Food Allergy – Testing and Guidelines

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Food Allergy – Testing and Guidelines

- Food allergy
- Testing
- Guidelines
- Cases
Food Allergy – NICE CG116

- **Food allergy** is an adverse immune response to a food.
- It can be classified into **IgE-mediated** and **non-IgE-mediated** reactions.
- Non-IgE reactions are poorly defined both clinically and scientifically and are believed to be T-cell-mediated.
- Some reactions may involve a mixture of both IgE and non-IgE responses.
- **Food allergy** may be confused with **food intolerance**, which is a non-immunological reaction that can be caused by enzyme deficiencies, pharmacological agents and naturally occurring substances.
Food Allergy

- 1994 (17 years!) study of **food allergy/intolerance**
- Young et al, Lancet 1994,343:1127
- Milk, egg, wheat, soya, orange, prawn, nuts, chocolate
- 20 000, 19.4% intolerant
- DBPCFC -1.4%........

- 15-20% children according to parents
- Oral challenge – 2.3% in younger than 3 y, older – 1% (Scandinavia)
- Other sources: children – 6%, adults – 2%
Anaphylaxis – symptoms (BSACI patients’ leaflet)

- Generalised flushing of the skin
- Hives anywhere on the body
- Swelling of throat and mouth
- Difficulty in swallowing or speaking
- Changes in heart rate
- Severe asthma/tightness of the chest
- Abdominal pain, nausea and vomiting
- Sense of impending doom
- Sudden feeling of weakness (drop in blood pressure)
- Collapse and unconsciousness
- Dizziness, poor coordination, diarrhoea, uterine contractions
Anaphylactic reaction is highly likely when following 3 criteria are fulfilled:

- Sudden onset and rapid progression of symptoms
- Life-threatening **Airway** and/or **Breathing** and/or **Circulation** problems
- Skin and/or mucosal changes (flushing, urticaria, angioedema)
Food allergy

No evidence that the following predict severity:

- Type of allergen or amount of allergen
- Severity of previous reaction (only 20% of those who died because of food allergy had a severe reaction in the past)
- Severity of reaction after a low dose oral challenge
- Multiple allergies
- Size of skin prick test reaction, total IgE or specific IgE values

BUT: presence of asthma connected with potential of fatal outcome...

(Colver, BMJ, 2006)
Food Allergy Testing

• What tests do we use to diagnose food allergy?

• What are the tests actually testing?

• When to request them?
Testing - Methods

IgE-mediated reactions:

   Skin prick tests
   Specific IgE

Challenge

Gold standard: DBPCFC (Double-blind, placebo-controlled food challenge)
Testing - Methods

IgE-mediated reactions:

Mast cell tryptase – to confirm degranulation of the mast cells – please, refer to the pathology website

Other tests:

Prick by prick,

Atopy patch tests (T-cell mediated)
Specific IgE/Prick tests

• To confirm type I hypersensitivity reaction to a suspected allergen NOT to diagnose allergy

• Positive result of the test on its own (without the history of reaction) is only a sign of sensitization to a particular allergen
Prick tests

- Drop of allergen solution placed on the skin and gently pricked with sterile lancet – 15-20 minutes reading
- Positive (histamine) and negative (saline) control is a MUST
- Wheal of 3 mm or greater indicates the presence of specific IgE antibodies.
- Resuscitation/anaphylaxis treatment must be available
Specific IgE results

- The test is scored on a scale from 0 to 6:
- 0  < 0.35 kUA/L  absent or undetectable level of allergen specific IgE
- 1  0.35 - 0.69  low level
- 2  0.70 - 3.49  moderate level
- 3  3.50 - 17.49  high level
- 4  17.50 - 49.99  very high level
- 5  50.0 - 100.00  very high level
- 6  > 100.00  extremely high level
Total IgE level

Total IgE level alone should not be used to diagnose type I hypersensitivity.

It may be occasionally needed for other purposes (e.g. hyper-IgE syndrome). Allergen-specific IgE/total IgE ratio is valued by some authors.
Guidelines

- NICE guidelines CG57, 2007
  - Atopic eczema in children. Management of atopic eczema in children from birth up to the age of 12 years.
  - [http://www.nice.org.uk/CG57](http://www.nice.org.uk/CG57)

- NICE guidelines CG116, 2011
  - Food allergy in children and young people. Diagnosis and assessment of food allergy in children and young people in primary care and community settings
When clinically assessing children with atopic eczema, healthcare professionals should seek to identify potential trigger factors including:

- irritants, for example soaps and detergents (including shampoos, bubble baths, shower gels and washing-up liquids)
- skin infections
- contact allergens
- food allergens
- inhalant allergens.
Guidelines – Atopic eczema CG57

Healthcare professionals should consider a diagnosis of food allergy in children with atopic eczema who have reacted previously to a food with immediate symptoms, or in infants and young children with moderate or severe atopic eczema that has not been controlled by optimum management, particularly if associated with gut dysmotility (colic, vomiting, altered bowel habit) or failure to thrive.
Guidelines

Moderate atopic eczema:
- Emollients
- Moderate potency topical corticosteroids
- Topical calcineurin inhibitors
- Bandages

Severe atopic eczema:
- As for moderate atopic eczema and
- Phototherapy
- Systemic therapy
Healthcare professionals should reassure children with mild atopic eczema and their parents or carers that most children with mild atopic eczema do not need to have tests for allergies.
Atopic Dermatitis and Food Allergy

- Food allergy more frequent in moderate/severe atopic dermatitis
- Atopic dermatitis is NOT caused by food allergy
- Avoidance/investigations not advisable unless hx of reactions
- Treat AD first, if not improving and you are sure the patient is following your advice – THINK (diagnosis, environment, food…..)
- Failure to thrive needs to be investigated by paediatricians
- Specific IgE or prick test alone are not diagnostic of FA
Guidelines

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History and Examination

Do not offer allergy tests without first taking an allergy-focused *clinical history*. 
History

Ask about:

• any personal history of atopic disease (asthma, eczema or allergic rhinitis)
• any individual and family history of atopic disease or food allergy in parents or siblings
• details of any foods that are avoided and why
• presenting symptoms that may be associated with food allergy, including:
  age at first onset, speed of onset, duration, severity and frequency, setting of reaction (for example, at school or home), reproducibility of symptoms on repeated exposure, what food and how much exposure to it causes a reaction
History

Ask about:

- cultural and religious factors that affect the child’s diet
- who has raised the concern and suspects the food allergy
- what the suspected allergen is
- the child’s feeding history, including age of weaning and whether they were breastfed or formula-fed (if the child is breastfed, consider the mother’s diet)
- details of previous treatment, including medication, for the presenting symptoms, and the response to this
- any response to the elimination and reintroduction of foods.
Alternative Testing

Alternative diagnostic tools

• Do not use the following alternative diagnostic tests in the diagnosis of food allergy:
  • vega test
  • applied kinesiology
  • hair analysis.

• Do not use serum-specific IgG testing to diagnose food allergy.
If IgE-mediated Allergy is Suspected

Offer a skin prick test and/or blood tests for specific IgE antibodies to the suspected foods and likely co-allergens. Base choice of test on:

1. The clinical history and
2. The suitability for, safety for, and acceptability to the child (or their parent or carer) and
3. The available competencies of the healthcare professional.

Interpret test results in the context of clinical history!
If non-IgE-mediated allergy is suspected

• Try eliminating the suspected allergen for 2–6 weeks, then reintroduce. Consult a dietician with appropriate competencies about nutritional adequacies, timings and follow-up.

• Taking into account socioeconomic, cultural and religious issues, offer information on: what foods and drinks to avoid, how to interpret food labels, alternative foods to eat to ensure a balanced diet, the duration, safety and limitations of an elimination diet, oral food challenge or reintroduction procedures, if appropriate, and their safety and limitations.

• If allergy to cows’ milk protein is suspected, offer: food avoidance advice to breastfeeding mothers, information on appropriate hypoallergenic formula or milk substitute to mothers of formula-fed babies.

• Consult a dietician with appropriate competencies.
Points to Remember

• Request food allergy tests only after taking proper history and as a confirmation of reaction to particular allergens

• Always interpret the results of the tests in the context of the history

• Positive tests do not always mean that avoidance is necessary

• Negative tests do not exclude IgE-mediated allergy
References

- Resuscitation Council UK (www.resus.org.uk)
- Anaphylaxis Campaign (www.anaphylaxis.org.uk)
- British Society of Allergy and Clinical Immunology (www.bsaci.org)
- European Academy of Allergology and clinical Immunology (www.eaaci.org)
- Food Allergy and Anaphylaxis Network (www.faan.org)
- American Academy of Allergy Asthma and Immunology (www.aaaai.org)
- www.allergyuk.org
- http://guidance.nice.org.uk/CG116