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In Vivo Tests for the Confirmation of Allergic Sensitization in an Individual

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Commentary

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DESCRIPTION

Immediate type hypersensitivity skin testing is an *in vivo* measure of the presence of allergen specific IgE. This is an analytically sensitive method to screen for an individuals existing IgE antibody sensitization that may be responsible for the manifestation of a spectrum of allergic diseases. An allergen, typically in the form of physiological extract or purified molecule that is suspected of inducing the allergic response is applied to the skin by either contact, epicutaneous or intradermal techniques. Thus, different skin test modalities are available for the diagnosis of allergic disease. These include patch testing used in the diagnosis of contact dermatitis and to a lesser extent, food and drug allergy, skin prick testing and intradermal skin testing which is used especially in the diagnosis of allergy to drugs and hymenoptera venoms. The Skin Prick Test (SPT) considered the most widely used *in vivo* examination method in allergy diagnostics. The reasons for the widespread use of the SPT include its ease of performance and interpretation, minimal invasiveness, low risk of side effects, low cost and short time to obtain results. SPT evaluates the presence and magnitude of cutaneous reactivity as a surrogate marker for sensitization that is associated with allergic reactions in target organs such as eyes, nose, lung, gut and skin.

When sensitization exists in an individual and the introduction of relevant allergens into the skin leads to the cross linking of allergen specific IgE that is bound to the high affinity surface receptors on mast cells and basophils. This in turn causes these effector cells to degranulate and release histamine and generate other inflammatory mediators. A wheal and flare response is produced which can be quantified. Multiple allergens can be tested simultaneaously on the skin because the resultant wheal and flare reaction to a specific allergen is localized to the immediate area of the SPT. The SPTs distinct advantage over other diagnostic testing methods such as the serological analysis or provocation test is the rapidity with which results can be obtained in 15-20 minutes after the allergen administration to the skin. This enables the physician to obtain evidence of allergic sensitization make a definitive diagnosis and establish a management plan, often during the initial visit. International societies of allergy proposed standardized SPT procedures and a reference panel of inhalant allergen specificities. This list of allergen specificities to be tested can be adjusted to include more local flora and patient history related exposures.

The SPT cannot be performed in subjects with expensive eczema, demographism, urticarial or those who cannot stop taking antihistamines or other medications that interfere with the proper interpretation of the test results. Systemic side effects are unlikely when using commercially available aeroallergen extracts. However, since systemic allergic reactions and rare deaths have been reported in association with SPT, a physician or other health care professional and emergency equipment should be immediately is particularly important when testing for sensitization to a food or drug on the basis of the patient history that has the potential to induce anaphylaxis. Adverse reactions will usually occur within 30 minutes of SPT application.

Patients who have poorly controlled asthma should post pones their SPT until their disease is more effectively controlled. This will reduce the risk of exacerbation of their disease associated with skin testing. A peak flow of less than 70% in patients with asthma is considered as a relative contraindication. Special precautions should be taken in performing the test during the relevant allergy season in which the patient has allergic symptoms or when base line tryptase levels are elevated due to a heighted risk of anaphylaxis. More over attention should be paid to subjects taking a beta blocker, or less often angiotensin converting enzyme inhibitor due to a reduced response to epinephrine that might be needed to treat a systemic allergic reaction.