



EDITORIAL

Double-blind food challenges in children in general pediatric practice: Useful and safe, but not without pitfalls



Oral food challenging is used for diagnostic confirmation purposes in those cases where the case history is not sufficiently clear or when there are discrepancies between the case history and the *in vivo* or *in vitro* diagnostic test findings. It is also used to confirm that a previously diagnosed case of food allergy has been resolved. Three types of oral food challenging tests are used: open, simple-blind and double-blind, according to whether the patient and/or physician are aware of the challenge test contents or not.

In open testing, where the child and/or relatives know the food that is being administered, the anxiety caused by concern over the possible reaction can be an important source of bias. Nevertheless, such tests are considered useful in most nursing infants and as an initial screening technique when several foods are being considered. In any case, in those cases in which the symptoms are relatively subjective and may be associated to patient anxiety, we need to repeat the challenge at least with masking of the food and, if possible, with placebo control.

Simple-blind testing involves masking of the food, and the patient and relatives are therefore unaware of the tested contents. In these cases a placebo arm is advised, or at least an initial dose of placebo should be administered to establish whether subjective symptoms are elicited or not, before challenge testing is started.

Lastly, placebo controlled double-blind food challenge testing is considered the gold standard for the diagnosis of food allergies – though these tests are much more laborious and consume more materials and resources. In these tests the food is masked in some other food or in capsules, and neither the child nor the physician knows whether the dose contains the food that is being tested. False-negative results have been reported in 0.7% of the placebo controlled

double-blind food challenge tests, and false-positive results have recently been reported in 3.2% of the cases among children with atopic dermatitis.^{1–3}

Regardless of the type of oral food challenge test used, close supervision is essential to carefully assess the possible symptoms and to quickly control any potential serious reactions. Evaluation is required of the skin symptoms such as erythema, itching (which initially may affect only the palms and soles), urticaria, angioedema, morbilliform rash and hair erection. Oral manifestations such as itching of the palate, lips or tongue, lip or uvular lingual edema, a metallic taste, drooling in nursing infants, or tongue scratching with the hand in children must also be evaluated. The gastrointestinal symptoms in turn comprise nausea, abdominal pain, frequent colic episodes or cramps, vomiting and diarrhea, or swallowing difficulties. The breathing manifestations include laryngeal alterations, itching and narrowing sensation of the throat, dysphagia, dysphonia and hoarseness, and itching sensation in the external ear canal, while the pulmonary problems comprise shallow breathing, dyspnea, chest oppression, dry, deep and repetitive cough, and wheezing. Nasal alterations in the form of itching, congestion, rhinorrhea and sneezing can be observed. The cardiovascular manifestations comprise weakness or dizziness, syncope, chest pain, palpitations and hypotension, while the neurological symptoms consist of lethargy and hypotonicity in nursing infants. Older children may present sudden interruption of activity, adoption of the fetal position, anxiety, apprehension, seizures and confusion. Lastly, the eye symptoms comprise itching, periorbital swelling and reddening, tearing and conjunctival erythema.

The article published by Oole-Groen and Brand⁴ describes the experience gained with 234 placebo controlled double-blind challenge tests (most with cow's milk) performed in a series of 209 children. Two aspects deserve consideration in this study. On one hand, symptoms were described in 29.3% of the placebo challenges, thus underscoring the importance

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of knowing the expected symptoms (subjective symptoms are the manifestations usually noted with placebo dosing) – not only in order to adopt immediate actions in the event of a serious reaction, but also to ensure correct evaluation of the observed manifestations. On the other hand, caution is needed in evaluating nonspecific symptoms which can lead to interpretation error and to an increase in false-positive readings.

References

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