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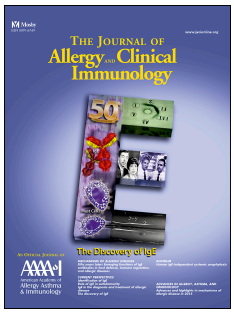

Methods in Allergy/Immunology: Food Challenges

Barbara K. Ballmer-Weber, MD, Kirsten Beyer, MD

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Methods in Allergy/Immunology

Food Challenges

Barbara K. Ballmer-Weber, MD[1,2], Kirsten Beyer, MD[3]

[1]Allergy Unit, Department of Dermatology,University Hospital, Zürich, E1Switzerland

[2]Center of Dermatology and Allergology, Luzerner Kantonsspital, Lucerne

[3]Department of Paediatric Pneumology and Immunology, Charité Universitätsmedizin Berlin, University Medical Center, Berlin, Germany

Corresponding Author:

Chefärztin Allergologie, Zentrum für Dermatologie und Allergologie, Luzerner Kantonsspital Luzern, 6016 Luzern Tel +41 41 205 52 63 (2945)/ Fax +41 41 205 29 19

barbara.ballmer@luks.ch

Since there is no in vitro test, which can accurately predict the clinical relevance of a sensitization to food, the oral food challenge still remains the most reliable procedure to confirm or exclude food allergy and to assess the development of tolerance in children with potentially transient food allergies such as to cow's milk, hen's egg, wheat or soy. Although in the last few years component-resolved diagnostic has improved the food allergy diagnostics, especially in peanut and tree nut allergy, the majority of patients still need to undergo oral food challenge. The following paper will describe in whom and how to perform an oral food challenge as well as its interpretation of the results with a focus on suspected IgE-mediated food allergy.

Who should undergo oral food challenge: Patients of any age with suspected food allergy can be challenged. Food challenges in patients with a positive case history of an adverse reaction to food are especially important in cases where the food eliciting the clinical reaction is uncertain or to determine the development of tolerance in the case of transient food allergies, such as to milk and egg in children. In case of a very severe, i.e. anaphylactic reaction by history, the benefit of a challenge has to be carefully weighed against the risk. Moreover, food challenges are often necessary in infants and children with eczema and food sensitization (based on skin testing or IgE measurement in vitro) if the food has so far not been introduced into the diet and might cause immediate type symptoms or ~~is~~ has already been eaten but is highly suspected of causing worsening of the eczema. Exclusion criteria for an oral food challenge are pregnancy, unstable asthma, medications, which interfere with the treatment of a challenge induced allergic reaction such as betablockers (Online repository Table E1) or confounding medical conditions that might interfere with the interpretation of the challenge outcome or aggravate the extent of the allergic reaction such as chronic urticaria, seasonal allergy rhinitis with current symptoms, severe uncontrolled eczema, acute infection, especially with fever or mastocytosis. A careful pre-challenge assessment is mandatory including inspection of the oral cavity and the skin, pulse rate, blood pressure, lung auscultation and in older children or adults peak flow value (PEF) or FEV_1.

How to perform an oral food challenge: During the challenge, which is usually performed in a hospital setting, the patients need to be under continuous supervision. Required medical skills and the appropriate equipment are summarized (Online repository Table E2). The installation of an i.v. access is highly recommended at least in patients with a case history of a systemic reaction. The food is usually given to the patient in fasting conditions or after a light and defined meal (i.e. toast and tea), especially in children. During the oral food challenge no other food should be allowed.

Oral food challenges in patients with suspected IgE-mediated food allergy should be performed using titrated doses to avoid severe reactions. Various protocols have been used around the world but a semi-log increase of the dose every 30 minutes with a starting dose around 3 mg and a maximum dose of around 3 g food protein seems to be a reasonable approach in regard to practicality and