

# Food Allergies

NIH Expert Panel on Food Allergy Guidelines



**JONATHAN HORBAL D.O., FACOI**  
ALLERGY AND IMMUNOLOGY

CLINICAL ASSISTANT PROFESSOR - INTERNAL  
MEDICINE SUB-SPECIALTIES

MICHIGAN STATE UNIVERSITY - COLLEGE OF  
OSTEOPATHIC MEDICINE  
AND  
COLLEGE OF HUMAN MEDICINE  
EAST LANSING, MI 48824

MIDLAND AND BAY ALLERGY, ASTHMA AND  
IMMUNOLOGY CLINICS  
MIDLAND AND BAY CITY, MICHIGAN

# Disclosures



- I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity.

# Definition



- Specific components of food or ingredients within food (typically proteins, but sometimes also chemical haptens) that are recognized by allergen-specific immune cells and elicit specific immunologic reactions, resulting in characteristic symptoms.

# Definitions of Specific Food-Induced Allergic Conditions



## **Food-induced anaphylaxis**

- GI food allergies and several specific syndromes
- Immediate GI hypersensitivity
- Oral allergy syndrome (OAS)
- Eosinophilic esophagitis (EoE)
- Delayed food anaphylaxis to mammalian meats
- Food-associated, exercise-induced anaphylaxis

# Children vs Adults



- **Adults**

- FA (Food Allergy) in adults can reflect persistence of pediatric FAs (e.g., milk, peanut, and tree nuts) or *de novo sensitization to food allergens encountered after childhood*.
- *Although there is a paucity of data from U.S. studies, FA that starts in adult life tends to persist.*

- **Children**

- Most children with FA eventually will tolerate milk, egg, soy, and wheat; far fewer will eventually tolerate tree nuts and peanut.
  - ✦ The time course of FA resolution in children varies by food and may occur as late as the teenage years.
  - ✦ A high initial level of sIgE against a food is associated with a lower rate of resolution of clinical allergy over time.

# Risk Factors for Severity of Allergic Reactions to Foods



- The severity of allergic reactions to foods is multifactorial and variable. The severity of a reaction cannot be accurately predicted by the degree of severity of past reactions nor by the level of sIgE or the size of the wheal from the skin prick test (SPT).
  - The factor most commonly identified with the most severe reactions is the coexistence of asthma.

# Diagnosis of Food Allergy



- Careful dietary history!!!
- Skin test
  - The expert panel (EP) recommends performing a skin puncture test (SPT) to assist in the identification of foods that may be provoking IgE-mediated food-induced allergic reactions.
- Blood testing
  - The EP recommends that the routine use of measuring total serum IgE but should ***not be used to make a diagnosis of FA.***
  - The EP recommends sIgE tests for identifying foods that potentially provoke IgE-mediated food-induced allergic reactions, but alone these tests are ***not diagnostic of FA.***
- Challenge
  - The EP recommends using oral food challenges for diagnosing FA. The double-blind placebo-controlled food challenge is the gold standard.
  - However, a single-blind or an open-food challenge may be considered diagnostic under certain circumstances: If either of these challenges elicits no symptoms then FA can be ruled out.

**DO NOT USE: Patch testing or Intradermal Testing**

# Foods



- Although more than 170 foods have been reported to cause IgE-mediated reactions, most prevalence studies have focused on only the most common foods.
- The incidence and prevalence of food allergy (FA) may have changed over time, and many studies have indeed suggested a true rise in prevalence over the past 10–20 years.
- Studies of FA incidence, prevalence, and natural history are difficult to compare because of inconsistencies and deficiencies in study design and variations in the definition of FA.



# Common Pediatric Food Allergy



- **Milk**

- Difficult to eliminate due to reaction happening from foods cooked with milk
- Other names: whey, casien, lacto-albumin
- May use substitutes such as rice milk, soy milk etc

- **Egg (white and yolk)**

- Also difficult to eliminate
- Other names: ova-albumin
- The EP consensus recommendations that children with egg allergy, even those with a history of severe reactions, receive vaccines for: Flu, MMR and MMRV.
- The EP consensus recommendations that children do **not** receive: *Yellow Fever Vaccine and Rabies Vaccines.*

- **Peanut**

- May be lethal
- Usually need to avoid all nuts, despite not being in the same family and should not cross react in vitro.
- Usually will be a life long allergy..... Learning Early about Peanut Allergy (LEAP) trial

- **Soy**

- **Shell fish**

- **Grains**

- **Fruits**

# LEAP



- The trial demonstrate that consumption of a peanut-containing snack by infants who are at high-risk for developing peanut allergy prevents the subsequent development of allergy.
  - Over 600 children between 4 and 11 months of age at high risk for peanut allergy were randomized to either consume or avoid peanut until age 5
  - Of the children who avoided peanut, 17% developed peanut allergy by the age of 5 years. Remarkably, only 3% of the children who were randomized to eating the peanut snack developed allergy by age 5.
  - Therefore, in high-risk infants, sustained consumption of peanut beginning in the first 11 months of life was highly effective in preventing the development of peanut allergy.

# Oral Allergy Syndrome



- Patient has pollen allergy
- During season
- Urticaria and itching of mouth with ingestion of fruits and veg.
- Apples, melons, peaches, pears, potatoes, celery, carrots, fenel seed, sunflower seeds, cherries

# Latex Food Allergy



- Found in those with excessive exposure to latex
- Health care workers, patients with multiple surgeries (spina bifida)
- Hives, emesis, failure to thrive
- Avacados, cherries, etc

# Prevention of Food Allergy



- The EP does **not** recommend restricting maternal diet during pregnancy or lactation as a strategy for preventing the development or clinical course of FA.
- The EP recommends that all infants be exclusively breast-fed until 4 to 6 months of age, unless breast-feeding is contraindicated for medical reasons.
- The EP does **not** recommend using soy infant formula instead of cow's milk infant formula as a strategy for preventing the development of FA or modifying its clinical course in at-risk infants
- The EP suggests that the use of hydrolyzed infant formulas, as opposed to cow's milk formula, may be considered as a strategy for preventing the development of FA in *at-risk infants who are not exclusively breast-fed*

# Eosinophilic Esophagitis



## Symptoms

- Intermittent or daily symptoms of dysphagia (Adolescents/Adults)
- Failure to thrive in babies
- GERD-like symptoms
- Normal acid blockade-Unresponsive
- > 20 eos/HPF

## Treatment

- Food Avoidance
- Swallowed steroids
- Dilatation
- Rescope and surveillance

# The Outdoors Man



# History of Presenting Illness



- **31yo white male comes to ED for anaphylaxis**
  - Was also seen 4-5 this year other times for the same symptoms
    - ✦ Hives
    - ✦ Abdominal pain
    - ✦ Trouble breathing
    - ✦ Wheezing
  - Was discharged after he was given IV steroid and Benadryl
  - Epinephrine was given at this visit - helped
- **His major hobby is to raise bees**
  - Has a hive with about 5000 bees in over 10 hives located in the back of his property
  - Hives are located in very tall grassy/wooded areas that he has to walk through to manage at least 1 time per week.
- **Avid hunter that eats red meat at least 2x per week**
  - Says that he will eat more in the summer with BBQs but will eat year round



# Differential



- Food allergy
- Bee sting
- Mastocytosis
- Idiopathic anaphylaxis
- Poisoning
- Malignancy

# Labs Done at ED Visits



Labs	Episode 1	Episode 2	Episode 3	Episode 4
CBC w/diff	WNL		WNL	WNL
G-6-PD				11 (elevated)
TSH + T3/4		WNL		
IgE Pork				1.89 (elevated)
IgE Beef				3.45 (elevated)
Tryptase				Elevated
<b>IgE Alpha-Gal</b>				<b>29.89 (elevated)</b>

# Alpha-Gal History



- Dr. Deutch in 1989 in Georgia noted that he found 10 cases of delayed reactions to patients that ate *mammalian meat*.
  - Spend great deals of time outdoors was a common feature in all his patients
  - All had a history of being bitten by a tick as well

# Tick Information



**Ixodes Holocyclus**

# Reported Cases



# Runners Itch



- 16yo Female comes into your office after having been to the ED last night and being diagnosed with an anaphylactic reaction.
- She had done nothing differently than normal. She had eaten a very light dinner of a salad and dressing – eaten all the items before.
- She recently started to work out and was running on a treadmill. Within 15min of running she started to have some trouble breathing and then it progressed on to tightness in her chest. She broke out in a rash on her way to the ED. She was given IV steroids and Benadryl and told to follow up with you.

# Exercise Induced Anaphylaxis



- Yes you can be allergic to exercise .....don't tell your patients!!!
- Time course is usually within 30 of the onset of exercise with a specific food ingesting within 2-4 h of the exercise.
- Reactions progress as a typical allergic reaction but need to have both elements in place for it to happen
  - Food
  - Exercise
- Can also have exercise induced urticaria reactions and there is believed to be some overlap in diagnosis.
  - cholinergic

# EIA





# Treatment of Food Allergy



- AVOIDANCE
- Epi Pen
- At this time there is no FDA approved desensitization in any form for food allergy