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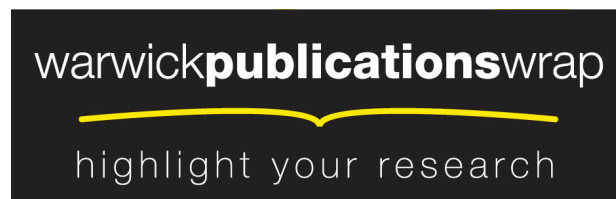
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Food intolerance in Children (non allergenic food hypersensitivity)

Colin Macdougall

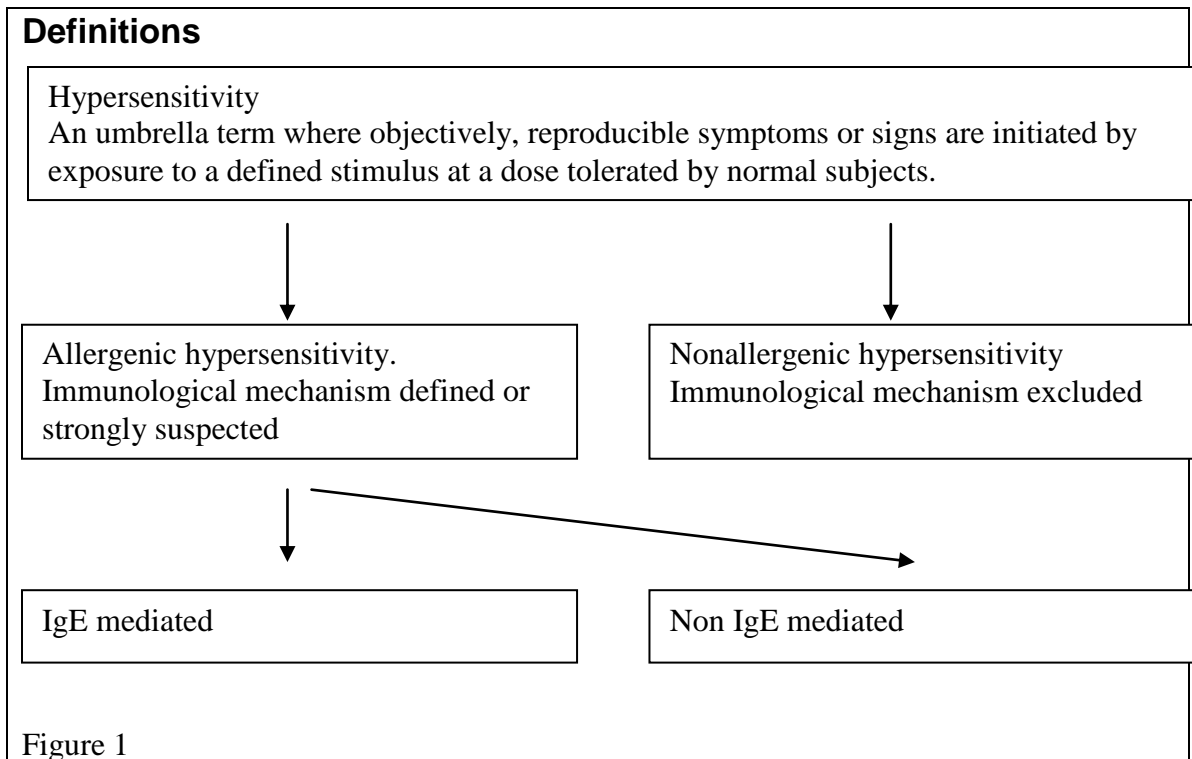
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What do you do?

Clair is a twelve year old girl who has been under the care of outpatient paediatrics for two years. She initially presented with a combination of lower abdominal pain and epigastric pain with a clear history of heartburn. She had been investigated at that time (FBC, ESR, CRP, LFTs, Amylase, H.Pylori antigen test, Coeliac screen, Stool reducing substances, Stool for infection including bacteria and ova,cysts and paracytes) all of which were negative. She was initially managed for gastritis and mild constipation with good effect but is now presenting to the emergency department in apparent severe abdominal pain every few weeks. This has led at one extreme to her almost having surgery and at the other to her being told that it is 'all in her mind'. The family are increasingly convinced that her symptoms are due to food allergy and attend clinic with a detailed food diary. They have also been manipulating her diet extensively and cannot decide if this has helped.

Introduction

Many families have concerns that a range of symptoms relate to what children eat. This is expressed as a fear of 'allergy', 'intolerance', 'sensitivity', 'hypersensitivity' or one of many other terms in common usage. The words used will depend on the families understanding and own beliefs about food as a cause for ill health and will often include terms that mean different things to different people. In discussing the possible diagnoses, I have used the accepted terms, IgE mediated allergenic hypersensitivity, non-IgE mediated allergic hypersensitivity and non allergenic hypersensitivity (see figure 1)



Key points in the history

Are the symptoms suggestive of a gastrointestinal diagnosis?

Claire has been under paediatric care before and things seemed to go well for a while. It is possible that a condition present previously has been missed or that a new condition has arisen. You will need to take a thorough history thinking particularly about upper versus lower gastrointestinal symptoms and inflammatory bowel disease. The key question is whether such issues can be excluded or whether she needs further investigation including imaging or endoscopy. There is a difficult balance between doing too little – and missing something versus too much with potential side effects and reinforcement in Clair’s mind that there is a serious disease.

What is food intolerance?

There are a number of well described and understood non allergic mechanisms by which foods can cause adverse symptoms, best labelled as non allergic hypersensitivity. These include foods containing a drug (e.g. caffeine, salicylates and histamine), perhaps exacerbated in some individuals such as slow acetylators. Also, people can have an enzyme deficiency such as of lactase causing lactose intolerance and of alcohol dehydrogenase causing flushing with alcohol. Beyond these, however, there is also a widespread belief that foods can cause a wide range of symptoms from irritable bowel (a diversely defined entity in itself) to lethargy to almost any chronic illness where the aetiology is still disputed such as migraine. This modern Zeitgeist is perhaps

frustrating but shouldn't be dismissed out of hand. Recently there has been a flood a number of newly described allergenic hypersensitivities (such as allergic dysmotility and eosinophilic oesophagitis). Therefore some of the current intolerance 'fads' may turn out to have clear mechanisms once properly defined and scientifically investigated.

In the meanwhile, suspected associations need considered at face value to clarify whether there is good reason to suspect a food. This needs done with an understanding that there are currently no good diagnostic investigations for such associations.

Are Clair's symptoms suggestive of nonallergenic food hypersensitivity?

Most doctors are comfortable with the symptoms of IgE mediated allergenic hypersensitivity (urticaria, swelling, wheeze, vomiting etc) and perhaps the more varied symptoms of non-IgE mediated allergenic hypersensitivity (failure to thrive, eczema, rhinitis, rectal bleeding). Unfortunately non-allergenic hypersensitivities are more diverse still, less well understood and disputed by some. Also, the absence of useful tests make it difficult to differentiate between non IgE mediated allergic hypersensitivity and non allergic hypersensitivity.

Is there evidence from the history that the symptoms relate to food ingestion?

Non allergic hypersensitivity involves a variety of mechanisms, each with their own symptoms. These symptoms are common to other diagnoses and at the milder end, merge with extremes of normal. Also, there can be a significant time lag between ingestion and symptoms and a dose response, meaning that the symptoms only come on when a threshold amount is ingested often regularly, over time. Occasionally, it is simple – the child is always symptomatic when they stay at granny's and she feeds them lots of milk – but this is the exception rather than the rule. Also, parents may have been manipulating the diet for sometime – with random changes in symptoms being interpreted as showing an intolerance.

You need to look for an association between periods of significant ingestion and symptoms or of complete exclusion with improvement. Where the family are unclear, it is worth asking particularly about milk and wheat.

If there seems to be a link, what is the mechanism?

You should always consider IgE mediated hypersensitivity. Rapid urticaria and swelling give a strong clue, but vomiting, abdominal pain and diarrhoea are possible. Symptoms follow rapidly after ingestion and every time the food is ingested in that form. Although unlikely here, it is important to consider as it can be tested for easily.

If this is not the case, then it is hard to differentiate clinically or on testing between non IgE mediated allergenic hypersensitivity and non allergic hypersensitivity. As

frustrating as this seems, it is actually relatively academic. The key question is whether the history justifies a trial of dietary exclusion.

What is the potential improvement if dietary change is instigated and is it worth the effort?

If there is reasonable evidence of a food trigger, the balance is then between the symptom severity and the difficulty of the diet.

Diagnostic exclusion and reintroduction

To give a clear answer the child needs a complete exclusion for at least six (some would argue eight) weeks followed by a similar period of re-introduction (and some say further exclusion). It takes a minimum of twelve weeks per food. It is important that exclusion is complete – otherwise there will never be a clear cut answer– and that a dietician supervises. This effort can be worth it, however, as this will additionally show the degree of improvement available with dietary change. Also, no change gives a clear answer and will help a family go back to a normal diet with confidence.

Long term management

These conditions have a dose response. Therefore responsible foods may be tolerated in small amounts. This cannot be done with wheat unless coeliac disease has been excluded as there are long term risks to a lax diet.

Findings from history

On questioning, the pain was central abdominal and worried the family considerably. The onset of was over a few hours with no clear pattern. The family felt there were no school, family or emotional problems although these symptoms themselves were causing significant strain and her mother was off work. The food diary was covered with foods circled in red which were felt to have triggered given episodes but these varied episode to episode although there was a common them of things being worse when she had had a lot of cows milk based products. Her diet overall was varied and subsequent dietetic review showed it to be balanced and complete.

Examination

A good general examination is required to look for other causes of the symptoms and to ensure good current and ongoing growth.

Examination Findings

Clair was well grown and appeared in good health. Further systematic general examination did not reveal any other abnormalities.

Investigations

There are no specific investigations for non allergenic food hypersensitivity. If a possible differential diagnosis is identified, this needs investigated as appropriate. In this case, Clair had had a normal ultrasound of her abdomen during her most recent admission which was normal and as her initial investigations had been two years previously, these were repeated. All remained normal. There was no suggestion of an IgE mediated process and specific IgE blood tests or skin tests were not done.

Plan of action

The family needed assured that nothing serious was going on, an action plan for the episodes of pain and they also wanted to know what to do about Clair's diet. They found the repeated investigations partly reassuring although their supervising consultant needed to review her during the next two acute episodes before they were fully reassured. With this reassurance, they felt better able to handle these sequences at home and detailed guidance was put in a parent held letter as to what to do if she attended. In terms of food triggers, this remained a strong conviction and the family felt the symptoms were significant enough to have a trial of milk exclusion.

Case outcome

Clair improved during her period of milk exclusion although she still stated sequences of pain. These were less marked and she was able to remain at school and continue her normal activities. The symptoms returned on milk re-introduction giving reasonable evidence of an association. The family were happy with this and eventually maintained her on a low milk diet and were confident enough not to manipulate her diet further. Interestingly, the ongoing milder symptoms continue for a year until a sequence of severe ill health in another family member. At this point they stopped being reported and have not returned.

It is not possible to prove whether Clair definitely has non allergenic hypersensitivity. However, her diet is nutritionally complete, she is growing well and helping the family to understand the nature of such problems has allowed them to be much more confident with the rest of her diet.

Take-home points

Non allergenic food hypersensitivity is poorly understood and challenging to deal with. If parents report adverse reactions to foods, the key tasks are to elucidate the symptoms and to remember all the other conditions that can cause such symptoms. In terms of suspected foods, you need to establish what foods are suspected and for each symptom/trigger combination, to decide (i) If there is evidence of a link (ii) the suspected mechanism (to exclude IgE mediated) (iii) whether a trial of exclusion is appropriate. This is a time consuming sequence but there are often strong family beliefs and it may take time to gain their confidence and help them understand what is likely to be happening.