Review Article

Nutritional Scenerio in Bronchial asthma

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A B S T R A C T

Asthma is one of the most common chronic diseases in the world. It is associated with variable airflow obstruction, airways hyper-responsiveness and chronic airway inflammation. Increasingly, research has moved toward studying compounds in individual foods to gain a greater understanding of their specific role(s) and the mechanisms involved in the prevention and reduction of asthma disease in humans. The prevalence of disease is increasing in many countries over the recent decades and it highlights the need for a greater understanding change in traditional to a westernized lifestyle. Dietary constituents can play both beneficial as well as detrimental role in asthma. The possible association of food with asthma can be described as follows: some food nutrients such as egg, milk, soy its acts as a food allergen can cause asthma while some other such a of breastfeeding play important role in the prevention of asthma. It has been also suggested that low intake of anti-oxidative dietary constituents might be a risk factor for asthma. The role of cautions such as Food Allergy, Anti-oxidant, fruits, vegetables has been associated with a risk factor in the development of asthma and intake of fatty acids especially the omega-3 and omega-6 fatty acids play important role in case of asthma. On the basis of previous literature, it is suppose in this review what is currently trendsnutrion in bronchial asthma patients.

Introduction

Asthma is one of the most common chronic diseases in the world. It is associated with variable airflow obstruction, airways hyper-responsiveness and chronic airway inflammation. The advent of modern science led to the realizations that not only are certain nutrients essential, but also that explicit quantities of each were necessary for optimal health, thereby leading to such philosophy as dietary recommendations, nutritional epidemiology, and the realization that food can directly contribute to disease onset. In the past decades prevalence of asthma globally increases.

Several research studies have suggested this, and others are ongoing, but the association between diet and asthma
remains inconclusive. One recent study of asthma and diet showed that teens with poor nutrition were more likely to have symptoms like asthma. Those individuals who didn’t get enough fruits and foods with sufficient vitamins C, vitamins E and omega-3 fatty acids were most likely to have poor lung function. Some researchers believe that it might be due to the interaction of vitamins, minerals, and antioxidants naturally occurs in food and have the beneficial effects on health. Intake of vitamins, minerals and other food supplements may help in asthma control and prevent symptoms of asthma.

**Food Allergy with Asthma**

Food is most important factor for cause allergic disease like asthma, urticaria, Rhinitis etc. some researchers would argue that an allergic component contributes to more than 80% of young asthmatics and approximately 40% of adult asthmatics (Plaut, 1997). It is found that about 6-8% of infants and about 1.5% of adults are allergic to food (Lessof et al., 1980). Food is very important cause of asthma but is often ignored, as usual skin tests are often negative and history is often not helpful. In most of the patients, symptoms appear gradually hours or days after ingestion of the food. It has been estimated that less than 10% of asthmatics may notice that their symptoms are provoked due to certain foods or drinks (Onorato et al., 1986; Yunginger, 1992). In case of Children they are more sensitive to foods than adults. A death in children, adolescents, and adults is reported due to the ingested foods, to which they were highly allergic (Yunginger et al., 1988; Bernaola et al., 1994). The majority of these deaths are due to severe allergy to peanut and nuts. Asthma appears to be an important risk factor for such type of allergy (Oppenheimer et al., 1992). They are more Sensitive by ingestion of minute quantities of food allergens (Blanco Carmona et al., 1992; Bernaola et al., 1994) and even by inhalation of food allergens present air or in cooking fumes (Valero Santiago et al., 1988; Koerner and Sampson, 1991; Walker and Isselbacher, 1974; Sampson, 1993). The most important food allergens are milk, eggs, fish, peanuts, soy, yeast, cheese, wheat, rice and chocolates which may be causing the asthma.

The egg is one of the most allergenic among all food nutrients and even a minute amount of egg can cause asthma and the symptoms appear within minutes, including anaphylaxis. This is also seen after contact with egg through non-oral routes (Valero Santiago et al., 1988; Hill, 1987) Allergic reactions may occur first time in a child who is given egg. Major allergens identified in egg white are ovalbumin, ovomucoid, and ovotransferrin and 10 other allergens of lesser importance are identified and present in egg yolk in lesser quantities (David, 1984). Patients who are very sensitive to milk allergy may react to a very small quantity of milk protein, plus minor contamination, and even inhalation of milk powder and cause asthma (Koerner CB, Sampson, 1991). Soy protein may cause asthma symptoms and anaphylaxis (Hill, 1987; Baldo BA, Righley, 1978). It is a harmful hidden allergen. Wheat is also the most allergenic in all cereals. IgE antibodies have been present to many components of wheat. Wheat is also rich in gluten in comparison to the other grains which containing a lesser mixture of gluten and gliadin (Sutton et al., 1984; Baldo et al., 1975; Smith, 1989). The individuals having wheat hypersensitive may recommend using the
products of oats, rice, rye, barley and corn. Peanuts are also one of the most allergenic foods and peanut allergy is one of the most common food allergies (Bernaola et al., 1994; Breslin et al., 1973; Ayres and Clark, 1982; Ayres and Clark, 1981). It can cause asthma and anaphylaxis and hence may be leading cause of death in many cases. A fish oils have beneficial role in asthma. It is generally recommended that patients allergic to fish should avoid all fish species (Baldo et al., 1975) since the fish is one of the common causes of food allergy (Valero Santiago et al., 1988). Children with tropical fish allergy had an early age of onset of clinical symptoms, male preponderance and urticaria as the most common manifestation. In addition the mainstream developed symptoms on the first exposure to the particular fish suggesting alternate routes of sensitization. Some Sulfites and sulfating agents such as sulfur dioxide, sodium bisulfite, potassium bisulfite, sodium meta-sulfite, potassium meta-sulfite, sodium sulfate used in food processing, have been found to trigger asthma (Smith, 1989). Common food sources of sulfates and other sulfating agents or dried fruits and vegetables, potatoes, wine, beer, bottled lemon or lime juice and pickled foods. All food allergens commonly affect the children under the age of six years (Sampson and McCaskill, 1985).

Anti Oxidants with asthma

Here it was observed an increase in asthma at the same time as the decline in dietary intakes of antioxidant-rich foods. Many observational epidemiological studies have related dietary antioxidants to asthma and allergic outcomes (Tricon et al., 2006). Most studies have been of cross-sectional or case–control design and studies in adults predominate. These observational studies are beset with the usual problems of quantifying dietary intake, but in addition to individuals with asthma and allergies may alter their diet because of their disease. Furthermore, reduced blood antioxidant levels may be a consequence of the systematic oxidant stress associated with the inflammatory processes of asthma (Katsoulis et al., 2003). The toxicity of oxidants which are caused due to cigarette smoking, air-pollution or it may be generated through an inflammatory process such as in response to allergen and viral infection is normally balanced by the protective activity of the endogenous antioxidant defense system which may be functionally dependent on an adequate supply of nutritional antioxidants. The Reactive oxygen species, released from eosinophills, alveolar macrophages, and neutrophills seem to play a key role in asthma. They may directly contract airway smooth muscles; stimulate histamine release from mast cells and mucus secretion (Troisi et al., 1995). For Asthma is also associated with oxidative-antioxidative imbalance. Antioxidant status may also affect asthma risk by influencing the development of the asthmatic immune phenotype, the asthmatic response to antigen and inflammatory response during and after asthma attach (Olusi et al., 1979). Flavones and Flavanoids are naturally occurring antioxidants found particularly presents in fruits and red wine and may account for protective effect associated with these fruits (Aderele et al., 1985; Schwartz and Weiss, 1990; Schwartz and Weiss, 1994; Ness et al., 1996). These are also having the property of mast cell stabilizer (Hill, 1987). In a study the levels of antioxidant carotenoids, lycopene, lutein, β-Cryptoxanthin, α-carotene and β-carotene in whole blood was measured and it has been found that the levels are significantly lower in asthma.
patients than in control (Hazi et al., 2000). Overall, supplementation studies have suggested a minor role for individual antioxidants in asthma prevention, perhaps working in larger food groups instead. The toxicity of oxidants which are caused due to cigarette smoking, air pollution or it may be generating by inflammatory process. (Shukla et al., 2013, 2011; Kumar et al., 2012).

**Fruits and Vegetables with asthma**

Vegetables and fruit provide a significant part of human nutrition is important sources of nutrients, dietary fiber, and phytochemicals. Though, it is indecisive whether the risk of certain chronic diseases can be reduced by increased consumption of vegetables or fruit by general public, and what potency of confirmation has to be allocated to such an association. High intake of fruits is associated with a reduced risk of decline in FEV1, over a time (Stone et al., 1989; Sunde R. Selenium, 2000; Bowie AG, O’Neill, 2000).

**Fatty Acids with Asthma**

Dietary fatty acids play important role in asthma. Some fatty acid play beneficial role such as intake of omega-3 fatty acids and other have a detrimental role such as of omega-6 fatty acids in asthma (Aderele et al., 1985; Schwartz and Weiss, 1990; Schwartz and Weiss, 1994; Ness et al., 1996). It has been suggested that a reduced ratio of omega-3 fatty acid/omega-6 fatty acid leads to high risk of asthma. It has been found that the proposed mechanisms of action of dietary polyunsaturated omega-6 and omega-3 fatty acids includes the modification of the expression of the gene as well as signal transduction pathways and production of eicasanoids, the prostaglandins and leukotrienes which are potent inflammatory mediators (Kankaanpaa et al., 1997; Villani et al., 1998; Simompulos, 1996).

Sources of omega-3 fatty acids are fish oil, fish, shellfish and leafy vegetables. Sources of omega-6 fatty acids are vegetable fats such as margarine and processed foods. Unsaturated fatty acids in trans-configuration found in ruminant fat, dairy products and industrially hydrogenated fats and have been found to be associated with inhibitory effect on the saturation and chain elongation of essential fatty acids in precursors of inflammatory mediators and on the activity of cycloxigenase (Plaut, 1997).

In the previous study role of nutrition with bronchial asthma is very interesting. This article summarizes that foods and nutrients connected to asthma. At the present there is insufficient evidence to advise individuals with asthma, pregnant women, parents and children to change or supplement their diet in order to treat or reduce the risk of developing asthma. Overall finding underscores the importance of conducting prospective studies and clinical trials to better understand the role of diet in the etiology of asthma.

**References**


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