
Executive summary

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Objectives

Food allergies are the subject of keen public interest. It is widely felt that they constitute a growing public health problem. Various explanations have been offered for this phenomenon and these have, in turn, spawned ideas for possible means of prevention. In addition, researchers are seeking ways to improve diagnosis and minimise health deterioration.

It is precisely because various aspects of this problem are still under discussion that there is much to be gained from a thorough understanding of the latest scientific developments. This is why the Minister of Health, Welfare and Sport asked the Health Council to review the current level of knowledge concerning the extent of the problem and its causes, and to give advice on the most effective forms of prevention, diagnosis and treatment of IgE-mediated food allergy. This is the most common form of food allergy, whereby the body produces IgE antibodies when it comes into contact with a food allergen (the substance that triggers the reaction). These antibodies are responsible for the allergic reaction.

Impact on public health

It would appear that between two and three per cent of infants, one to three per cent of older children and one to two per cent of adults have an IgE-mediated

food allergy. In infants, the symptoms of food allergy usually disappear within a few years, whereas food allergies that develop later are generally permanent.

In the Netherlands, food allergies are thought to be responsible for several hundred hospital admissions every year. Sales of emergency medication indicate that between four and six thousand people have a potentially life-threatening food allergy, including between 1,000 and 1,500 children (i.e. around 65-75 per 100,000 children and around 25-30 per 100,000 adults). Serious reactions can be caused by many types of food, but peanuts and nuts are by far the biggest culprits. On average, food allergies claim one or more lives every year – and fatal reactions virtually always involve asthma.

A substantial proportion of food allergies in adults probably have an indirect cause (namely a pre-existing allergy to inhaled birch pollen). Birch-pollen allergy is relatively common and the allergens in birch pollen closely resemble allergens in certain foods. This type of food allergy is usually characterised by mild symptoms in and around the mouth.

Many people believe that they are allergic to foods or food ingredients. Estimates range from five to 20 per cent. This means that between one and three million Dutch people believe – rightly or wrongly – that they are allergic to specific foods. Some of these people really do have a food allergy, whereas others have a food intolerance, which does not involve the production of antibodies, and are therefore using the wrong term. The research that has been conducted into this problem suggests, however, that correct diagnosis would reveal the majority of these supposed allergics to be neither hypersensitive nor allergic to food. Thus many people think they suffer from a food allergy, whereas, in actual fact, they do not.

Trends in the number of people with food allergy

Although it is suggested that the prevalence of primary food allergy has increased, there is little scientific evidence to support this contention. As far as secondary food allergy (in particular food allergy caused by an allergy to the inhalation of birch pollen) is concerned, it seems likely that prevalence has, indeed, risen, but this has not been investigated.

Endogenous and environmental risk factors

A hereditary predisposition to allergic diseases is an obvious risk factor for the development of a food allergy. People with allergies to inhaled birch pollen and

natural rubber latex have a high risk of actually developing a food allergy. Age is also a factor. It is possible that infants may be more susceptible to food allergies, since the intestinal wall is still relatively permeable to large proteins shortly after birth and their immune system is not yet mature. Exposure to cigarette smoke during pregnancy and shortly after birth is possibly a risk factor for food allergy during childhood.

Researchers are also seeking explanations that are associated with changes in lifestyle and environment. The so-called hygiene hypothesis concerns the possible connection between reduced exposure to bacteria, viruses and parasites and an increase in allergic diseases. However, the relevance of this hypothesis to food allergies has not been explored. Research has focused on other allergic diseases. Another factor might be the appearance of new, exotic foods on the Dutch market. Although this may well lead to new allergies (since new allergens are being added to the allergen pool), it will probably have little bearing on the total allergen burden. The increasing industrial processing of foodstuffs does not appear to be a significant factor in this respect.

The Committee provides no estimate of the cost of food allergies, nor of the cost-effectiveness of preventive measures, diagnosis and treatment, since insufficient data are available on all fronts.

Possible preventive measures

There are indications that babies with one or more family members with an allergic disease are less likely to develop a food allergy if they receive only breast milk for 4-6 months, or an infant formula containing hydrolysed protein instead of intact cow's milk protein (hydrolysed means that the protein has been 'cut' into small pieces). There is, however, little scientific evidence to support these preventive measures. The preventive measures that are currently employed in the Dutch child health centres* are safe, but the evidence of their effectiveness with regard to the prevention of food allergies is inconclusive.

There is no scientific basis for other preventive measures.

* The advice for babies who have one or more family members with an allergic disease is: exclusive breast-feeding for at least four (and preferably six) months, or alternatively an infant formula containing partially hydrolysed protein, and gradual introduction of supplementary feeding from six months of age.

Possible diagnostic measures

History taking is a crucial element in the diagnosis of food allergies since it serves to identify suspect foods and provides information about the severity of the symptoms.

Then one can perform a skin-prick test or measure allergen-specific IgE in the blood in order to investigate whether the person in question has been sensitised to the suspect foods. Sensitisation probably triggers symptoms in approximately 50% of cases. Someone can only be said to have a food allergy if consumption of a food allergen causes symptoms.

The only test with which a food allergy can be definitively diagnosed is the double-blind test. Owing to organisational and financial difficulties, this test is only performed in some of the individuals who are eligible for it.

There are several tests in use whose benefit has not been scientifically demonstrated, examples being IgG testing, kinesiology, electrodermal tests and cytotoxic tests. These tests can lead to incorrect diagnosis and treatment.

Possible therapeutic measures

The most important treatment for food allergy consists of not eating or drinking the allergen to which the individual concerned is allergic. However, it is difficult to rule out unintentional consumption of allergens entirely. Furthermore, the diet may become nutritionally deficient as a result of the restricted choice of products.

People who think they suffer from a food allergy, even though reliable diagnostic testing would result in a rejection of this diagnosis, also run the risk of developing a nutrient deficiency by avoiding the consumption of food allergens. This underlines the importance of a proper diagnosis.

The risk of unintentional consumption of allergens and the risk of the diet becoming nutritionally deficient are both greatest where the allergen is present in many food products or where there is a question of allergies to several food allergens. A dietician can help the patient to maintain a nutritionally sound diet and to make optimal use of the following three aids to choosing healthy food:

- 1 the information on the label concerning allergenic ingredients (now compulsory in the EU for 12 substances),
- 2 the information from the ALBA databank with regard to allergenic ingredients (29 allergens),
- 3 notes on the label stating that a product that is, in principle, allergen-free may have been ‘contaminated’ with an allergen on the production line (the ‘*may contain*’ labelling).

As unintentional consumption of allergens can never be completely excluded, medication may be needed in order to control the symptoms. It is extremely important that people who may develop life-threatening reactions should always have an epinephrine* auto-injector about their person. Proper education, instruction and support are crucial in this situation. In the case of more serious reactions that are not life-threatening, corticosteroids and beta-mimetics can be given, in addition to antihistamines. For mild reactions one can use antihistamines.

Several different forms of immunotherapy – some of them highly promising – are currently being developed and investigated. In the future it may well be possible to reduce the severity of allergic reactions to food ingredients.

Recommendations

1 *Continue preventive measures at child health clinics*

There are many reasons why breastfeeding is good for babies. However, the existing body of research into the possible preventive effect of breastfeeding on food allergy has little evidential value. The same applies to infant formulas containing hydrolysed protein. There is no reason to abandon the food allergy-prevention measures that are currently employed by the child health centres**. The Committee argues that these measures should be maintained until better forms of prevention are available.

2 *Development of a simple test for diagnosing cow’s milk allergy in infants*

Cow’s milk allergy is relatively common in infants. The Committee considers it both desirable and feasible to develop a double-blind test for the diagnosis of this particular form of food allergy which – in case of mild

* Epinephrine is the medical term for adrenaline.

** The advice for babies who have one or more family members with an allergic disease is: exclusive breast-feeding for at least four (and preferably six) months, or alternatively infant formulas containing partially hydrolysed protein, and gradual introduction of supplementary feeding from six months of age.

symptoms – can also be used at the child health centres. Such a test will reduce the inflow of babies into secondary health care and the number of babies that are wrongly classified as sick and given a modified diet.

3 *Development of multidisciplinary guidelines for diagnosis and for the prescribing of the epinephrine auto-injector*

The Committee recommends that a multidisciplinary guideline should be developed for the diagnosis of food allergies. The double-blind test must be used more often since this is the only test that permits a definitive diagnosis of food allergies. It is important to consider what organisational and financial improvements can be made in order to achieve this goal. In chapter 7 the Committee specifies four situations in which it believes that this test should be considered.

The Committee also advocates the development of a multidisciplinary guideline with regard to the prescribing of the epinephrine auto-injector.

4 *Better information for primary healthcare professionals*

The Committee recommends that primary healthcare professionals (general practitioners, child health centre physicians and dieticians) should be given better information about the symptoms and diagnosis of food allergies.

5 *Curb the use of controversial diagnostic tests*

The Committee recommends curbing the use of tests whose value has yet to be scientifically established.

6 *Improve the provision of information to patients*

The provision of information to patients could be better. The Committee recommends to consider periodically which allergens need to be included in the ALBA databank. Furthermore, patients with a food allergy would benefit greatly from the development of an automated system that can be used when shopping, not only because shopping can be extremely troublesome and time-consuming nowadays, but also in order to reduce the risk of unintentional consumption of allergens.

7 *Restriction of 'may contain' labelling*

The 'may contain' labelling places major constraints on food choices. This type of labelling is sometimes used on products with minimal risks. This increases the risk that the diet of a patient with a food allergy could become nutritionally deficient and detracts from the value of the warning in those

cases where it is, in fact, appropriate. The Committee therefore proposes that the use of ‘*may contain*’ labelling should be restricted as much as possible. The first thing to decide is how many food allergy-induced symptoms (possibly subdivided into serious and mild symptoms) are acceptable. The Committee recommends that the government should reach this decision in consultation with patients’ organisations, industry, scientists, medical doctors and dieticians. Based on this accepted residual risk, it is possible – once all of the necessary information is available – to derive and adopt maximum allowable concentrations for allergens in foodstuffs. If a company is able to guarantee that this maximum allowable concentration will not be exceeded for a particular product, the ‘*may contain*’ labelling can be omitted on that product.

8 *Recommendations for research*

The Committee recommends that research be conducted in the following areas:

- Research into more effective methods of prevention and measures that induce or promote tolerance to food in the first year of life.
- Research that may lead to the development of better tests for the diagnosis of food allergy.
- In the light of the recommendation concerning the restriction of the ‘*may contain*’ labelling, supplementary research data may be required with regard to levels of exposure at which allergic reactions occur and the consumption behaviour of people with food allergies. Whether (and to what extent) supplementary data are necessary will depend on the desired level of protection (accepted residual risk).

A methodologically sound European study is currently under way with regard to the prevalence of food allergy, which also includes the collection of Dutch data. The results will be available within a few years. The Committee feels that no other research is required into the prevalence of food allergy at this point in time.