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Perspective

A Short Note on Food Allergy

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DESCRIPTION

Food allergies are abnormal immune responses to food. Symptoms of allergic reactions range from mild to severe. These include itching, swelling of the tongue, vomiting, diarrhoea, hives, dyspnoea, and low blood pressure. This usually occurs within minutes to hours after exposure. When the symptoms are severe, it is called anaphylaxis. Food tolerance and food poisoning are separate conditions that do not result from an immune response.

Common foods include milk, peanuts, eggs, shellfish, fish, nuts, soybeans, wheat, sesame seeds, rice and fruits. Risk factors include family history of allergies, vitamin D deficiency, obesity, and high levels of cleanliness. Allergies occur when immunoglobulin E, which is part of the body's immune system, binds to food molecules. Dietary protein is usually a problem. This causes the release of inflammatory chemicals such as histamine. Diagnosis is usually based on medical history, elimination diet, skin prick test, blood test for food-specific antibodies, or oral food challenge.

Food allergies are a common reason for individuals to seek nutritional support and they appear to be becoming more prevalent in today's society, with six to eight percent of children now affected worldwide. The prevention of allergy developing in infancy has been a major concern of healthcare professionals and government advice has sometimes appeared conflicting to parents. The main reason for this is that we still only just understand the processes by which allergies develop. Today's blog describes studies on the causes of food allergies and interventions to support a healthy immune response to reduce the risk of developing allergies.

Most food allergies appear in infancy and some disappear in late childhood or adulthood, but peanut allergies are often the most persistent and lifelong condition. Allergies can also appear later in life and are associated with the destruction of the intestinal flora and the integrity of the epithelial barrier.

Home consumption of food allergens correlates with the development of food allergies. In addition, loss-of-function mutations in filaggrin, the gene encoding the cutaneous epithelial barrier protein filaggrin, increased the risk of other allergies, including Atopic Dermatitis (AD) and peanut allergies. These observations led to the hypothesis that changes in the barrier function of AD skin promote skin sensitization to food antigens and may lead to the development of food allergies.

Reduced stomach acid

Stomach acid is essential for the normal breakdown of dietary proteins, which begin to chemically break hydrogen bonds (these bonds hold the protein in a folded configuration) and also activate the proteolytic enzyme pepsin. Therefore, inadequate gastric acid production can impair protein digestion and undigested proteins or large peptides can become antigenic, especially in relation to leaky gut.

Hygiene hypothesis

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Gut flora

As is well known, when a child is exposed to a non-sterile environment, in addition to exposure to food allergens, bacteria that play an essential role in the development of the immune system are also inoculated into the intestine.

Environmental factors such as low fiber/high fat diet, cesarean delivery, antiseptic, lack of breastfeeding, medication can cause dysbiosis of the gut microbiota and are associated with food allergies.

Leaky gut

The integrity of the gastrointestinal mucosa also plays an important role in the development of food allergies. Infant intestinal integrity is often reduced, and gastrointestinal permeability has been shown to increase in children with food allergies. Gastrointestinal epithelial dysfunction has been hypothesized to contribute to food hypersensitivity through both increased sensitization by the leak barrier and the resulting increased Th2 response.

Histamine

Histamine is a molecule released during an allergic reaction that can cause symptoms such as edema, itching, watery eyes, and anaphylaxis. Some foods are particularly high in naturally occurring histamine and can cause similar reactions in people who are sensitive to those foods. This is not necessarily an allergic reaction, but a result of high histamine intake and a reduced ability to break down histamine, causing similar symptoms.

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