

# Medi Quest BRS Hospital

A monthly News letter from BRS Hospital

## FOOD ALLERGIES

### Part I

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The incidence of food allergies are steadily rising. It cannot be ignored as some of them can turn life threatening .

#### Definitions:

**Adverse food reactions:** General term encompassing all untoward reactions of foods. It includes Food intolerance and Food Allergies

**Food intolerance :** Non immune adverse food reactions eg Lactose intolerance , reacting to additives (Monosodium glutamate, metabisulfite, tetrazine) or food contaminants.

#### Food allergy :

Allergy is any exaggerated immune response to a foreign antigen regardless of mechanism.

Food allergy involves an abnormal response of the immune system to dietary components usually protein. It generally occurs within minutes to two hours of ingestion of the food.

#### Types of Food allergies :

Food allergies may be divided into 2 types

##### 1. IgE mediated Food Allergies.

These are immediate type of reactions having symptoms, having symptoms within 20 minutes

of food ingestion and maximum up to 2 hours (milk, egg, nuts) symptoms range from urticaria to anaphylaxis. It is a type I hypersensitivity response and is mediated by IgE antibodies and it develops in less than an hour of exposure to the antigen. T helper cells type II (TH2) also play an important role.

**Atopy :** It refers to an exaggerated IgE mediated response to an allergen, it also has a genetic predisposition. All atopic disorders are Type I hypersensitivity reactions.

All atopies are allergic but allergic disorders which are not IgE mediated are not considered atopic.

Caveat : All atopies are allergies but all allergies are not atopic.

##### 2. Non IgE mediated Food Allergies:

Non-IgE mediated food allergies are caused by a reaction involving other components of the immune system apart from IgE antibodies. The reactions do not appear immediately after the ingestion of the food and usually relate to reactions in the gastrointestinal tract such as vomiting, bloating and diarrhoea.

How does non-IgE-mediated food allergy differ from IgE mediated food allergy?

Non-IgE-mediated food allergy is less well

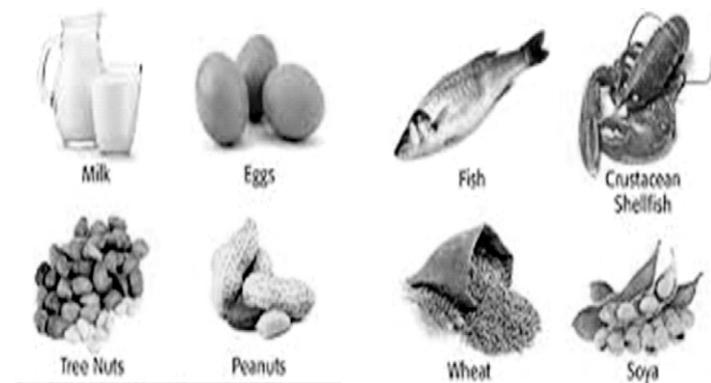
understood than IgE-mediated food allergy. Because the symptoms are usually delayed as compared to IgE mediated food allergy it is more difficult to make the association between offending food and the symptoms. The lack of easily accessible blood or skin tests also contributes to the problem.

Food allergy may have both IgE and non IgE mediated reactions at the same time eg: atopic eczema, cow`s milk protein allergy.

## 8 Common food Allergens

**Infants and Young children:** Milk, egg, soy, peanut and wheat.

**Older children and adults :** Nuts, fish and shell fish(prawn or shrimp, crab)



Recently the FDA has added sesame seed as the ninth allergen.

## Clinical Features of Food Allergies

### IgE-MEDIATED REACTIONS

IgE-mediated food allergic reactions are rapid in onset, typically beginning within minutes to two hours from the time of ingestion.

Most patients react to one or two specific foods/food groups, although an increasing number of patients react to multiple foods.

Signs and symptoms can involve the skin, respiratory and gastrointestinal tracts, and cardiovascular system and are believed to be caused by mediator release from tissue mast cells and circulating basophils.

**Anaphylaxis** — is the most serious effect of food allergy. Anaphylaxis is defined as a serious allergic reaction that is rapid in onset and may

cause death. Patients may develop a combination of symptoms and signs related to the cutaneous, respiratory, gastrointestinal, and/or cardiovascular systems that constitute anaphylaxis. Anaphylactic reactions may culminate in hypotension, vascular collapse, cardiac dysrhythmias, or death. Anaphylaxis occasionally follows a biphasic course, with a recurrence of symptoms hours after the initial onset.

Anaphylaxis in food allergies are invariably caused by **Class I Food Allergens**, which are heat stable and enzyme resistant induces allergic sensitization via the digestive tract, typically being responsible for serious systemic allergic reactions example peanut allergy.

**Urticaria and angioedema** — Acute urticaria and angioedema are probably the most common cutaneous manifestations of allergic reactions to food, generally appearing within minutes of ingestion of the food allergen.

Food can also cause **acute contact urticaria**. In this condition, urticaria develops only on skin that was in direct contact with the food

**Oropharyngeal symptoms** — Symptoms are confined almost exclusively to the oropharynx and include the immediate onset of pruritus, irritation, and mild swelling of the lips, tongue, palate, and throat upon ingestion of fresh, uncooked fruits and vegetables.

### Oral allergy syndrome

Cross reactivity between food and nonfood allergies exists and sensitization may occur non enterally. Patients with allergic rhinitis can present with oral allergies (itching, erythema, edema) to fruits and vegetables as a result of sensitization by exposure to pollens that are antigenically similar to food antigens.

Many patients who are allergic to latex are also allergic to bananas, kiwis, avocados, or a combination.

These food antigens are **Class II Food allergens** that are heat and acid labile and digestive enzyme sensitive .

Patients can usually tolerate the food if it is cooked or treated.

**Respiratory tract symptoms** — Asthma and environmental allergies (allergic rhinitis and conjunctivitis) are more common in

children with food allergy.

**Gastrointestinal symptoms** — IgE-mediated gastrointestinal symptoms, including nausea, abdominal pain, abdominal cramping, vomiting, and/or diarrhea,

The onset of upper gastrointestinal symptoms, nausea, vomiting, abdominal pain is generally minutes to two hours after ingestion of the offending food, but lower gastrointestinal symptoms, such as diarrhea, can begin two to six hours after ingestion.

### **Food Dependent Exercise Induced Anaphylaxis - FDEIA**

It describes an anaphylactic response that occurs only if the patient exercises or exerts himself or herself within two to four hours of ingestion of food. Common causative foods include wheat, celery, and seafood. The food can be ingested in the absence of exercise without development of symptoms

### **Non IgE mediated food allergies**

It presents as more subacute and or chronic symptoms that are typically isolated to G1 tract namely diarrhoea, vomiting, bloating . Symptoms appear hours to days after ingestion of the food, hence more difficult to make association between offending food and symptoms. Mechanisms of non IgE food allergy poorly understood. Most common Non IgE food allergies are

- Cow`s milk protein allergy
- Soy Protein allergy
- Wheat allergy

Non IgE Cow milk protein allergies include

- Food protein induced Enterocolitis - FPIES
- Food protein induced proctocolitis
- Eosinophilic eosophagitis
- Eosinophilic gastroenteritis

In this edition of Mediquest FPIES, Proctocolitis, Eosinophilic Oesophagitis and Eosinophili c gastroenteritis are dealt with briefly.

### **FPIES**

Seen in infants less than one year.

### **Common Triggers**

- Cow`s milk

- Soy milk
- Rice
- Meats

**Age of onset:** Symptoms begin in early infancy within 1-4weeks following introduction of milk or soy protein. Other triggers can include rice or meats.

### **Chronic vs Acute presentation:**

The disease typically presents in two phases. The initial presentation of milk- or soy-induced FPIES in infancy is that of a chronic disease while the food antigen is ingested on a regular basis. This can be followed by an acute phase if the antigen is removed from the diet and subsequently reingested, with symptoms occurring approximately two hours after ingestion and lasting several hours. An acute presentation is also seen when the antigen is ingested intermittently. Young infants with FPIES due to milk- and/or soy-based formulas usually have a chronic presentation, whereas solid-food FPIES can have an acute or chronic presentation depending upon the frequency of ingestion of the offending food.

### **Clinical Features:**

Nearly all patients present with vomiting which is projectile, repetitive in acute presentation intermittent in chronic setting.

In both forms the infants can be seriously ill and present with hypotension .

The other features common to diarrhoeal disorders like dehydration, abdominal distension, pallor and lethargy and Failure to thrive, weight loss and anemia

Two unique features of FPIES are hypoalbuminemia which becomes symptomatic and methemoglobinemia.

Methemoglobinemia may be caused by severe intestinal inflammation and reduced catalase activity resulting in increased nitrite.

### Proctocolitis:

In this condition infants who are thriving present with bloody diarrhoea symptoms resolve after removal of Cow's milk and soy from the diet of the infant and mother, if the latter is still breast feeding.

**Eosinophilic esophagitis** – EoE should be suspected in patients of any age presenting with esophageal symptoms. Infants and young children may present with feeding disorders and failure to thrive, whereas older children and adults typically present with dysphagia, vomiting, and abdominal pain . A history of food impaction is common, particularly in adolescents and adults. Failure to respond to antacids and antireflux therapies is an important aspect of the history. Many patients with EoE have other atopic diseases. The most commonly implicated foods in children are cow's milk, egg, soy, corn, and wheat and most patients with evidence of food sensitivity tested positive for multiple foods. Elimination or elemental diets result in clinical and histologic improvement in most.

**Eosinophilic gastroenteritis** – Eosinophilic gastroenteritis can present at any age with abdominal pain, nausea, diarrhea, malabsorption, and weight loss. In infants, it may present as outlet obstruction with postprandial projectile vomiting that can mimic pyloric stenosis . In adolescents and adults, it can mimic irritable bowel syndrome. Symptoms vary depending on the layer and portion of the gastrointestinal tract that is involved. Approximately

one-half of patients have allergic disease, such as defined food sensitivities, asthma, eczema, or rhinitis. However, food allergy testing has not been shown to effectively identify specific culprit foods. An empiric elimination diet or elemental diet may improve symptoms and histologic findings in up to half of patients.

### Specific Gastrointestinal Food Involvement syndromes

- **Coeliac disease** is caused by the body mounting an auto-immune response to gluten. It is a autoimmune disease not an allergy . It can be diagnosed by a blood test (a Coeliac screen) whilst receiving gluten (wheat, rye and barley) in the diet but ultimately needs confirmation by biopsy on gastroscopy.

- **Gluten Hypersensitivity** is a condition that is poorly understood and not well defined. Patients with this condition have symptoms of diarrhoea and bloating that improve with removal of gluten from the diet however they have a negative Coeliac screen and do not have evidence of damage to the lining of the gut on biopsy.

### Next issue: Diagnosis and Management of Food Allergies

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