

Original article

Role of oral food challenges in the diagnostic work-up of food allergy in atopic eczema dermatitis syndrome

The diagnosis of food allergy in infants and children is still a challenging task for the pediatrician. While immediate-type allergic reactions to foods can be diagnosed quite easily, late-phase reactions, e.g. in atopic dermatitis, often represent a diagnostic challenge. Once classical diagnostic procedures such as history, skin prick tests, atopy patch test, and specific immunoglobulin E in serum have been exhausted, double-blind, placebo-controlled food challenges represent the state of the art. After an oligo-allergenic diet, suspected foods or placebo are given in a titrated manner until a clear clinical reaction or the highest dose. The observation period should be 48 h in the case of atopic dermatitis. Constant clinical monitoring is mandatory. Dietetic recommendations are given for 12 months. The effort involved in such a procedure is justified because it can help to avoid clinically relevant food allergens in some cases and in others can prevent children from being exposed unnecessarily to diets that may be harmful to them.

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In the absence of a single laboratory test which can diagnose food allergy in an individual patient (1), oral challenge with food remains the gold standard for diagnosing food allergy and should ideally be performed as a double-blind, placebo-controlled food challenge (DBPCFC) (2–6). In general, oral food challenges have two aims:

- 1 to identify the causative allergens so as to avoid them in the future
- 2 to prove that foods are not responsible for the child's symptoms and thus spare her unnecessary dietary restrictions.

The chief indication to carry out an oral challenge is the suspicion of parents or physicians about food-related symptoms. Allergy tests on their own cannot be considered diagnostic when approximately 10% of DBPCFC, although positive, do not correlate with immunoglobulin E-mediated disease (7). Patients who present with manifest, life-threatening symptoms or anaphylaxis should not be challenged (8,9).

Procedure

The suspicion of food allergy may arise from the medical history, a symptom- or food-diary, or from allergy tests

(5) (Fig. 1). The order of foods during oral challenges should be chosen according to:

- 1 nutritional requirements
- 2 results of allergological tests and
- 3 individual dietary habits of the child or her family.

Oral food challenges can be performed at home, in the office, or in-hospital either on an out- or in-patient basis. DBPCFC of in-patients are indicated for cases listed in Table 1. For safety reasons, oral challenges should be performed after placement of an intravenous line if the child reports severe or unknown clinical reactions (10). It is of especial importance that children with atopic eczema dermatitis syndrome should be monitored to ensure maintenance of all attendant clinical parameters as far as possible. For this reason, low-dose (e.g. hydrocortisone 1%) topical steroid may be administered throughout the oral challenge procedure. DBPCFC are best performed in a randomized order using a titrated approach with two allergens and one placebo (Fig. 2). For the very important question of whether oral food challenges should be performed double-blind or under open conditions, the proposed procedure outlined in Fig. 3 may be followed. Table 2 lists several practical aspects of DBPCFC. Early clinical responses are those reactions observed within 2 h after the last administered dose, late-phase reactions are those occurring between 2 and 48 h thereafter. Classifi-

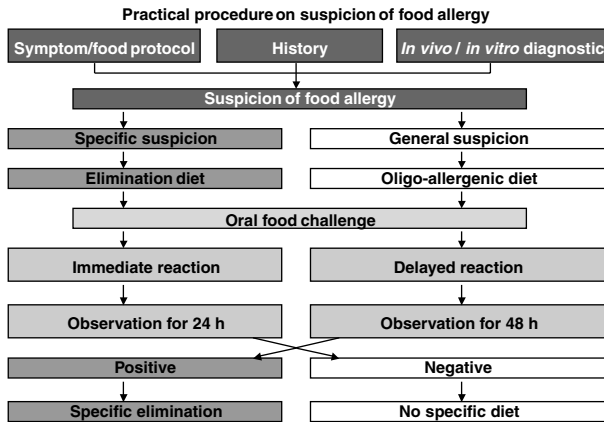


Figure 1. Proposal for a standardized procedure for use with suspicion of food allergy.

Table 1. Indications for oral food challenges on an inpatient basis

1.	Anaphylactic reactions in the past (Risk of renewed severe reactions)
2.	Clinical reaction cannot be estimated (Sensitized, but food not got so far)
3.	Severe atopic dermatitis (Difficult to assess the outcome of challenge)
4.	Subjective symptoms (More easy to objectify)

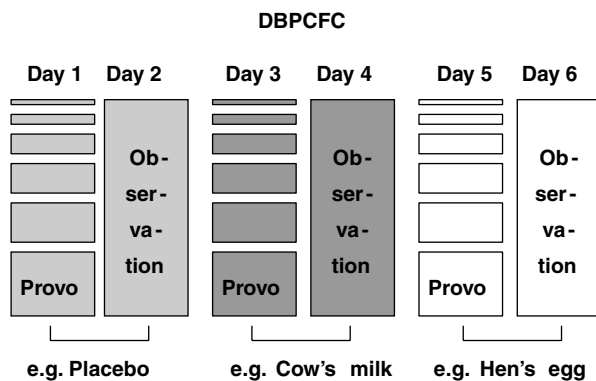


Figure 2. Proposal for a block-wise approach to double-blind, placebo-controlled food challenge.

cation of outcomes of oral food challenges should be the task of trained pediatric allergy department personnel as the interpretation of DBPCFC results requires adherence to explicit criteria (Table 3).

Concluding remarks

There are several case reports of infants on a drastic, alternative, dietary regimen who presented with severe

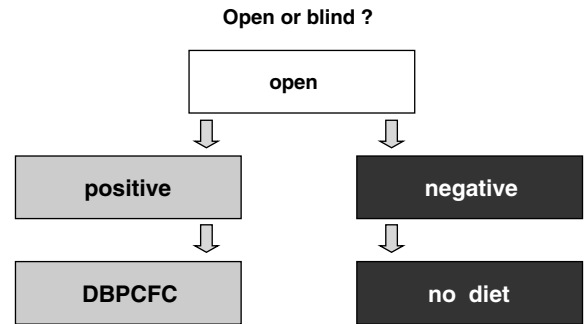


Figure 3. Proposal to assist decision in carrying out open or blinded oral challenge.

Table 2. Practical aspects of DBPCFC

- (01) Eliminate suspected food for at least 5 to 7 days before provocation.
- (02) Withdraw systemic drugs (e.g. antihistamines) according to half-life.
- (03) Reduce topical steroids to minimum and keep constant during oral challenges.
- (04) Make sure that blinding is given (e.g. by dietitian).
- (05) Use native (or dried) foods.
- (06) When possible apply foods in liquids.
- (07) Relation of placebo to verum should be at least 1 : 2.
- (08) Give same amounts of verum and placebo.
- (09) Foods should be given to patient in fasting state.
- (10) Increase doses every 30 min (until highest dose or clear clinical reaction).
- (11) Total amount should correlate to age-related average daily intake.
- (12) Choose observation period of 24 hours for suspected immediate reactions and 48 hours for late reactions (e.g. all children with AEDS).
- (13) For the definition of late phase reactions count time from highest dose ñ not from first dose.
- (14) Challenges should be observed and supervised by professionals capable of dealing with anaphylaxis.
- (15) Make sure that clinical monitoring is standardized (e.g. symptom scores).
- (16) Have emergency-set ready to use; personnel should be skilled to cope with the case of emergency.

Table 3. Interpretation of DBPCFC

VERUM	PLACEBO	Procedure
+	-	Elimination diet
+	+	Repeat DBPCFC
-	-	No Diet
-	+	No Diet

nutritional deficiencies resembling kwashiorkor, a syndrome otherwise associated with developing countries and characterized by generalized edema, abdominal skin distension, irritability, hypo- and hyperpigmented skin lesions and failure-to-thrive or extensive weight loss) (11–14). Hence all efforts to standardize oral food challenges are justified and are needed to prevent nonspecific diets which may lead to severe impairments in growth and development and delay effective therapeutic measures.

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