What’s New in Food Allergy?

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What’s new in food allergy?

• Objectives
  • Recognize potential food allergies and who is at risk
  • Know when to refer to an allergist
  • Feel confident in recommending early introduction of peanut and other allergenic foods
  • Knowledge of the difference between oral desensitization and oral challenge

• Disclosures: none
## What’s new in food allergy?

### Case #1

- **4 month old female**
- **Patient history**
  - Hives after consumption of a bottle of Enfamil at 3 ½ months of age
  - History of eczema, reactive airway disease
- **Family history**
  - Dad with asthma since childhood, environmental allergies, immunotherapy (IT) as a child
  - Mom with childhood asthma, environmental allergies, IT as a child, idiopathic urticaria as a child
  - No family history of food allergy

### Case #1

- **Exam**
  - Alert, happy, well nourished, in no acute distress
  - Lung sounds CTA
  - Bilateral TM’s clear
  - Dry skin to trunk and extremities
  - Thick excoriated eczema to trunk, extremities (especially to extensor surfaces), face, and scalp

### What should we do with this patient?
- **Skin test**
  - Baby’s eczema is too exacerbated
What’s new in food allergy?

Case #1

• What should we do with this patient?
  • Skin test – baby’s eczema is too exacerbated
  • Serum IgE levels

Total IgE 500 (normal is <46)
• Almond <0.35
• Cashew 77.1
• Egg white 8.41
• Peanut 77.5
• Milk 3.21

Case #2

• 12 month old male
• Patient history
  • Full body hives after eating scrambled eggs at 11 months of age
  • Resolved with one dose of Benadryl
  • Consumes cookies and cakes, peanut butter, and cow’s milk without problems
  • Large local swelling with insect bites
• Family history
  • Father and mother have environmental allergies
  • No family history of food allergy

What’s new in food allergy?

Case #1

• What should we do with this patient?
  • Skin test – baby’s eczema is too exacerbated
  • Serum IgE levels

Exam
• Alert, happy, well nourished, in no acute distress
• Lung sounds CTA
• Bilateral TM’s clear
• Dry skin on extremities
• Mild eczema on extremities, extensor surfaces, and face

Case #2
What’s new in food allergy?

Case #2

• What to do with this patient?
  • Skin test?

• Skin test results
  • Almond 2mm x 5mm
  • Egg white 20mm x 40mm
  • Egg yolk 10mm x 15mm
  • Peanut 15mm x 25mm
  • Milk 5mm x 10mm

• Serum IgE levels
  • Total IgE 78 (normal is <46)
  • Almond 1.46
  • Egg white 4.41
  • Egg yolk 2.26
  • Peanut 0.54
  • Milk 1.65
Case #3

What’s new in food allergy?

- 7 month old male
- Patient history
  - Profuse vomiting and diarrhea with lethargy 4 hours after consuming oatmeal
    - Parents gave Benadryl without change in symptoms, baby continued to vomit and became increasingly lethargic
    - Went to the ER, was told baby had gastroenteritis
      - ER gave baby fluids and zofran, symptoms resolved after several hours of treatment
      - The following week parents gave the baby oatmeal, the same symptoms occurred within 3 hours of the meal
        - The parents again returned to the ER, baby was given the same treatment of fluid boluses and zofran, and again after several hours of treatment the symptoms resolved
        - Baby was diagnosed with an oat allergy and referred to the local allergist

What’s new in food allergy?

- Family history
  - Parents healthy without any history of atopy, food, or environmental allergies
  - 2 older siblings healthy without atopy, reactive airway disease, or food/environmental allergies

What’s new in food allergy?

- Exam
  - Alert, active, in no acute distress
  - Lung sounds CTA
  - Bilateral tympanic membranes clear
  - Skin clear

What’s new in food allergy?

- What to do with this patient?
  - Skin test?
What’s new in food allergy?
Case #3

• What to do with this patient?
  • Skin test results
    • Oat negative

• Serum IgE levels
  • Oat <0.35 (negative)

What’s new in food allergy?
Case #3

• What to do with this patient?
  • Skin test results
    • Oat negative
  • Serum IgE levels?

• Diagnosis?
  • FPIES
    • Food Protein Induced Enterocolitis Syndrome
What’s new in food allergy?

• What is FPIES?
  • A non-IgE mediated immune reaction in the gastrointestinal system to one or more specific foods commonly characterized by profuse vomiting and diarrhea. FPIES is presumed to be cell mediated.
  • Characteristics of an FPIES reaction:
    • Delayed onset of symptoms, usually 2-4 hours after ingestion, but sometimes as late as 8 hours
    • Symptoms range from mild (increase in reflux, runny stools) to life threatening (shock)
    • Symptoms include repeated vomiting, usually followed by diarrhea with 20% of cases resulting in shock

• When do FPIES reactions occur?
  • FPIES reactions often show up in the first weeks or months of life, or at an older age for the exclusively breastfed child. Reactions usually occur upon introducing first solid foods, such as infant cereals or formulas, which are typically made with dairy or soy. While a child may have allergies and intolerances to food proteins they are exposed to through breast milk, FPIES reactions usually don’t occur from breast milk, regardless of the mother’s diet. An FPIES reaction typically takes place when the child has directly ingested the trigger food(s).

What’s new in food allergy?

• What does IgE vs. cell mediated mean?
  • IgE stands for Immunoglobulin E. It is a type of antibody, formed to protect the body from infection, that functions in allergic reactions. IgE-mediated reactions are considered immediate hypersensitivity immune reactions, while cell mediated reactions are considered delayed hypersensitivity. Antibodies are not involved in cell mediated reactions.

• Types of food reactions
  • IgE mediated reactions
  • Cell mediated reactions
  • Eosinophilic esophagitis
  • Celiac Disease
  • Galactose-alpha-1,3-galactose (alpha-gal)
    • The IgE response to alpha-gal has been found in both adults and children. Patients may experience urticaria, angioedema, or anaphylaxis, although patients may also have gastrointestinal symptoms accompanied by presyncope or syncope without urticaria or angioedema, a presentation that is more difficult to recognize as an allergic reaction. The onset of symptoms is usually significantly later compared with typical IgE-mediated reactions, beginning three to six hours after ingestion.
What’s new in food allergy?

• Early Introduction
  • For the first feeding
  • Make sure your child is healthy (no fever, cold, vomiting, or diarrhea)
  • Do it at home when you can watch your child for 2 hours after the feeding
• Peanut
  • Thin 2 teaspoons (about 2 grams) of smooth peanut butter with 2 to 3 teaspoons of hot water. Stir until blended and cool. Add more water if needed. You can also add peanut powder to infant cereal or fruit puree.
  • Give your child a small spoonful of the peanut butter. Wait 10 minutes.
  • Watch for an allergic reaction.
  • If your child has not had an allergic reaction after 10 minutes, feed them the rest of the peanut mixture.
  • It is VERY important to keep peanut in the diet regularly once it is introduced!

What’s new in food allergy?

• Dairy
  • Baby yogurt (such as YoBaby): give 2 teaspoons 3 times weekly
  • More is ALWAYS ok!
  • Milk-based formula (Similac, Enfamil, etc) are also helpful for maintaining tolerance to dairy
• Egg
  • Puree or hard-boiled egg or scrambled egg: give 2 teaspoons 3 times weekly
What’s new in food allergy?

- Peanut, milk, and eggs are the most important allergens to get into the diet early. The following other food allergens would be a "bonus" for food allergy prevention if they can be incorporated early and often into the infant’s diet
  - Sesame
    - Ex. hummus (contains tahini sesame paste)
  - Fish
    - Ex. soft fish such as salmon with all the bones removed
  - Could be pureed
  - Tree nuts
    - Ex. thinned almond butter, thinned cashew butter, etc.
  - Wheat
    - Ex. wheat infant cereal

What’s new in food allergy?

- Your child may be having a life-threatening allergic reaction called anaphylaxis if they are having any of the following symptoms:
  - Trouble breathing
  - Hives or rash
  - Face, lip, or tongue swelling
  - Repeated coughing
  - Wheezing
  - Vomiting
  - Change in skin color, especially pale or blue
  - Personality changes or sudden tiredness
- Call 911 immediately!

What’s new in food allergy?

- Oral desensitization (OIT) versus oral challenge
  - OIT
    - Is for patients who will not grow out of their allergy organically
    - In our clinic we desensitize for peanut, milk, and egg
    - OIT is when you start with an extremely low dose of the allergen, take daily doses with slight increases weekly until you reach the desired graduation dose
    - The initial dose and dose increases are given under clinical supervision, whereas the remainder of the daily doses during the dose advancement phase and maintenance therapy are administered at home. The food included in OIT is usually otherwise strictly avoided in the diet during the duration of OIT
    - Patients need to ingest a daily maintenance dose of the allergen to guarantee continued desensitization

What’s new in food allergy?

- Oral desensitization (OIT) versus oral challenge
  - Oral challenge
    - For patients who have a lower food IgE level, we want to get the allergenic food into their diet so that the allergenicity lowers, in hopes that the level eventually becomes negative
    - Our clinic will oral challenge any food if we feel it is safe to do so
    - During an oral challenge, we give small amounts of the allergen in increasing portions to equal a serving size
    - If the patient passes the challenge they need to continue to incorporate at least a serving size of the allergen in their diet weekly
    - If we are doing a baked milk or egg challenge the patient is required to eat the predetermined portion daily, call us weekly for further instructions on how to advance the allergen into their diet
What’s new in food allergy?
Case #1 Revisited

• Peanut desensitized in 2012
  • Now eats 14 peanut M&Ms as her daily maintenance dose
• Serum IgE levels
  • Total IgE 281 (normal is <46)
  • Almond <0.35
  • Cashew 15.4
  • Egg white <0.35
  • Peanuts 4.55 (at the highest, was >100)
  • Milk <0.35
  • Pistachio 15.3

References
FPIES: Food protein-induced enterocolitis syndrome. www.kidswithfoodallergies.org