The Role of Peanut Allergy in Anaphylaxis

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Diagnosis of food allergy

Signs and Symptoms

- Angioedema of conjunctiva, buccal mucosa or skin
- Respiratory distress (e.g., shortness of breath, chest tightness, wheezing
- Cardiac symptoms (e.g., hypotension, tachycardia
- Loss of consciousness, confusion, headache, anxiety
- Urticaria, pruritus, flushing
- Abdominal pain, diarrhea, vomiting (especially in children)
- Coughing, shortness of breath
- Urinary incontinence

Fierro, 2017.)

The most common IgE-mediated effects occur in the respiratory and cardiac systems. This is due to the "fluid shift from intravascular to extravascular space resulting in edema, respiratory arrest and circulatory collapse" (Brasted & Ruppel, 2016).

Diagnosis of anaphylaxis

Anaphylaxis is likely when any one of these three criteria is present:

1. Acute onset of illness (minutes to several hours) with involvement of the skin, mucous membranes, nasal, conjunctival, sinusal, oropharyngeal, oronasal, ileus, tongue, or visceral at least one of the following:
   - Anaphylaxis (e.g., dyspnea, wheezing or tracheobronchitis, stridor; reduced peak flow, hypotension, hypoxia)
   - Reduced blood pressure or associated symptoms of organ dysfunction (e.g., hypotension, syncope, incontinence)

2. Two or more of the following that occur rapidly after exposure to the allergen:
   - (a) Involvement of the skin or mucosal tissue (e.g., papules, vesicles, urticaria, pruritus, flushing, swelling lip, tongue, or visceral at least one of the following:
   - Respiratory compromise (e.g., dyspnea, wheezing or tracheobronchitis, stridor; reduced peak flow, hypotension, hypoxia)
   - Reduced blood pressure or associated symptoms of organ dysfunction (e.g., hypotension, syncope, incontinence)

3. Reduced blood pressure after exposure to known allergen for that patient (minutes to several hours):
   - (a) Anaphylaxis (e.g., hypotension, syncope)
   - (b) Reduced peak flow (e.g., reduced peak expiratory flow, hypoxia)
   - (c) Reduced blood pressure or associated symptoms of organ dysfunction (e.g., hypotension, syncope, incontinence)

Pathophysiology

Valenta et al., describe allergic sensitization as the "first induction of an allergic immune response upon allergen encounter" (2005). Sensitization to food allergens can occur in the gastrointestinal tract, oral cavity, skin or sometimes in the respiratory tract (Sampson, et al., 2017). In addition, according to Sampson, patients may have skin barrier disruptions, likely caused by inflammation or allergen-induced proinflammatory mediator production, are associated with increased risk of food sensitization in humans and are therefore potentially of food allergy (Sampson et al., 2017). Specific functional variants in L1 receptor b1, tol-like receptor 9 (STAMP), and IL-4 receptor a (ILR4) have all been associated with an increased risk of food sensitization (Fiscu & Fiocchi, 2017). The top 8 allergens in the United States (Zhao et al., 2013). Only 10% of children are likely enough to avoid anaphylactic reactions causing the potential for anaphylaxis to that the patient (Duke University Medical Center.

Significance of pathophysiology


Risk factors for anaphylaxis

- Delayed treatment with Epinephrine
- Epinephrine received after anaphylactic event
- History of asthma
- Chronic lung disease
- Cardiovascular disease
- Pregnancy
- Medications taken with food
- Use of a beta-agonist, anticholinergic-blocker, anticholinergic-converting-enzyme inhibitor, or alpha-agonist-bronchodilator (Jones & Burks, 2017)

Implications for Nursing Practice

Early diagnosis and treatment for anaphylaxis is key to preventing mortality. The gold standard for treatment of anaphylaxis is epinephrine, usually by an auto-injector (Brasted & Ruppel, 2016)

References


