Food IgG Bibliography

Below is a list of recommended reading. Papers can be obtained from a number of websites including http://www.ncbi.nlm.nih.gov/pubmed/ and the British Library, http://www.bl.uk/

01 Dietary advice based on food specific IgG Results
Nutrition and food science Vol 37 No 1 2007 pp 16-23

Purpose – Evidence has suggested that elimination diets based on food-specific IgG measurement can lead to improvements in chronic ill health symptoms. This paper aims to review the evidence from studies on food-specific IgG measurement and dietary change.

Design/methodology/approach – A literature review of studies on the putative role for food-specific IgG-based elimination diets was undertaken.

Findings – The use of fully standardised clinically evaluated food-specific IgG tests as a basis for elimination diet could lead to a considerable improvement in many patients’ quality of life.

Originality/value – This unique review captures evidence for a viable alternative to the time consuming and expensive elimination diet/food challenge approach.

02 Food elimination based on IgG antibodies in irritable bowel syndrome: a randomised controlled trial.

BACKGROUND: Patients with irritable bowel syndrome (IBS) often feel they have some form of dietary intolerance and frequently try exclusion diets. Tests attempting to predict food sensitivity in IBS have been disappointing but none has utilised IgG antibodies. AIMS: To assess the therapeutic potential of dietary elimination based on the presence of IgG antibodies to food. PATIENTS: A total of 150 outpatients with IBS were randomised to receive, for three months, either a diet excluding all foods to which they had raised IgG antibodies (enzyme linked immunosorbant assay test) or a sham diet excluding the same number of foods but not those to which they had antibodies. METHODS: Primary outcome measures were change in IBS symptom severity and global rating scores. Non-colonic symptomatology, quality of life, and anxiety/depression were secondary outcomes. Intention to treat analysis was undertaken using a generalised linear model. RESULTS: After 12 weeks, the true diet resulted in a 10% greater reduction in symptom score than the sham diet (mean difference 39 (95% confidence intervals (CI) 5-72); p = 0.024) with this value increasing to 26% in fully compliant patients (difference 98 (95% CI 52-144); p<0.001). Global rating also significantly improved in the true diet group as a whole (p = 0.048, NNT = 9) and even more in compliant patients (p = 0.006, NNT = 2.5). All other outcomes showed trends favouring the true diet. Relaxing the diet led to a 24% greater deterioration in symptoms in those on the true diet (difference 52 (95% CI 18-88); p = 0.003). CONCLUSION: Food elimination based on IgG antibodies may be effective in reducing IBS symptoms and is worthy of further biomedical research.
05 Food allergy in irritable bowel syndrome: new facts and old fallacies.
E Isolauri, S.Rautava, M.Kalliomaki Gut 2004; 53 1391-1393 10.1136

The notion of food allergy in irritable bowel syndrome (IBS) is not new. However, recent evidence suggests significant reduction in IBS symptom severity in patients on elimination diets, provided that dietary elimination is based on foods against which the individual had raised IgG antibodies. These findings should encourage studies dissecting the mechanisms responsible for IgG production against dietary antigens and their putative role in IBS.

06 A prospective audit of Food Intolerance among Migraine patients in primary care clinical practise.

Headache care Vol.2 No 2 2005 105-110

Summary. This prospective audit was set up to investigate whether migraine sufferers have evidence of IgG based food intolerances and whether their condition can be improved by the withdrawal from the diet of specific foods identified by intolerance testing. Conclusion. This pilot study audit demonstrated that migraine attacks may be related to food intolerances mediated via IgG and that changing the diet to eradicate specific foods may be potentially effective treatment for migraine.

07 Celiac Disease.

Celiac disease is a unique autoimmune disorder, unique because the environmental precipitant is known. The disorder was previously called celiac sprue, based on the Dutch word sprue, which was used to describe a disease similar to tropical sprue that is characterized by diarrhea, emaciation, aphthous stomatitis, and malabsorption. Celiac disease is precipitated, in genetically predisposed persons, by the ingestion of gluten, the major storage protein of wheat and similar grains. Originally considered a rare malabsorption syndrome of childhood, celiac disease is now recognized as a common condition that may be diagnosed at any age and that affects many organ systems.

Clinical and Experimental Allergy, 37, 823-830

BACKGROUND: Post-prandial worsening of symptoms as well as adverse reactions to one or more foods are common in the patients with functional gastrointestinal diseases, such as irritable bowel syndrome (IBS) and functional dyspepsia (FD). However, the role played by true food allergy in the pathogenesis of these diseases is still controversial and there are no well-established tests to identify food allergy in this condition. OBJECTIVE: To investigate serum food antigen-specific IgG, IgE antibody and total IgE antibody titres in controls and patients with IBS and FD, and to correlate symptoms with the food antigen-specific IgG titres in IBS and FD patients. METHODS: Thirty-seven IBS patients, 28 FD patients and 20 healthy controls participated in this study. Serum IgG and IgE antibody titres to 14 common foods including beef, chicken, codfish, corn, crab, eggs, mushroom, milk, pork, rice, shrimp, soybean, tomatoes and wheat were analysed by ELISA. Serum total IgE titres were also measured. Last, symptomatology was assessed in the study. Results IBS patients had significantly higher titres of IgG antibody to crab (P=0.000), egg (P=0.000), shrimp (P=0.017), soybean (P=0.004) and wheat (P=0.004) than controls. FD patients had significantly higher titres of IgG antibody to egg (P=0.000) and soybean (P=0.017) than controls. The percentage of individuals with detectable positive food antigen-specific IgE antibodies of the three groups did not show any significant differences (P=0.971). There were no significant differences between IBS patients, FD patients and controls in the serum total IgE antibody titres (P=0.978). Lastly, no significant correlation was seen between symptom severity and serum food antigen-specific IgG antibody titres both in IBS and FD patients.

CONCLUSION: Serum IgG antibody titres to some common foods increased in IBS and FD patients compared to controls. But there is no significant correlation between symptom severity and elevated serum food antigen-specific IgG antibodies in these patients.

IgG Antibodies against Food Antigens are Correlated with Inflammation and Intima Media Thickness in Obese Juveniles

Exp Clin Endocrinol Diabetes 2008; 116:241-245

OBJECTIVE: Systemic low grade inflammation may contribute to the development of obesity, insulin resistance, diabetes mellitus and atherosclerotic vascular disease. Food intolerance reflected by immunoglobulin G (IgG) antibodies may predispose to low grade inflammation and atherogenesis. We examined the relationship between IgG antibodies specific for food components, low grade inflammation and early atherosclerotic lesions in obese and normal weight juveniles.

RESEARCH METHODS AND PROCEDURES: We determined IgG antibodies directed against food antigens, C-reactive protein (CRP) and the thickness of the intima media layer (IMT) of the carotid arteries in 30 obese children and in 30 normal weight children. RESULTS: Obese juveniles showed a highly significant increase in IMT (p=0.0001), elevated CRP values (p=0.0001) and anti-food IgG antibody concentrations (p=0.0001) compared to normal weight juveniles. Anti-food IgG showed tight correlations with CRP (p=0.001/r=0.546) and IMT (p=0.0001/r=0.513) and sustained highly significant in a multiple regression model. DISCUSSION: We show here, that obese children have significantly higher IgG antibody values directed against food antigens than normal weight children. Anti-food IgG antibodies are tightly associated with low grade systemic inflammation and with the IMT of the common carotid arteries. These findings raise the possibility, that anti-food IgG is pathogenetically involved in the development of obesity and atherosclerosis.
A Vegan diet free of gluten improves the signs and symptoms of Rheumatoid Arthritis.

OBJECTIVE: Whether food intake can modify the course of rheumatoid arthritis (RA) is an issue of continued scientific and public interest. However, data from controlled clinical trials are sparse. We thus decided to study the clinical effects of a vegan diet free of gluten in RA and to quantify the levels of antibodies to key food antigens not present in the vegan diet. METHODS: Sixty-six patients with active RA were randomized to either a vegan diet free of gluten (38 patients) or a well-balanced non-vegan diet (28 patients) for 1 yr. All patients were instructed and followed-up in the same manner. They were analysed at baseline and after 3, 6 and 12 months, according to the response criteria of the American College of Rheumatology (ACR). Furthermore, levels of antibodies against gliadin and beta-lactoglobulin were assessed and radiographs of the hands and feet were performed. RESULTS: Twenty-two patients in the vegan group and 25 patients in the non-vegan diet group completed 9 months or more on the diet regimens. Of these diet completers, 40.5% (nine patients) in the vegan group fulfilled the ACR20 improvement criteria compared with 4% (one patient) in the non-vegan group. Corresponding figures for the intention to treat populations were 34.3 and 3.8%, respectively. The immunoglobulin G (IgG) antibody levels against gliadin and beta-lactoglobulin decreased in the responder subgroup in the vegan diet-treated patients, but not in the other analysed groups. No retardation of radiological destruction was apparent in any of the groups. CONCLUSION: The data provide evidence that dietary modification may be of clinical benefit for certain RA patients, and that this benefit may be related to a reduction in immunoreactivity to food antigens eliminated by the change in diet.

The gut-joint axis: cross reactive food antibodies in rheumatoid arthritis

BACKGROUND AND AIMS: Patients with rheumatoid arthritis (RA) often feel there is an association between food intake and rheumatoid disease severity. To investigate a putative immunological link between gut immunity and RA, food antibodies were measured in serum and perfusion fluid from the jejunum of RA patients and healthy controls to determine the systemic and mucosal immune response. METHODS: IgG, IgA, and IgM antibodies to dietary antigens were measured in serum and jejunal perfusion fluid from 14 RA patients and 20 healthy subjects. The antigens originated from cow’s milk (alpha-lactalbumin, beta-lactoglobulin, casein), cereals, hen’s egg (ovalbumin), cod fish, and pork meat. RESULTS: In intestinal fluid of many RA patients, all three immunoglobulin classes showed increased food specific activities. Except for IgM activity against beta-lactoglobulin, all other IgM activities were significantly increased irrespective of the total IgM level. The RA associated serum IgM antibody responses were relatively much less pronounced. Compared with IgM, the intestinal IgA activities were less consistently raised, with no significant increase against gliadin and casein. Considerable cross reactivity of IgM and IgA antibodies was documented by absorption tests. Although intestinal IgG activity to food was quite low, it was nevertheless significantly increased against many antigens in RA patients. Three of the five RA patients treated with sulfasalazine for 16 weeks had initially raised levels of intestinal food antibodies; these became normalised after treatment, but clinical improvement was better reflected in a reduced erythrocyte sedimentation rate. CONCLUSIONS: The production of cross reactive antibodies is strikingly increased in the gut of many RA patients. Their food related problems might reflect an adverse additive effect of multiple modest hypersensitivity reactions mediated, for instance, by immune complexes promoting autoimmune reactions in the joints.
Food represents the largest antigenic challenge facing the immune system. Assuming complete digestion, an intact intestine, a sturdy constitution, and minimal antigenic exposure such that the immune system is not overwhelmed, all goes well. Weaknesses in one or more of these areas, however, can result in immune attacks upon foods as if they were foreign invaders. A long list of conditions have been associated with food reactions including fatigue, migraine, irritable bowel disease, gallbladder disease, arthritis, asthma, rhinitis, ADHD, enuresis, epilepsy, eczema, psoriasis, aphthous ulcers and recurrent sinusitis, otitis media and other infections.

Reported food intolerance and respiratory symptoms in young adults

RK Woods, M Abramson, JM Raven, M Bailey, JM Weiner, and EH Walters

The aim of the study was to assess the ability of the European Community Respiratory Health Survey (ECRHS) questionnaire to provide data on the prevalence, type and reported symptoms associated with food intolerance from a group of young adults in Melbourne. Six hundred and sixty nine randomly selected subjects completed the questionnaire with 553 attending the laboratory for skin-prick tests, anthropometry, and ventilatory function tests. A further 207 symptomatic participants completed the questionnaire, with 204 of them attending the laboratory. Seventeen per cent of all respondents reported food intolerance or food allergy. A wide variety of food items was cited as being responsible for food-related illnesses. Those with current asthma did not report food-related illness more frequently than those without asthma. Respondents who reported respiratory symptoms following food ingestion were more likely to be atopic, to have used inhaled respiratory medications in the previous 12 months, reported less exposure to regular passive smoking over the past 12 months and weighed more. These associations between respiratory symptoms and food intolerance require further prospective investigation and verification. The importance of using appropriate dietary methodology in future studies for determining diet-disease relationships was highlighted by this study.

A critical review of IgG Immunoglobulins and Food Allergy- Implications in systemic health

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Food allergy is defined as an adverse clinical reaction due to an immune-mediated hypersensitivity response resulting from the ingestion of a food. A wide variety of foods have been shown to produce allergic reactions including cow’s milk; chicken eggs; legumes; fish and shellfish; and cereals. (1) Depending on the speed of onset of symptoms, less than 45 minutes to 2 hours to days, immediate and delayed food allergies have been described throughout the literature encompassing a variety of gastrointestinal, respiratory, and cutaneous pathologies. (2) The inflammatory response is the common theme to all allergic pictures and is characterized by the release of chemical mediators, vasodilation, increased vascular permeability, edema, and tissue damage.
The clinical relevance of IgG food allergy testing through ELISA (Enzyme-Linked Immunosorbent Assay).

From: Townsend Letter for Doctors and Patients, Date: 1/1/2004, Author: Suen, Raymond M.; Gordon, Shalima

Allergic reactions to foods may be classified as either IgE-mediated or non-IgE-mediated—the role of the former in food allergy being well-established. However, interestingly enough, the majority of food allergies are associated with specific non-IgE-mediated immune sensitivities. As such, appropriate tests must be utilized to identify possible causes, including food-antigen specific IgG antibodies. There are many testing methods available for the detection of food allergies including the skin prick test and RAST, or radioallergosorbent test. Unfortunately, both of these methods only look for allergen-specific IgE antibodies from the patient’s serum. This poses considerable limitations in the clinical assessment of the chronically unwell patient.

IgG mediated food allergy as trigger of fibromyalgia complaints and the influence of an elimination diet.

Faculty of Ludwig Maximilian University of Munich, Mario Krause from Rotenburg a. d. Fulda 2005

The results show that nutritionally-specific IgG antibodies are involved in the emergence and/or the severity of a fibromyalgia. Alone the percentage of patients with increased IgG is about 20% higher than during a study conducted on a parallel basis with another collective.

This is emphasized through the high percentage of patients who indicated an amelioration of their complaints through an elimination diet. For instance, the number of very painful pressure points was reduced from 72.1% to 33.8% after an 8-week dietary change. Other symptoms also improved to a similar extent under elimination of foodstuffs with increased IgG levels. A large number of test persons even benefited with a not very consistent change. A significant weight loss was shown as a positive side effect. An elimination diet which rests on the avoidance of IgG-positive foodstuffs significantly reduces the complaints of fibromyalgia patients.

A dietary change which avoids foodstuffs with increased IgG levels is successful in the treatment of fibromyalgia. It ameliorated all investigated complaints within 8 weeks by usually more than 50%. In particular, painful events – e.g. migraines, spasmodic abdominal pains, painful defecation, and hyperesthesias of the skin – are subjectively much improved.

In the first two weeks it was especially difficult for the test persons to change their previous eating habits, particularly since “favorite dishes” were frequently affected. In the aggregate, two thirds of the patience assessed their consistency as good to very good. The retention of the new eating habits was much easier for the test persons with continuation of the study. A continual accompaniment of the patients and a good presentation of findings are important for the therapeutic success.

Of the most overweight (41.2%) or obese (29.4%) patients, 86.8% lost an average of 4.7% of their body weight in the observed 8 weeks. An elimination diet which takes into consideration IgG-specific food allergies is successful in weight reduction. The study participants assessed the success of dietary change as good to very good and were mainly satisfied with the result.
Gastrointestinal Candida colonisation promotes sensitisation against food antigens by affecting the mucosal barrier in mice.
N Yamaguchi, R Sugita, A Miki, N Takemura, J Kawabata, J Watanabe, K Sonoyama

Backgrounds and aims: Controversy still exists as to whether gastrointestinal colonisation by Candida albicans contributes to aggravation of atopic dermatitis. We hypothesised that Candida colonisation promotes food allergy, which is known to contribute to a pathogenic response in atopic dermatitis. We tested this using a recently established murine Candida colonisation model.

Methods: Candida colonisation in the gastrointestinal tract was established by intragastric inoculation with C albicans in mice fed a synthetic diet. To investigate sensitisation against food antigen, mice were intragastrically administered with ovalbumin every other day for nine weeks, and antiovalbumin antibody titres were measured weekly. To examine gastrointestinal permeation of food antigen, plasma concentrations of ovalbumin were measured following intragastric administration of ovalbumin.

Results: Ovalbumin specific IgG and IgE titres were higher in BALB/c mice with Candida colonisation than in normal mice. Gastrointestinal permeation of ovalbumin was enhanced by colonisation in BALB/c mice. Histological examination showed that colonisation promoted infiltration and degranulation of mast cells. Candida colonisation did not enhance ovalbumin permeation in mast cell deficient W/Wv mice but did in congenic littermate control +/+ mice. Reconstitution of mast cells in W/Wv mice by transplantation of bone marrow derived mast cells restored the ability to increase ovalbumin permeation in response to Candida colonisation.

Conclusions: These results suggest that gastrointestinal Candida colonisation promotes sensitisation against food antigens, at least partly due to mast cell mediated hyperpermeability in the gastrointestinal mucosa of mice.