgE in a patient who has a history suggestive of allergy to penicillin confirms the diagnosis. However, specific IgE testing is less sensitive than skin prick testing. A patient with a negative specific IgE result needs further evaluation with penicillin skin prick testing before penicillin is represcribed.

Specimen: RAST

5 ml blood. Plain tube. Microcollect 150 ml serum for one specific IgE antibody test plus 50 ml serum for each additional test. Tests for specific IgE antibodies to the following allergens and allergen mixes are routinely available:

Allergens:

There is an extensive list of foods, aeroallergens and some drugs that can be tested by skin and RAST testing. The list can be found under ‘Allergy Tests’ in the Auckland District Health Board Laboratory Handbook on the local Intranet. At times skin testing with fresh foods needs to be considered if specific allergens are not available.

Contact Roy The at the Auckland City Hospital Immunology Laboratory if you need an updated list of allergens RoyT@adhb.govt.nz.