USANA Technical Bulletin

Allergies

Description

- Allergic disorders are characterized by potentially harmful reactions to extrinsic materials or allergens. They include allergic rhinitis (hay fever), atopic dermatitis, anaphylaxis, hives, and blood transfusion reactions.[1]
- The immune response is the body's defense mechanism which identifies and destroys harmful foreign organisms. Allergic reactions are an overreaction of the body's defense mechanism. This overreaction can lead to swelling, itching and many other symptoms all with varying degrees of severity.
- It is important to remember that the immune response is vital for protecting the body from foreign invaders and when working correctly its importance cannot be understated. Asthma and allergies are among the most common health problems, with as many as 50 million Americans afflicted with asthma, hay fever or other allergy-related conditions.
- The preponderance of food allergies are caused by eggs, milk, wheat, fish, shellfish, nuts, peanuts, soybeans and rice.
- One of the most severe allergic reactions is anaphylaxis, which is "marked by the sudden onset of rapidly progressive urticaria (a vascular reaction of the skin) and respiratory distress." [1]

Causes

- The reasons that the body overreacts to a particular antigen are not well understood. It is known that it takes time and repeated exposure to an antigen for an allergic response to take place. There is also evidence that susceptibility to allergies have a hereditary component.

At Risk

- There is a genetic predisposition for atopic allergies, but not for any particular allergy itself.[2]

Prevention and Management

- Avoid the materials or organisms that initiate the allergic reaction. This may mean avoiding certain foods or environments.
- Avoid foods that contain ingredients which cause allergic reactions.

- Vitamin A deficiencies may increase inflammatory responses.[3]
- Nicotinamide has been shown to enhance the effectiveness of glucocorticoids in the treatment of allergic reactions.[4]
- Pantothenic Acid: In one clinical trial the majority of more than 100 patients with allergic rhinitis who took pantothenic acid had almost instant relief.[5]
- Vitamin C: May have a protective effect on airway hyperactivity in some patients with exercise induced asthma.[6]
- Vitamin E: In elderly patients vitamin E supplementation reduced hypersensitivity reactions to various antigens and vaccines.[7]
- Selenium: Selenium supplementation may be beneficial to patients with intrinsic asthma.[8]
- Zinc, Selenium and Copper: Levels may be low in children with allergic colitis.[9]
- Iron: High body iron stores may increase free radical production and may also elevate asthma risk.[10]
- Proanthocyanidins: May reduce adverse allergic and inflammatory responses.[11]

Sources of Additional Information

- http://allergy.mcg.edu/patients/allergist.html
- http://allergy.hno.akh-wien.ac.at/allergy/
- http://www.foodallergy.org/

Abstracts

Meydani SN, Meydani M, Blumberg JB, Leka LS, Siber G, Loszewski R, Thompson C, Pedrosa MC, Diamond RD, Stollar BD. Vitamin E supplementation and in vivo immune response in healthy elderly subjects. A randomized controlled trial. JAMA 1997 May 7;277(17):1380-6. OBJECTIVE: To determine whether long-term supplementation with vitamin E enhances in vivo, clinically relevant measures of cell-mediated immunity in healthy elderly subjects. DESIGN: Randomized, double-blind, placebo-controlled intervention study. SETTING AND PARTICIPANTS: A total of 88 free-living, healthy subjects at least 65 years of age. INTERVENTION: Subjects were randomly assigned to a placebo group or to groups consuming 60, 200, or 800 mg/d of vitamin E for 235 days. MAIN OUTCOME MEASURES: Delayed-type hypersensitivity skin response (DTH); antibody response to hepatitis B, tetanus and diphtheria, and pneumococcal vaccines; and autoantibodies to DNA and thyroglobulin were assessed before and after supplementation. RESULTS: Supplementation with vitamin E for 4 months improved certain clinically relevant indexes of cell-mediated immunity in healthy elderly. Subjects consuming 200 mg/d of vitamin E had a 65% increase in DTH and a 6-fold increase in antibody titer to hepatitis compared with placebo (17% and 3-fold, respectively), 60-mg/d (41% and 3-fold, respectively), and 800-mg/d (49% and 2.5-fold, respectively) groups. The 200-mg/d group also had a significant increase in antibody titer to tetanus vaccine. Subjects in the upper tertile of serum alpha-tocopherol (vitamin E) concentration (>48.4 micromol/L [2.08 mg/dL]) after supplementation had higher antibody response to hepatitis B and DTH. Vitamin E supplementation had no effect on antibody titer to diphtheria and did not affect immunoglobulin levels or levels of T and B cells. No significant effect of vitamin E supplementation on autoantibody levels was observed. CONCLUSIONS: Our results indicate that a level of vitamin E greater than currently recommended enhances certain clinically relevant in vivo indexes of T-cell-mediated function in healthy elderly persons. No adverse effects were observed with vitamin E supplementation.

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