Update on Peanut Desensitization

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Disclosure Statement

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Objectives

1. Review of the etiology, pathophysiology & disease burden of immediate hypersensitivity to peanut
2. Discuss current status of peanut desensitization protocols
3. How to approach patients with peanut hypersensitivity and those interested in attempting peanut desensitization
Review of Immediate Hypersensitivity

• Recognition of a certain protein structure by the immune system
• Cross-linking of antibodies to initiate a cascade of events starting with degranulation of mast cells
• Result typically is fast and fierce and can be life-threatening
Resting mast cell containing granules and inflammatory mediators

- IgE antibody
- Electron dense granules
- FcεRI

Activated mast cell

- Antigen cross-links adjacent antibodies
- Granules (less electron dense)
- Contents released & open to exterior

Mediators of hypersensitivity and inflammation

- Contracts airways smooth muscle
- Stimulates secretions of mucous glands
- Dilates and increases permeability of blood vessels
- Activates platelets
- Attracts eosinophils
Most Common Allergies – Responsible for over 90% of food allergy

- Milk
- Egg
- Peanut
- Tree Nut
- Fish
- Shellfish
Most Common Allergies to be “outgrown”

• Milk
• Egg

• Not to be confused with intolerances such as lactose intolerance
Peanut Hypersensitivity

• Less likely to be outgrown – 80% persists into adulthood
What we know about peanut allergy now

Burden goes beyond the cost of testing and cost of epinephrine self-injectors – parental and then patient anxiety

Certain parts of the molecule are more allergenic than others

Some patients previously thought to be allergic might not be
Cross Reactivity in Peanut Allergy
Current Protocols Aimed at Desenstization

• Long-Term Epicutaneous Therapy for Peanut Allergy
  2014 VIPES study
Current Protocols (continued)

- Peanut Sublingual Therapy versus Oral Immunotherapy
Future Protocols

• Nano-emulsion vaccines???
How to Approach a Patient

• First we determine is there true peanut allergy
• Must have symptoms with each and every exposure AND positive testing either on skin testing or RAST/Immunocap testing
• This likely means referral to an allergist/immunologist
• Be clear about what the goals of desensitization are
Case

- Patient with atopic dermatitis, allergic rhinitis, possible tree nut allergy – reaction to walnuts but tolerates peanut by history
- Sees physician who orders “screening” immunocap testing
Case - continued

• Immunocaps results
Case - continued

• What would you recommend?
Case - continued

• What he and his family were told
Case - continued

• When I saw him
• History
• Immunocap testing followed by component testing
Case – continued

• Component testing results
Case - continued

• Patient came in for challenge procedure and skin prick testing was mildly positive

• Underwent successful challenge and is now able to tolerate peanut!
Take Home Points

• Peanut is one of the more allergenic foods in people with food allergy
• Some studies have suggested that early introduction of egg (4 to 6 months of age) and peanut (before 12 months of age) may decrease the incidence of food hypersensitivity to these items
• There is now component testing available to further guide us
• Current protocols aimed to desensitize patients to peanut are meant to protect against severe allergic reactions to accidental exposure and are not presently to the point of inducing desensitization for general consumption of peanut
Question #1

Which of the following food allergies are most likely to resolve from childhood into adulthood?

A. Cow milk
B. Egg
C. Cow milk and Egg
D. Peanut
E. Tree Nuts (almond, walnut, pistachio, cashew)
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Question #2

Cow milk, fish, shellfish, peanut and tree nut allergy account for what percentage of immediate hypersensitivity reactions in the general population?

A. 40%
B. 50%
C. 75%
D. 90%
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Question #3

Which of the following components of the peanut protein molecule are associated with the most severe allergic reactions?

A. Ara h 1 and Ara h 3
B. Ara h 2 and Ara h 6
C. Ara h 1, Ara h 2 & Ara h 6
D. Ara h 1, Ara h 2, Ara h 3, & Ara h 6
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Question #4

Which of the following pollen allergies can cause cross-reactivity symptoms with peanut?

A. Tree pollen
B. Grass pollen
C. Weed pollen
D. All of the above
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Question #5

True or False:

“Oral Immunotherapy is associated with a relatively high rate of adverse events, mainly oral and GI effect, but can include anaphylaxis, asthma exacerbations and/or oropharyngeal edema”
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True or False:

“Oral Immunotherapy is associated with a relatively high rate of adverse events, mainly oral and GI effect, but can include anaphylaxis, asthma exacerbations and/or oropharyngeal edema”

True
The End

• Questions?????