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ECZEMA & ALLERGIES

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Allergies & Intolerance

What is the difference between food intolerance and food allergy?

There is a lot of confusion about the terms food intolerance and food allergy, and the differences between them. Many people speak about food allergy when their symptoms can sometimes indicate food intolerance.

A food allergy is a rapid response by the body's immune system to a particular food. In this type of reaction, the body's immune system mistakes a food for an 'invader' often resulting in a rapid allergic reaction within minutes.

Food intolerance also known as delayed onset food allergy is due to an inability to fully process a particular food, usually making the sufferer feel unwell. Symptoms can be slow to develop and can take hours or days to appear and it is rarely life threatening.

The often unpleasant and debilitating symptoms of respiratory allergies such as hay fever and allergic rhinitis, topical skin reactions, food allergies and intolerances provide an increasing number of patients seeking assistance from Doctors and practitioners. Many of these conditions appear to be on the increase although food intolerance is the most likely to be disputed due to a wide incidence of inappropriate self-diagnosis.

The Immune Reaction

Antibodies are released by the plasma cells to protect the body in a number of ways, these antibodies are also referred to as immunoglobulins or Ig, the following is a brief introduction to those most associated with allergy and intolerance.

IgE antibodies trigger immediate allergic reactions binding to basophils (a type of white blood cell) in the bloodstream and mast cells in tissues. When basophils or mast cells with IgE bound to them encounter allergens

they release substances such as histamine resulting in inflammation. This allergic Type 1, IgE mediated reaction is the most severe of reactions often an immediate reaction or rapid reaction with a life threatening potential in the form of anaphylaxis.

IgM antibodies are produced when a particular antigen is encountered for the first time providing a primary immune response.

IgG, the most prevalent class of antibody, is produced in greater amounts when a particular antigen is encountered again. More antibodies are produced in this response, called the secondary immune response, than in the primary immune response. The IgG reaction is the immunoglobulin most associated with food intolerance. As IgG can be detected in healthy non-symptomatic individuals, this is often sighted in the negative commentary for food intolerance testing.

There are a number of research papers for the positive and negative aspects of IgG testing. A double blind study with Crohn's disease published in 2010 produced very interesting results with a significant difference of IgG antibodies found between those with Crohn's disease and healthy controls. The resulting nutritional intervention diet based on the circulating IgG antibodies showed positive effects with stool frequency, abdominal pain and general well-being in this double-blind cross-over study with 40 Crohn's disease patients. [1]

The Incidence for Allergies

The European Food Information Council (EUFIC) considers the true prevalence of food allergy is only about 2% of the adult population and 3-7% of children with the majority outgrowing food allergies by the time they start school. Despite this one in three believe they are allergic to a specific food.[2]

Those seeing patients in their clinics would likely disagree with these figures with many children not appearing to outgrow allergies as predicted. The peanut allergy would seem to be a good example, this potentially life threatening condition is reportedly on the increase despite mothers avoiding peanuts in pregnancy and ensuring babies and children do not consume peanut containing foods. A comparison in Australia of children between 1995 -2007 reported a rise in the incidence of peanut allergy. [3]

Some experts are now questioning this avoidance with research demonstrating early consumption of peanuts associated with a low

prevalence for peanut allergy. A comparison between groups of children in the UK and Israel demonstrated a ten fold increase in the prevalence of peanut allergy in the UK children, whilst children in Israel who consume high quantities of peanut in their first year of life demonstrated reduced levels of peanut allergy.[4]

This somewhat contradictory state has several theories including the strict avoidance in pregnancy and early childhood is potentially increasing sensitivity, also additional concerns have been raised for the topical sensitisation from peanut oil in lotions and shampoo. [5, 6.]

Worryingly a number of products prescribed for cradle cap, nappy rash and eczema contain peanut (arachis) oil!

This puts forward an interesting theory with absorption taking place through the epidermis with direct access to the blood stream via the dermal layer, avoiding potential protective mechanisms of the gut. Particularly when we look at the frequent open weeping nature of the skin in young children with eczema and the reddened abraded skin of nappy rash, this does highlight an area for concern with the topical application of products containing arachis oil.

Inhaled, Absorbed, Ingested

The research with peanut allergies highlights that it may frequently be easy to assume the pathway for an allergen and overlook aspects of treatment in patients. Hay fever and rhinitis, predominately inhaled allergens, frequently receive symptomatic treatment addressing only the respiratory tract despite additional ingestion of these pollens and allergens occurring into the digestive tract.

Equally skin reactions considered topical, may result from contact or ingestion of a wide range of allergens requiring a treatment that also considers the digestive tract and the inflammatory nature of the condition, in exactly the same manner as those of ingested food allergens and intolerances.

Topical absorption of allergens such as the peanut may be less obvious, whilst those for example of the metals in jewellery demonstrate predominantly localised eruptions on the surface of the skin. Of the

metals, nickel allergies in particular are rising due to the increasing habit of body piercing, with multiple piercings considered likely to be leading to an increased incidence of reaction due to increased exposure.[7] Multiple piercings may lead to a more generalised skin reaction, therefore establishing the number and history of piercings may be a relevant question to include during consultation.

Avoidance and Exclusion

Avoidance and exclusion is often the starting point for treatment, in the case of IgE mediated allergens it is essential that this should remain due to the risk of anaphylaxis. When treatment is carried out by exclusion only in respect of food intolerances, it would be worth reflecting on the research detailed previously, with the rising incidence of peanut allergy in children despite exclusion. **3, 4**

Researchers at Addenbrooke's Hospital carried out a successful oral desensitisation of peanuts increasing patient threshold tolerance in all subjects including a participant with proven anaphylaxis.[8]

Whilst not suggesting or endorsing the desensitisation of IgE mediated allergies to be undertaken in the practitioner clinic , this must only ever be carried out in a controlled environment with those medically qualified to deal with a potential anaphylactic reaction. The rise in peanut allergy despite avoidance does raise questions for the method of excluding foods from the diet when treating a food IgG mediated intolerance.
During consultations one often sees individuals who have excluded a number of foods immediately feeling the benefits, only later to find a resumption of symptoms, resulting in the detection of additional intolerances and further food exclusions. In worse case scenarios, where no treatment has been provided to reduce the incidence of reaction, individuals are eventually left on a very limited diet leading to potential macro and micro nutrient deficiencies. Unfortunately this situation still does not ensure that they are free of the original symptoms until treatment is in place to address the underlying reasons for the intolerance.

The wide ranging and varied location of symptoms in the body resulting from ingested allergies and intolerances should not detract from a focused treatment plan that includes the digestive tract and both the inflammatory nature of the condition and potentially that of the patient.

Diet

Research for diet in early life, both pregnancy and childhood for the prevalence of asthma and allergies in children found all of the studies reported beneficial association between a high level of adherence to the Mediterranean diet during childhood with symptoms of asthma or allergic rhinitis. Individual foods or food groups considered contributing to the protective effect of a Mediterranean diet included fish, fruits, vegetables, legumes, nuts and cereals, while detrimental components included red meat, margarine and junk food intake.[9]

Research provides further benefits for the child with the Mediterranean diet, where researchers found the intake of grapes, oranges, apples and fresh tomatoes, foods which form part of the local produce on Crete were protective for both wheezing and rhinitis. Interestingly a high consumption of nuts was found to be inversely associated with wheezing whilst the consumption of margarine increased the risk of wheeze and allergic rhinitis.[10]

Additional research with children in Mexico also looked at asthma and found a 40% decrease in the risk of asthma, 36 % reduction in the risk of wheezing, 59 % reduction in ever having rhinitis, and a 37 per cent reduction in having current itchy-watery eyes with the Mediterranean diet.[11]

International research reported in 2001 for asthma, allergic rhino-conjunctivitis and atopic eczema found a consistent inverse relationship for all three and the dietary intake of starch, cereals and vegetables.[12]

Before implementing starch and cereals as part of the diet, further investigation into the research is required as for example carbohydrates showed a positive association for atopic eczema. This study should not be misinterpreted as this was carried out across fifty six countries, references to starch and cereals would not reflect the frequent intake of refined and processed grains and carbohydrates that we currently see in the UK. The research usefully supports an unrefined diet as we have seen previously in the research for the Mediterranean diet rich in a variety of whole grains, nuts, seeds, fruit, vegetables and fish. Increasing many of our processed cereals and foods would inevitably increase a number of undesirable elements into the diet, leading to an increased intake of saturated fats which also received a positive association for the occurrence of all conditions.

As we have seen diet plays an important part in the prevention and treatment of allergies in children, this remains relevant for the older child and adult presenting with symptoms. Additional research demonstrated the health benefits for allergy and the anti- inflammatory aspects of the Mediterranean diet. [13]

A study of fruit and vegetable consumption although not allergy research, carried out with myocardial infarction survivors found that fruit and vegetable consumption was inversely associated with the expression of pro-inflammatory markers. [14]

As evidenced by many of the symptoms particularly for allergy, inflammation plays a large part in both the occurrence and symptom picture.

The individual diet therefore should be reviewed to ensure good nutritional balance, adequate intake of macro and micro nutrients together with guidelines for reducing the inflammatory aspects of the diet. Elevated intake of processed foods, fats, sugars, red meat, alcohol and fizzy drinks would be considered a potential inflammatory agent.

Equally the diet should contain a good balance of those foods known to provide anti- inflammatory benefits, this would include an elevated intake of fruit and vegetables, healthy fats including those provided by nuts, seeds and fish and in line with the Mediterranean style of diet as research supports.

The individual immune response should also be considered, ensuring macro and micro nutrient requirements for an optimal immune system are available. Researchers detailing the mechanisms of immune system modulation, summarised those food constituents that it considered impacted on the innate and acquired immune systems. Vitamins, minerals, amino acids, proteins, carbohydrates and lipids were relevant for the acquired immunity, whilst probiotics including lactic acid bacteria mainly augment the parameters of the innate immune system. [20]

Children and allergies.

A common presentation for allergies in early childhood is Atopic Eczema a pattern of skin inflammation; this is considered to be a result of abnormal antibody receptors leading to an overreaction of the immune system. It is now commonly accepted that this is triggered by contact with an allergen, either surface contact, inhaled or ingested.

The word 'atopic' is defined as relating to, or caused by a hereditary predisposition towards developing certain hypersensitivity reactions such as hay fever and asthma.

This predisposition is a particular concern for parents in households where parents or siblings are presenting with various forms of allergy or intolerance. A frequent question is at what point should treatment start?

Weaning is seen as an important time with close focus given to the timing for the introduction of various foods including dairy products for the infant.
Research is now throwing doubt on this established understanding for infants where a delayed introduction of solids (past 4 or 6 months) was not associated with decreased odds for asthma, allergic rhinitis, or sensitization against food or inhalant allergens at 6 years of age. Their research returned contrary findings with food sensitisation more frequent in children who were introduced to solids later. The relationship between the timing of solid food introduction and eczema was not as clear, with eczema significantly more frequent in children who received a more diverse diet within the first 4 months. [30]

This conflicting situation with eczema may well be answered by research which has demonstrated a potential link with allergy, those developing eczema in the first 3 months of life had an increased incidence of IgE response towards milk, eggs and/or peanuts. [31]

Prior to weaning, breastfeeding is again encouraged as a protective factor, yet despite these precautions many infants are developing allergies.
The research for weaning is a concern as in direct contrast to current practice; however what we are not aware of is the presence of protective factors by the mother during pregnancy and the early life of the infant in this research. Digestive health research still provides good evidence that these protective factors are relevant for the incidence of allergy and these can take place immediately the child is born by ensuring the presence of

protective bacteria in the digestive system. Infants considered at risk of healthy bacteria levels are those where the mother has a poor digestive flora and/or has received antibiotic treatment during pregnancy. Caesarean births are also considered a risk for reduced protective bacteria due to the loss of the normal inoculation of bacteria received during the birth process. This potential imbalance in healthy digestive flora and its relation to allergy has been demonstrated by researchers analysing faecal samples collected from babies between one week and two months. These children were followed up at five years for the incidence of allergy,the results demonstrated that those children which went on to develop allergy were significantly less often colonised with the lactobacilli group (Lactobacillus (L.) rhamnosus, L. casei, L. paracasei), Bifidobacterium adolescentis and C. difficile during their first two months. [15]

Whilst not all research supports the idea that intestinal permeability is the primary cause of allergies, various factors including infection and stress are acknowledged as increasing the permeability allowing antigens to penetrate the mucosa and induce allergic inflammation. [16]

Ideally protective treatment for the digestive system would start pre and during pregnancy by ensuring the mother follows appropriate dietary guidelines, develops and maintains a healthy flora in the digestive tract and ensures macro and micro nutrient intake is at optimal levels for general health and a healthy immune system.

For those infants arriving with or developing digestive difficulties and/or skin conditions it is important to bring in treatment as soon as possible to prevent the potential escalation into eczema and/or allergies. Specific pre and probiotics are available suitable for babies, the inclusion of very small amounts of fish oil would also be considered appropriate for the anti-inflammatory benefits. Research supports their safe use in infants with research carried out for supplemented formula milk. [21]
It is however important to always consider the dietary intake of oils particularly in infants and mothers during pregnancy and breastfeeding to ensure that intake is appropriate. Before supplementing a child it is essential that formula milk and or prepared baby foods are checked for fortification. The supporting evidence for omega 3 is considerable but excess should not be encouraged as highlighted in research carried out during pregnancy and breastfeeding. [22]

For mothers breastfeeding is not a time for weight loss diets or indulging in a poor diet, with macro and micro nutrients remaining as important as during pregnancy.

Continuation with supplement regimes from pregnancy may well be appropriate, including the provision of a regular supply of healthy bacteria.

Children and Asthma

Oxidative stress is considered to play a role in asthma, it is therefore important with all ages to ensure adequate dietary intake of the antioxidants. Some of the most important ones we must mention are, vitamin C, vitamin E the carotenoids and flavonoids.[34] The mineral selenium is also an important mineral for antioxidant defence.[28]

Magnesium is an additional nutrient to consider in asthma, magnesium relaxes the smooth muscle producing a relaxation of the airways and as such has been found to be beneficial in asthma.[29]

Vitamin D has recently offered interesting research results with animal and human studies demonstrating the role of vitamin D in foetal lung growth and maturation. The study suggests that higher prenatal vitamin D intakes have a protective role against wheezing illnesses in young children. [32] In addition researchers looking at adult asthma reported reduced vitamin D levels are associated with impaired lung function and that vitamin D may play a therapeutic role in steroid resistant asthmatics.[33]

Nutrients to note.

Pre & Probiotics, research discussed in the healthy digestive tract gave evidence for an increased risk of allergies in those less colonised by protective bacteria. The use of a pre and probiotic preparation shortly before delivery in women considered at high risk for a child with allergies and continued with the child for six months demonstrated a reduced incidence of IgE associated reactions including eczema.[28]

The researchers were disappointed that by two years this benefit was no longer noted, this does ask the question at what point this protective factor appears to have lapsed, and if treatment had continued would positive results remained. The regular intake of probiotics would have ensured a continuous supply of healthy bacteria, without these and the prebiotic food supply depletion is likely to have occurred. There is evidence that the additional use of prebiotics the oligosaccharides, has shown protective effects extending beyond treatment time with both allergy and infections. The researchers considered this was due to the immune modulating effect. Incidence for atopic dermatitis, recurrent wheezing, and allergic urticaria were all higher in the group receiving the placebo in this study.[23]

Beta 1-3,1-6 Glucan, as discussed previously the modulation of the immune system is relevant for allergies. The yeast derived beta 1-3,1-6 glucan have demonstrated their ability to prime the innate immune system. Their ability to reduce the symptoms of allergy is described by Dr Paul Clayton in, 'The Science of Beta Glucan & understanding the Innate Immune System', part of our technical information series, please ask for a copy.

Lycopene, animal experiments with mice for allergic asthma found supplementation with lycopene reduced allergic inflammation in both the lungs and systemically. They considered lycopene supplementation may provide protective effects against asthma. [24]

Omega-3, trials for the inclusion of omega-3 in fish oil during pregnancy and breastfeeding provided further good results, this placebo-controlled double-blind study showed that omega-3 supplementation may reduce the risk of developing allergic sensitisation to egg, IgE-associated eczema and food allergy. Researchers observed a 2 % prevalence of food allergy in the omega-3 group, compared to 15 % prevalence in the placebo group. The incidence of IgE-associated eczema was only 8 per cent in the omega-3 group, compared to 24 per cent in the placebo group. It was concluded that; 'the mechanisms leading to sustained IgE antibody production early in life may be inhibited by the omega-3 fatty acids EPA and DHA'.17

MSM, methylsulphonylmethane a sulphur containing compound more frequently considered for joint care has been investigated for its benefits in the treatment of seasonal affected rhinitis. Supplementation of 2600 mg/day for 30 days provided positive results and researchers considered MSM may be beneficial in the reduction of symptoms. The results are unclear as to why these benefits were seen as both IgE and histamine plasma levels showed no significant change. [18]

Dietary sources of sulphur should be available in a wide range of foods including, meat, fish, poultry, onions, garlic and members of the brassica family including cabbage, broccoli and brussel sprouts.
Multi Vitamin Supplements, Initial reports into the use of supplements with children advised that multivitamin supplements had no effect on the incidence of asthma, allergic rhinitis, eczema, or atopic sensitization in research with 2,423 eight-year olds. However, when the scientists limited their analysis to children who started supplementation before the age of four, a 39 per cent decrease in the risk of sensitisation to food allergens was found leading to the conclusion that, 'Our results show no association

between current use of multivitamins and risk of allergic disease but suggest that supplementation with multivitamins during the first years of life may reduce the risk of allergic disease at school age'.[19]

Whilst initial responses are disappointing to this research; when viewed objectively we must consider how many practitioners would consider the use of a multivitamin supplement alone as preventative for the development of allergies? In view of earlier research discussed the digestive tract flora and omega -3 status should be part of any preventative treatment plan together with clear dietary guidance. Equally those introducing any form of supplements at a later stage, as in the research will often be addressing a pre-existing condition as we frequently find when children are referred to clinic.

Pine bark extract shows promise in the allergic response with animal experiments showing a suppressed IgE response. In animal experiments it suppressed an immediate immunoglobulin type E mediated allergic response. [25] The release of histamine during an allergic response has also responded positively in the presence of pine bark extract. [26]
Research also indicates an improvement of pulmonary function and reduced symptoms in the asthma of children.[27]

Treatment Overview.

Research confirms that for prevention of the atopic individual protection is essential at the very earliest stages of life. Research does confirm that we can with dietary guidelines and supplemental support where necessary, provide beneficial and symptomatic relief for those with symptoms of allergy and intolerances:

- Provide dietary guidelines in line with current research;
- Review dietary intake and supplement where required for those essential micro nutrients to ensure optimal health and immune function;
- Review of current digestive health, provide treatment where required and supplementation of pre and probiotics;
- Review dietary intake and supplement where required to provide adequate anti-oxidants and anti-inflammatory nutrients.

Some of the most common allergy and intolerance triggers are:

Airborne Allergens:
House Dust Mite, Pet Dander, Pollen, Mould.

Ingested:
Milk (dairy), Cheese (dairy),Eggs, Wheat, Fish, Chocolate, Yeast, Citrus fruits, Soya, Peanuts, Fruit and vegetables of the nightshade family, Food additives, preservatives and colourings.

Contact Irritants:
Washing powders/ liquids, Fabric softeners, Skin creams/ lotions, Bathing products, Perfumes,Plants.

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