



FOOD ALLERGY

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INTRODUCTION

Eating is a pleasure. Companies represented by IOCCC offer a wide variety of different products for all kinds of taste preferences. The dilemma is that foodstuffs and ingredients that are amongst the most appreciated ones for many consumers such as milk, nuts, egg, can trigger severe adverse reactions in some particularly sensitive individuals suffering from allergy. Since ancient times man has known this dilemma as indicated by the saying one man's food may be another man's poison.

Due to the complexity of the problem, the answers are not known yet to many questions related to the science of food allergy and associated conditions. It means that the adequate dietary management of the allergic patient remains a challenge to all groups involved, including food manufacturers, food caterers, the medical profession (allergy specialists, general practitioners, nutritionists, dietitians, nurses) and allergy sufferers or their parents, where the sufferer is a child.

1. WHAT IS FOOD ALLERGY?

Food allergy is an untoward reaction due to an immunological mechanism induced by ingestion of a foodstuff.

Food allergies can be further sub-divided into IgE (Immune globulin E)-mediated hyper-sensitivities and cell-mediated hyper-sensitivities. IgE-mediated reactions are the most worrisome because they can occasionally elicit very serious symptoms and because the affected individuals can tolerate little, if any, of the specific food in their diet. An example of cell-mediated hyper-sensitivity is celiac disease, also known as gluten-sensitive enteropathy. It affects the intestinal tract, and reactions are provoked in certain individuals after ingestion of wheat, rye, barley and related grains.

Apart from food allergy, consumers may experience various non-immunologic reactions to food such as lactose intolerance. These are not allergies but food intolerances.

2. WHAT ARE THE SYMPTOMS OF FOOD ALLERGY?

The most common symptoms of food allergy affect the gastro-intestinal tract, the skin and the respiratory organs. They can occur immediately after the ingestion of the offending food, for example IgE-mediated acute urticaria or anaphylaxis, but they may be delayed by several hours, as in the case of atopic dermatitis.

In extremely sensitive people life-threatening reactions leading to circulatory collapse and unconsciousness can occur (usually IgE-mediated reaction), a condition also known as anaphylactic shock.

Other reactions include conjunctivitis and the oral allergy syndrome (tongue swelling and itching, palatal itching).

Migraine, "hyper-reactivity", tension-fatigue syndrome and a series of poorly defined digestive symptoms including aphthosis, dyspepsia or irritable bowel disease may be due to food allergy but they are far less common in most instances other causes can be found.

3. WHAT IS THE CAUSE OF FOOD ALLERGY?

Allergy including food allergy is a condition due to the immune system going wrong. Otherwise harmless substances present in the environment (e.g. pollen) or in food make the body's immune system react as if invaders attacked the body such as pathogenic bacteria. The substances the body reacts to are usually certain proteins, otherwise valuable food components for the general consumer. In IgE-mediated allergies, upon exposure to these proteins, a specific antibody to this particular protein is produced, IgE (Immune globulin E). This initial exposure is called sensitization. At this stage, the individual may not show any allergic reaction yet. However, when proteins penetrate into the body again, they come into contact with the specific IgE. This contact triggers a cascade of events, leading to release of chemicals responsible for the symptoms of the allergic reaction.

Science has yet to elucidate the reason why the body reacts in this pathological way, but genetic pre-disposition is essential. Close family members of children with food allergies usually have histories of allergy themselves, although not necessarily to food.

Environmental and life style factors also play a role in allergies. Low or different exposure to microorganisms in modern Western countries has been suggested as a factor to make pre-disposed individuals more prone to develop an allergy.

Exposure to certain allergens appears to play an important role in determining the type of allergen to which an individual will develop a hyper-sensitivity. For example a person will be more prone to develop a birch pollen allergy if he/she lives in an environment where such pollen is prevalent. Moreover, exposure to certain pollens may even have an influence on the development of food allergies. This is due to the fact that certain food proteins may react with the specific IgE the body has formed against pollen allergens. This is referred to as cross-reactivity.

Exposure to food in this case is not the primary cause but triggers symptoms of a different etiology. Patients allergic to birch pollen and to other Betulaceae (hazel, alder) pollen are frequently hypersensitive to tree nuts, fruits and vegetables including apple, carrots and potatoes. Some Compositae pollen allergens (mugwort) cross-react with foods of the Umbelliferae family (celery in particular). Ragweed (Ambrosia pollen) sensitive individuals may get symptoms when eating banana or melon.

Another example is allergy to latex that has been increasing recently because of a wide use of latex gloves by medical and paramedical professionals and its use in many devices such as catheters. Cross-reactive antigens have been identified between latex and banana, chestnut or kiwi fruit.

Whether a predisposed individual will develop a hyper-sensitivity to a certain foodstuff or to another is also influenced by eating habits. For example an individual that has a genetic pre-disposition to develop an allergy and eats a lot of fish may be at risk to develop fish allergy. Not surprisingly, allergies to fish are more common in Japan and Norway, countries with a high fish consumption, than elsewhere.

This does not mean, however, that a healthy individual, without a genetic predisposition to develop an allergy, will develop a fish allergy when eating a lot of fish. In fact, there is no benefit at all for a healthy individual to avoid a certain foodstuff in order to prevent the onset of an allergic condition.

In conclusion, food allergens do not cause the allergic condition as such, but may trigger allergic reactions in those patients who are pre-disposed and have been exposed and sensitized to

- a) the same food, or
- b) to other allergens (e.g. other food, pollen, latex), cross-reacting with the offending food

4. HOW COMMON IS FOOD ALLERGY?

Experts estimate that 4 to 8 percent of young children in Europe and the United States have some form of food allergy. The prevalence declines to 2 to 4% in children and to around 1% in adults. The prevalence of food allergy depends on the geographical area. In areas where birch and mugwort pollen are prevalent, for example, 30 to 50% of patients sensitive to these pollen report allergy symptoms when ingesting fruits and vegetables. Thus in these areas, the prevalence of food allergy in adults may be as high as 5 to 6%.

Increasing prevalence in recent years has been observed for certain types of non-food allergy (e.g. inhalant allergy). Although there has been an increase in media and consumer interest in allergies in the last few years, there is no conclusive evidence suggesting an increase in prevalence of food allergies. Studies have been carried out related to the size of actual prevalence of food allergy (including intolerance) as opposed to the perceived size. In a study carried out in the Netherlands, 12,4% of the study population reported suffering from food allergy or intolerance, but only 0,8% were confirmed by Double Blind Placebo Controlled Food Challenge (DBPCFC). In another study carried out in the UK, 20,4% of the population perceived themselves to be food intolerant, but only 1.4-1.4% were

confirmed by DBPCFC.

It has also been seen that a change in dietary intake can result in a change in food allergy patterns. The introduction for example of new fruit varieties such as kiwi, papaya and mango or the increased consumption of peanuts in Europe has led to sensitivities that were unknown or rare a few years ago. An overall increase of food allergies, however, cannot be concluded from this change in pattern.

5. WHAT ARE THE MOST IMPORTANT FOOD ALLERGENS?

A wide variety of foodstuffs may trigger allergic reactions, but it appears that there is only a small number of foodstuffs, that are frequently involved in the most severe reactions. Recently scientific criteria for inclusion into a list of important allergens have been proposed by ILSI Europe in response to activities of Codex Alimentarius to establish a list of most important food allergens :

- a) Report of properly conducted double-blind placebo-controlled food challenge confirming allergenicity
- b) Reports of the foodstuffs causing severe systemic and life-threatening reactions

When applying these criteria, the following foodstuffs should be included in such a list :

Wheat, crustaceans, eggs, fish, peanut, soybean, cow's milk, tree nuts, sesame seed.

Sulfites have not been included here because the mechanism of reaction triggered by this food additive is different from a true allergic reaction.

Peanuts and tree nuts appear to be exquisitely powerful allergens.

Some fruits (e.g. apple, kiwi, exotic fruits) are common allergens as well, but they usually lose allergenicity by heat treatment. Since processed products usually are heat treated, ingredients derived from these fruits are not considered to be significant allergens.

Food additives are not included in lists of important food allergens because there is no evidence for life threatening reactions. However, sulfites – although not being a true allergen – can trigger symptoms similar to an allergy.

Adverse reactions to food additives are usually non-immunological reactions and therefore intolerances rather than allergies. These intolerances to food additives in fact are less frequent than allergic reactions to foodstuffs. For details please refer to IOCCC fact sheet "Food Additives / Allergy and Intolerance".

6. WHAT AMOUNT OF FOOD ALLERGENS MAY INDUCE A SEVERE REACTION?

Many patients allergic to certain foodstuffs will be able to ingest small amounts of the potentially offending allergen without showing major symptoms. However, some extremely sensitive individuals may show a reaction after ingestion of minute amounts of certain allergens. Anecdotal reports claim for example, that even the smell of peanuts in an airplane triggered an allergic reaction. Although many scientists would agree, that a threshold of ingestion exists below which no allergic reaction can occur, there is no consensus on how low such a threshold is.

7. WHAT ARE THE EFFECTS OF FOOD PROCESSING ON ALLERGENICITY?

Food processing effects can be considered in terms of composition of the food, since most allergenicity is based on presence of native proteins. Heat processing is important. Some food allergens may be destroyed by heating whereas others are resistant to cooking and digestion : casein, egg and fish are examples.

Data from food challenge tests support the conclusion that ingestion of neutralized bleached and deodorized peanut oil does not trigger allergic reactions in peanut sensitive individuals.

8. HOW TO LIVE WITH FOOD ALLERGY?

The first step for individuals who believe they have a food allergy would be to see a doctor, in order to obtain a proper diagnosis and seek advice concerning whether certain foods or food ingredients should be avoided. Common diagnostic tools such as skin tests and determination of specific IgE are available which, despite shortcomings and limitations, give valuable indications to the doctor related to the need for dietary restrictions. In some cases, the doctor may advise to confirm the diagnosis by a double-blind, placebo-controlled food challenge, that will be carried out under precisely specified conditions and by trained investigators.

The doctor will then advise the patient whether he/she needs to avoid certain allergens, foods and ingredients, and the patient should work with the doctor to ensure a full understanding of the recommendation. a person that is exquisitely sensitive to cow's milk, for example, might have to look for the names of a variety of milk-derived ingredients as well, such as whey powder, casein, butter, cheese, yogurt, kefir, creme fraiche, cream, etc. A generic term sometimes used on IOCCC products is "nuts" or "tree nuts", or in French "fruits secs". The allergy sufferer should be aware that a product showing this term on the label may contain a variety of nuts, including cashew nuts, peanuts, almonds, brazil nuts, pistachios, walnuts, etc.

The identification of allergens in purchased foods is provided to consumers by manufacturers through the list of ingredients. Allergy sufferers should always carefully evaluate the list of ingredients of products, to check whether ingredients are present which should be avoided.

It should be kept in mind, however, that the primary purpose of the list of ingredients is to inform consumers about the composition of foodstuffs generally. Additional information should therefore be requested from the manufacturer wherever needed. Many IOCCC companies offer toll-free hotlines to facilitate communication.

Sometimes, due to the use of multi-purpose equipment a likelihood exists for an allergen intentionally present in one product to become unintentionally incorporated into another product, a situation referred to as cross-contact. IOCCC industries make extensive efforts to avoid this type of situation by product design review, additional incremental sanitation and product scheduling.

Despite these efforts, very small amounts of certain allergens may unintentionally be present in some products. For this reason, some IOCCC companies have started to put "may contain traces of..." or similar statements on the label. The allergy sufferer should carefully examine labels of foodstuffs for all ingredients which could be sources of allergens. The allergy sufferer should consult a doctor for information concerning which products to be consumed. If there are questions related to the composition of foods being sold the manufacturer should be consulted for more information.

9. IOCCC POSITION

IOCCC believes that certain foodstuffs and ingredients may trigger severe allergic reactions in individuals that suffer from food allergy but that these same foodstuffs and ingredients can be enjoyed by the majority of consumers.

IOCCC recognizes the need for manufacturers to provide appropriate information about the composition of products. Allergy sufferers should always check the list of ingredients of a product to find out whether ingredients are present which they have to avoid. Additional information should be requested from the manufacturer.

IOCCC emphasizes that allergy sufferers should seek advice from the medical profession concerning management of the particular food allergy. This finally will enable the allergy sufferer to use the information given by the manufacturers to successfully manage the allergy and still enjoy a wide variety of food.

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