

CHAPTER 4

The diagnosis of food intolerance

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Introduction

The diagnosis of any type of food intolerance depends on the demonstration that, after a challenge with a specific food, there is a clearly defined adverse reaction due to the food itself and not to food contamination or psychological influences. Except in cases in which there is a history of a florid, well observed and potentially dangerous reaction, (especially if it has occurred on more than one occasion) a challenge test is therefore an essential requirement before the diagnosis can be made. The history of adverse reactions to food is, however, more often incorrect than it is accurate [1,2]. It is therefore important to exclude psychological influences, by giving the food in a form which the patient cannot distinguish from a placebo substance or by obtaining biopsy or other objective evidence of a reaction which is not psychological.

Tests for the presence of IgE antibodies and other laboratory tests can all give positive results in symptomless individuals and cannot therefore substitute for the evidence of a challenge procedure. Even when there is strong presumptive evidence of a food-related disorder, for example on jejunal biopsy, the biopsy alone cannot always prove which food has caused the reaction. There are nevertheless a number of tests which provide useful supporting evidence for the diagnosis of food intolerance or can help to distinguish between IgE-mediated allergic reactions and other types of food reaction. In such cases, it is important to distinguish between those widely available tests which have been validated, those which are of interest mainly in research laboratories, and those which are commercially available but are either unreliable or have yet to be fully validated.

Oral challenge procedures

Many individuals have themselves noted that they are liable to develop an immediate allergic reaction to a specific food and have then dealt simply with the problem by avoiding that food without ever seeing a doctor. When asked to confirm a suspected diagnosis of food allergy based on the history alone, however, a

double-blind placebo-controlled food challenge (DBPCFC) provides the only sure method. The case for maintaining high diagnostic standards is a strong one, since incorrect diagnoses can not only lead to the neglect of undiagnosed organic disease or psychological problems but is often followed by the imposition of inadequate and inappropriate diets and by the use of an obsessional regime over a protracted period of time. The DBPCFC procedure is not easy when the repeated administration of relatively large quantities of food is needed, in which case disguise is difficult and patients may guess correctly. Nevertheless, the use of freeze-dried foods in capsules and the use of foods which are masked by other foods have made it possible for the interested physician to carry out such procedures in the clinic [3]. For the purposes of scientific research in all adults and nearly all children, such procedures are essential. It should be accepted, however, that even in research, exceptions can sometimes be justified, as in the case of infants with cow's milk protein intolerance. In clinical work, the confirmation of a diagnosis of food intolerance requires strict criteria but its exclusion can often be achieved by open challenge procedures.

The most simple clinical approach to diagnosis is to demonstrate clinical improvement when a suspect food or foods are eliminated from the diet and to demonstrate a recurrence of symptoms when a specific food is reintroduced. If the elimination of particular suspect foods (for example shellfish or milk) is not successful and further measures are needed, it is usual to prescribe a diet which provides few foods which are unlikely to cause reactions but excludes the foods which are most commonly associated with intolerance, namely milk and dairy products, eggs, cereal grains, fish, nuts, artificial colours, and preservatives. In occasional severe and unresponsive cases, the use of an elemental diet aims at excluding all known allergens, so that if there is no response, the relationship to food can be excluded. If there is a clinical improvement, the patient's condition can then be investigated further.

The effect of dietary challenge can only usefully be evaluated when the patient has had a symptom-free interval, and evidence of a recurrence of symptoms should then trigger the need for more definitive challenge tests, up to and including a placebo-controlled

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double-blind challenge, which may need to be repeated on more than one occasion, unless the development of florid, objective changes makes this unnecessary. It should be noted, however, that the development of bronchospasm or urticaria can be precipitated by psychological stress and should not be regarded as providing evidence of a food reaction in the absence of a double-blind challenge.

Other tests

When intolerance to a specific food has been demonstrated without clear evidence of an immunological reaction, further diagnostic tests are needed in order to distinguish food allergy from other adverse food reactions.

Skin-prick tests are simple, cheap and are capable of giving diagnostic information within 10–15 min, if the materials used in the tests are sufficiently well standardized to lessen the risk of non-specific reactions [4]. Where a small number of food extracts has been used to screen large numbers of people attending an allergy clinic, however, it has been shown that 3–4% of people have 'clinically false positive' reactions. In some cases there is a history of clinical sensitivity which has subsided in the past, suggesting that some 'false positive' tests represent a minor degree of hypersensitivity which could easily be misinterpreted as indicating clinical disease requiring treatment. In other cases, unstandardized food extracts have produced so many positive results in symptomless control subjects that they are worthless. It is only in the cases of egg, cows' milk (if positive), cod, soy and nuts that skin-prick solutions have given useful results, without an accompanying large number of positive tests in apparently healthy subjects. A case has also been made for the usefulness, in some cases, of antigens derived from wheat, rice, mixed nuts, peas and shellfish [5]. The use of freeze-dried preparations or more refined extracts add little to the reliability of these test results, which compare very unfavourably with the test results using airborne allergens. Intradermal tests have

similar drawbacks and the added disadvantage that they are more likely to cause non-specific reactions.

The limited value of skin tests in the diagnosis of food allergy extends to every other type of test which depends on the presence of IgE antibodies. Radioallergosorbent tests (RAST) and enzyme-linked immunosorbent assays (ELISA) are well established as methods of detecting circulating IgE antibodies but, in the case of IgE antibodies to food, have been no more successful than skin-prick tests and for the same reason. More sophisticated methods of testing for IgE antibodies tend to be expensive and their commercial proliferation has not been accompanied by the necessary demonstration of their advantages.

In addition to IgE antibody tests, basophil degranulation tests have been successfully used, usually on a research basis, and so have tests involving the measurement of plasma and urinary histamine during provocation tests. A substantial number of tests are now on offer, however, which are of unconfirmed relevance [5]. These include IgG, IgG subclass, IgA and IgM antibody tests, the measurement of food antigens or immune complexes in the serum, and the measurement of mast cell and basophil degranulation products.

References

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