

The diagnosis and management of food allergy

Food allergy is a controversial subject and with the large public interest in it medical opinion has tended to polarise between 'believers' and 'unbelievers'. Until recently many conditions reputed to be caused by food allergy had rarely been studied objectively, so food allergy was often dismissed as non-existent or irrelevant. In the last decade, however, a number of well designed studies, many double blind, have suggested that food allergy plays a significant role in urticaria,¹ eczema,² cows' milk protein enteropathy,³ infantile colitis,⁴ colic,⁵ migraine,⁶ and hyperactivity,⁷ while asthma and inflammatory bowel disease may sometimes be associated with food allergic reactions.⁸⁻⁹ In most studies many children benefited from dietary exclusion, but as these were performed in tertiary referral centres the children probably came from an unusually selected population. Thus it is still unclear what proportion of children with these conditions will benefit from dietary measures. This highlights the importance of making a firm diagnosis before keeping a child on a restricted diet.

Diagnosis

Investigations are rarely helpful in food allergy. Skin prick tests and radioallergosorbent tests (RAST) detect specific IgE antibodies and both accurately predict immediate hypersensitivity to foods if pure extracts are used.¹⁰⁻¹¹ When a food provokes anaphylaxis or urticaria, however, this is usually obvious from the history, so a specific test is unnecessary. Furthermore, when eczema or migraine are provoked by foods prick tests or RAST do not reveal the offending foods.²⁻⁶ Other tests have been described, but they are of even less value. Intradermal skin testing is more painful than prick testing and carries a risk of anaphylaxis.¹² Cytotoxic testing involves incubating a patient's white blood cells with various food extracts; disintegration of the cells is said to indicate an allergy, but this was not confirmed on double blind testing.¹³ In the pulse test the heart rate supposedly rises after ingestion of an allergen, but this is also unreliable.¹² Radionics, radiesthesia, psionic medicine, and dowsing do not seem to have been objectively tested and are probably more a matter of belief.¹⁴

As a result the diagnosis is dependent on the history together with the response to dietary elimination. At first one or two suspect foods are

avoided—for example, egg and cows' milk—and if this is unhelpful an exclusion diet such as Hathaway and Warner's¹⁵ can be prescribed (more eczematous children responded to this than to cows' milk and egg exclusion). This diet eliminates dairy products, eggs, chicken, game, pork, offal, fish, fruit (except rhubarb and bananas), vegetables (except cabbage, carrots, and celery), additives, spices, and nuts, though the list used will depend on how often particular foods provoke the condition in question. If this does not work an oligoantigenic diet can be tried (Table). If both oligoantigenic diets are unsuccessful a food allergy is extremely unlikely. There are, however, important considerations besides deciding what foods to exclude. Objective criteria for disease activity must be established and a time limit set for the duration of dietary exclusion. The diet must be nutritionally adequate and include necessary vitamins and mineral supplements. If there is no improvement after the set time (usually two to four weeks) dietary measures should be abandoned unless all concerned are convinced that the severity of the disease warrants trying a stricter diet. If an exclusion diet gives a worthwhile result excluded foods are individually reintroduced by giving daily in considerable amounts for a week. A food is withdrawn if it provokes a reaction but kept in the diet if it is tolerated. Ideally, reactions to food should be confirmed by double blind challenge, but this is difficult to do and while essential for research is perhaps less important in clinical practice.¹⁶

Factitious food allergy

The public preoccupation with allergy and the lack of objective tests cause some parents to insist that their healthy children suffer from food allergy.

Table Oligoantigenic diets

Diet 1		Diet 2
Turkey		Rabbit
Rice		Potato
Cabbage	Or	Carrot
Pear		Peach
	Plus	Tomor margarine
		Sunflower seed oil
		Minerals and vitamins
		Casein hydrolyate if aged under 5

Warner and Hathaway described 17 such cases as 'An allergic form of Meadow's syndrome—Munchausen by proxy'.¹⁷ David reported 15 similar cases.¹⁴ Most came from disrupted families and had seen many doctors and practitioners of alternative medicine. While they accounted for only 5–8% of the children seen in the authors' food allergy clinics their nutritional, psychological, and social problems were considerable and the parental obsession difficult to eradicate. Real and factitious food allergy may not be mutually exclusive as children can outgrow their allergy while their parents remain obsessed with it. Careful explanation and good rapport with parents and child perhaps offer some hope of correcting the situation.

Management

Total avoidance of offending foods is the mainstay of treatment and is easier said than done. Many parents are unaware of all the food products that contain proteins from cows' milk and wheat and so exclusion is often not absolute. Keeping to a diet is difficult, particularly as children approach school age. Thus a dietitian is essential, not only to ensure strict dietary exclusion and nutritional adequacy but also to make the diet interesting and varied. Fortunately, tolerance often develops with age and so children should be rechallenged every four to six months. This is best done in hospital when there has been severe immediate hypersensitivity.¹⁸

Because dietary exclusion is difficult alternative treatments have been sought. Rotation diets, where exposure to food families changes through four to five day cycles, are popular in North America, but little hard evidence supports their use. Desensitisation with repeated small doses of allergen given orally or subcutaneously can be beneficial in inhalant allergy but rarely in food allergy.¹⁹ Treatment with drugs is an attractive proposition, and disodium cromoglycate does lessen the absorption of food allergens and the formation of IgE immune complexes in food allergic patients.²⁰ Disodium cromoglycate has been reported to help some patients,^{19 21} but other studies have found no benefit.²² A trial of this drug may be worth while.

Conclusion

Food allergy is implicated in several childhood disorders, though the proportion of patients in whom it is important is unclear. Diagnosis and management depend on dietary manipulation carried out in a rational manner with dietetic help. In this way food allergy can be excluded or confirmed in the growing number of children

referred with this diagnosis. Spontaneous improvement is common and sympathetically stressing this to parents may reduce the incidence of factitious food allergy. Finally, it must always be remembered that the diet might be worse than the disease!

References

- Juhlin L. Recurrent urticaria: clinical investigation of 330 patients. *Br J Dermatol* 1981;**104**:369–81.
- Atherton DJ, Sewell M, Soothill JF, Wells RS, Chilvers CED. Double blind controlled crossover trial of an antigen avoidance diet in atopic eczema. *Lancet* 1978;ii:401–3.
- Bahna SL, Heiner DC. *Allergies to milk*. New York: Grune and Stratton, 1980:46–52.
- Jenkins HR, Harries JT, Milla PJ, Pincott JR, Soothill JF. Food allergic colitis in childhood. *Arch Dis Child* 1984;**59**:326–9.
- Jakobsson I, Lindberg T. Cows' milk proteins cause infantile colic in breast fed infants. *Pediatrics* 1983;**71**:268–71.
- Egger J, Carter CM, Wilson J, Turner MW, Soothill JF. Is migraine food allergy? *Lancet* 1983;ii:413–4.
- Egger J, Carter CM, Graham PJ, Gumley D, Soothill JF. Controlled trial of oligoantigenic treatment in the hyperkinetic syndrome. *Lancet* 1985;ii:540–5.
- Wraith DG. Asthma and rhinitis. *Clinics in Immunology and Allergy* 1982;**2**:101–2.
- O'Morain C, Segal AM, Levi AJ, Valman HB. Elemental diet in acute Crohn's disease. *Arch Dis Child* 1983;**58**:44–7.
- Danneus A, Johansson SGO. A follow-up study of infants with adverse reactions to cows' milk 1. Serum IgE skin test reactions and RAST in relation to clinical course. *Acta Paediatr Scand* 1979;**68**:377–82.
- Lessof MH, Buisseret PD, Merrett J, Wraith DT. Assessing the value of skin prick tests. *Clin Allergy* 1980;**10**:115–20.
- Barneston RS, Lessof MH. Challenges to medical orthodoxy. In: Lessof MH, ed. *Clinical reactions to food*. Chichester: Wiley and Sons, 1983:15–34.
- Lehman CW. The leucocytic food allergy test: a study of its reliability and reproducibility. Effect of diet and sublingual food drop on this test. *Ann Allergy* 1980;**45**:150–8.
- David TJ. The overworked or fraudulent diagnosis of food allergy and food intolerance in children. *J R Soc Med* 1985;**78**(suppl 5):21–31.
- Hathaway MJ, Warner JO. Compliance problem in the dietary management of eczema. *Arch Dis Child* 1983;**58**:463–4.
- Rossiter MA. Food intolerance—a general paediatrician's view. *J R Soc Med* 1985;**78**(suppl 5):17–20.
- Warner JO, Hathaway MJ. Allergic form of Meadow's syndrome (Munchausen by proxy) *Arch Dis Child* 1984;**59**:151–6.
- David TJ. Anaphylactic shock during elimination diets for severe atopic eczema. *Arch Dis Child* 1984;**59**:983–6.
- Zanussi C. Food allergy treatment. *Clinics in Immunology and Allergy* 1982;**2**:221–40.
- Paganelli R, Levinsky RJ, Atherton DJ. Detection of specific antigen within circulating immune complexes found in healthy and food allergic subjects. *Clin Exp Immunol* 1981;**46**:44–53.
- Dahl R, Zetterstrom O. The effect of orally administered sodium cromoglycate on symptoms of food allergy. *Clin Allergy* 1978;**7**:109–15.
- Harris MG, O'Brien IM, Burge PS, Pepys J. Effects of orally administered sodium cromoglycate in asthma and urticaria due to foods. *Clin Allergy* 1978;**9**:37–42.

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