

CLINICAL

Diagnosis and assessment of food allergy in children and young people

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Abstract

Food allergies are recognised as a major paediatric health problem in Western countries, affecting 6% to 8% of children up to the age of three years. Food allergy symptoms can be very severe or subtle and sometimes overlooked.

Following a Department of Health review of allergy services in 2006, the National Institute for Health and Clinical Excellence (NICE) was commissioned to produce a guideline to support GPs and other healthcare professionals in primary care and community settings in recognising the signs and symptoms of food allergy in order to bring about consistency in diagnosis and assessment.

This paper has been written by a member of the guideline development group to provide an overview of the guidance. The guidance addresses six key clinical questions about taking an allergy-focused clinical history, signs and symptoms of IgE-mediated and non-IgE mediated allergy, information and support that should be offered during the assessment process, when to refer on to secondary or specialist services, and the value of alternative allergy tests.

Key words

Food allergy, allergy-focused clinical history, skin-prick test, specific IgE, elimination.

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Declared potential competing interests:

Within the last three years, the author has been on the medical advisory board for ALK-Abello (Epipen) and involved in an Anaphylaxis Campaign project that was funded by Lincoln Medical (Anapen), and she has written a training course for Phadia (allergy testing kits) on behalf of Education for Health. Education for Health and the Anaphylaxis Campaign both run allergy training courses for healthcare professionals.

Introduction

Food allergies are adverse immune responses to food allergens. They are a common allergic disorder and are recognised as a major health problem affecting children in Western countries. The prevalence of food allergy in children has risen dramatically in the last 20 years, ranging from 6% to 8% among children up to three years of age across Europe and North America (Sampson, 1999). Allergic reactions caused by food can be mild or extremely severe, and hospital admission rates for food allergy in the UK have risen by 500% since 1990 (Gupta et al, 2007).

The Department of Health conducted a review of allergy services (DH, 2006) that found considerable variations in practice for allergy care in the UK. It found a lack of agreed treatment pathways, referral criteria or service models. Consequently, many people with symptoms of food allergy self-care or use alternative sources of information, and sometimes use non-validated tests and treatments.

The National Institute for Health and Clinical Excellence (NICE) was commissioned to produce a clinical guideline to help provide consistency in the way that food allergy in children is assessed and diagnosed (NICE, 2011). It covers children and young people from age nought to their 19th birthday. 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 intolerances are not covered in this guideline.

The guideline sets out to address six key clinical questions relating to food allergy in children, and these form its basis (see Box 1). This guideline is particularly relevant to nurses and health visitors working with children and families in primary and community settings.

Assessment and diagnosis

The NICE (2011) guideline highlights the importance of an allergy-focused clinical history for all children who present with suspected food allergy. This is the most important part of making an assessment of the type of allergic reaction that is causing the symptoms. Food allergy can be caused by:

- IgE (immunoglobulin E)-mediated allergy
- Non-IgE mediated allergy
- A mixed aetiology.

These allergic reactions often have different characteristics (see Table 1). IgE-mediated reactions are acute and often have a rapid onset. Non-IgE mediated allergies are often delayed and are characterised by non-acute reactions. In addition, food allergy symptoms can be very obvious and diagnosis straightforward, but conversely symptoms may also be subtle. Many symptoms are common to other conditions, and so they may be missed or attributed to another cause. The guideline offers suggestions on symptoms to look for that may be associated with food allergy, particularly when one or more symptoms are present. This is intended to assist the healthcare professional in considering the possibility of food allergy when assessing their clients' symptoms.

Box 1. Key clinical questions (NICE, 2011)

- What elements should be included in an allergy-focused clinical history?
- What tests should be used to diagnose IgE-mediated allergy?
- What tests should be used to diagnose non-IgE mediated food allergy?
- What information should be provided during the diagnostic process?
- When should referrals to secondary and specialist care be made?
- What is the value of alternative tests?

Table 1. Signs and symptoms of possible food allergy* (NICE, 2011)

IgE-mediated	Non-IgE mediated
Skin • Pruritis • Erythema • Acute urticaria – localised or generalised • Acute angioedema – most commonly of the lips, face and around eyes Gastro-intestinal system • Angioedema of the lips, tongue and palate • Oral pruritis • Nausea • Colicky abdominal pain • Vomiting • Diarrhoea Respiratory system (usually in conjunction with one or more of the above signs and symptoms) • Upper respiratory tract symptoms (nasal itching, sneezing, rhinorrhoea or congestion with or without conjunctivitis) • Lower respiratory tract symptoms (cough chest tightness, wheezing or shortness of breath) Other • Signs and symptoms of anaphylaxis or other systemic allergic reactions	Skin • Pruritis • Erythema • Atopic eczema Gastro-intestinal system • Gastro-oesophageal reflux disease • Loose or frequent stools • Blood or mucus in stools • Abdominal pain • Infantile colic • Food refusal or aversion • Constipation • Perianal redness • Pallor and tiredness • Faltering growth in conjunction with at least one or more gastro-intestinal symptoms above (with or without significant atopic eczema) Respiratory system (usually in conjunction with one or more of the above signs and symptoms) • Lower respiratory tract symptoms (cough, chest tightness, wheezing or shortness of breath)

* The absence of these symptoms does not exclude the possibility of food allergy

The guideline also recommends that food allergy should be considered in children and young people whose symptoms for other conditions do not respond adequately to treatment, for example:

- Atopic eczema
- Gastro-oesophageal reflux disease
- Chronic gastro-intestinal symptoms, including chronic constipation.

A number of clues could lead the healthcare professional to suspect allergy. An example would be if the child has a personal history of allergic conditions (asthma, eczema or allergic rhinitis) or a family history of these conditions or food allergy, particularly in first-degree relatives (parents or siblings).

Some specific questions that may help to build a clear picture of the likely cause are:

- The age of the child or young person when symptoms first started

- Speed of onset of symptoms following food contact
- Duration of symptoms
- Severity of reaction
- Frequency of occurrence
- 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.

Although it is possible to be allergic to many things, the majority of children will react to a fairly small group of allergens (see Box 2).

Based on the allergy-focused clinical history and a physical examination, allergy tests (specific IgE blood test or skin-prick tests) can be conducted if IgE-mediated allergy is suspected. Tests should only be undertaken by healthcare professionals with

the appropriate competencies to select, perform and interpret the results. In addition, skin-prick testing should only be undertaken where there are facilities to deal with an anaphylactic reaction.

Skin-prick testing or specific IgE blood testing will only help to diagnose IgE-mediated allergy. Non-IgE mediated allergies cannot be diagnosed with these tests and require a supervised elimination of the suspected allergen (normally for two to six weeks). Advice should be sought from a dietitian with the appropriate competencies for help to ensure nutritional adequacy, timing of elimination and reintroduction.

Making a correct diagnosis and offering comprehensive advice based on these tests can help to reduce the incidence of adverse reactions caused by trace contact with allergens in highly allergic children. It can also prevent the needless exclusion of foods that are safe and which should be eaten as part of a healthy diet in children when allergy has been excluded.

Information and support

Food allergies can cause enormous anxiety for the child and their family, and the guideline acknowledges the impact this can have on all aspects of the child's life. The guideline recommends offering information and support to families to help guide them through the process of assessment and diagnosis. This includes information on the type of allergy suspected, the risk of severe allergic reactions, the potential impact of the suspected allergy on other healthcare issues (such as vaccination), and the safety of specific allergy tests and elimination diets. It goes on to recommend that the child and family be offered advice on what foods and drinks to avoid, how to interpret food labels and advice on alternative sources of nutrition to ensure an adequate dietary intake. In addition, the guideline suggests signposting families to other sources of information, such as patient support groups.

The guideline recommends offering parents of babies with suspected allergy to cow's milk protein advice on food avoidance for mothers who are breastfeeding, or information on the most appropriate hypoallergenic formula or milk substitute for formula-fed babies. This advice should be from an appropriately trained dietitian.

Referral

Recommendations for when a child may need referral to secondary or specialist care are also discussed. Reasons to consider referral include:

Box 2. List of common allergens

- Cow's milk
- Fish
- Hen's eggs
- Kiwi fruit
- Peanuts
- Sesame
- Shellfish
- Soya
- Tree nuts
- Wheat

- Confirmed IgE-mediated food allergy and concurrent asthma
- Faltering growth in combination with one or more gastro-intestinal symptoms
- If the child has not responded to a single-allergen elimination diet.

There are also recommendations for children with significant atopic eczema where multiple food allergies are suspected (see Box 3).

Alternative allergy testing

The guideline development group considered the effectiveness of some of the alternative types of allergy testing frequently available on the high street or via the internet. These include Vega testing, kinesiography and hair analysis. There is no evidence to show that these tests are of use in diagnosing food allergy, and the recommendation is that they should not be used. In addition, the guideline recommends that serum-specific IgG testing should not be used for the assessment and diagnosis of food allergy.

Cost analysis

The cost analysis published alongside the guideline indicates that early diagnosis can save money on unnecessary referrals and medications, and can lead to improved patient outcomes.

Conclusion

Nurses and other healthcare professionals involved in the diagnosis of food allergy in children and young people must have the relevant competencies to undertake this role. Practitioners may wish to undertake further training in allergy in order to develop these.

KEY POINTS

- Food allergies are a major paediatric health problem in Western countries, and symptoms may be very severe or subtle and overlooked
- Allergy services in the UK have been variable, and new NICE guidance aims to bring about consistency in diagnosis and assessment
- The guidance focuses on taking an allergy-focused clinical history, IgE-mediated and non-IgE mediated food allergy, information and support for families, when to refer to secondary or specialist services, and alternative allergy tests

This is the first guideline on the assessment and diagnosis of children with food allergy, and its implementation will improve the care of children with suspected food allergy in community and primary care settings.

The guideline will empower GPs, health visitors, school nurses and community nurses to make the right diagnosis, and it will equip them with clear and evidence-based recommendations.

Further information

NICE guideline documents are available online, see: www.nice.org.uk/CG116

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'Practitioners may wish to undertake further training in allergy'

Box 3. Referral recommendations (NICE, 2011)

Based on the allergy-focused clinical history, consider referral to secondary or specialist services in any of the following circumstances:

- Faltering growth in combination with one or more gastro-intestinal symptoms
- Not responding to a single allergen elimination diet
- Had one or more acute systemic reactions
- Had one or more severe delayed reactions
- Confirmed IgE-mediated allergy and concurrent asthma
- Significant atopic eczema where multiple or cross-reactive food allergies are suspected
- Persisting parental suspicion of food allergy (especially in children or young people with difficult or perplexing symptoms) despite a lack of supporting history
- Strong clinical suspicion of IgE-mediated food allergy but allergy tests are negative
- Clinical suspicion of multiple food allergies



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