

Prevention of Artificial Food Colours and Flavours in the Management of Peripheral Vascular Disease

Mahboob Alam Chishti, Muhammad Jamil Azhar*, Zulfiqar Saleem, M Sarim Shahid, Badie idris and Basil Rizvi

Department of Pediatrics, University college of medicine, The University of Lahore, Pakistan

***Corresponding Author:** Muhammad Jamil Azhar, Department of Pediatrics, University college of medicine, The University of Lahore, Pakistan.

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Abstract

Aim and Objectives: To study the role of artificial food colours and flavours in causing peripheral vascular disease through stimulation of immune system as allergens and thus causing tissue inflammation and the pathology.

Materials and Methods: The study was conducted at Avicenna Medical College from July 2018 to December 2018. It was a prospective study consisting of twenty patients which were added in the study randomly. Patients were counselled to stop eating foods containing artificial colours and flavours. They were given anti-histamines off and on and steroids for initial 3 to 5 days to treat the previous inflammation of vessel wall and around it.

Inclusion criteria was patients having severe pain and impending dry gangrene in conditions like burger's disease in lower limb and raynaud's disease in the upper limbs or other nonspecific peripheral vascular disease. Exclusion criteria was wet gangrene involving the upper and lower limbs

Results: There was immediate improvement within 2 to 3 days, in the symptoms and signs of patients with peripheral vascular disease after receiving antihistamine and steroid therapy to treat the previous inflammation, along with 100% dietary abstinence of all foods containing artificial colours and flavours, to prevent ongoing process of inflammation.

Conclusion: Abstinence of artificial food colours and flavours (which act as strong allergens and cause tissue inflammation), along with antihistamine and steroid agents (to treat the previous inflammation), can be used as a remedy for quick improvement of symptoms and signs of peripheral vascular disease. In this way you can save many digits and limbs which were previously amputated due to severe complications of the disease.

Keywords: Artificial Food Colours; Flavours; Peripheral Vascular Disease

Introduction

"The immune system can be broadly sorted into categories: innate immunity and adaptive immunity. Innate immunity is the immune system you're born with, and mainly consists of barriers on and in the body that keep foreign threats out, according to the National Library of Medicine (NLM). Innate immunity is non-specific, meaning it doesn't protect against any specific threats.

Adaptive, or acquired, immunity targets specific threats to the body, according to the NLM. Adaptive immunity is more complex than innate immunity, according to The Biology Project at The University of Arizona. In adaptive immunity, the threat must be processed and recognized by the body, and then the immune system creates antibodies specifically designed to the threat. After the threat is neutralized, the adaptive immune system "remembers" it, which makes future responses to the same germ more efficient" [1]. "When the organisms penetrate and cause disease, is a result of both the pathogenicity of the organism (the virulence factors at its disposal) and the integrity of host defence mechanisms. The immune system is an interactive network of lymphoid organs, cells, humoral factors, and cytokines" [2].

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“Cytokines act on cells via trans membrane cell surface receptors” [3]. “The essential function of the immune system in host defence is best illustrated when it goes wrong; underactivity resulting in the severe infections and tumors of immunodeficiency, over activity in allergic and autoimmune disease” [2]. When sensitized mast cells burst, they release various inflammatory mediators like histamine, serotonin, bradykinin etc. causing various sort of tissue inflammations. “Persistent unresolved inflammation has long been recognized to play a fundamental role in the development of chronic diseases including arthritis, autoimmune diseases, and asthma” [4]. “The prevalence of some specific chronic inflammation-mediated diseases as in allergies: rank among the sixth leading cause of chronic human diseases in the United States” [5]. In our opinion this tissue inflammation is responsible for angitis and further angiopathy, in the form of narrowing of the lumen and the rawness of the vessel wall. This promotes atherosclerosis and vascular spasm in genetically prone people. In our opinion this may be responsible for peripheral vascular disease process in in different conditions.

“In parallel with inhalational and cutaneous allergies, food ingestion related allergies appear to have increased up to twofold in the last two decades, especially in Western and developing countries” [6] where their prevalence ranges between 3 and 7% in children and 1 - 3% in adults, with a shift in allergen responses (e.g. from milk, egg or soy to fish, shellfish or wheat) [7]. “Adverse reactions to foods can occur for a variety of reasons, but a food allergy is caused by a specific immune response” [8]. Artificial food colours and flavours are mostly the petroleum products and coal tar derivatives. Coal tar as we know is both allergenic as well as carcinogenic. “Artificial flavors” is a generic term to cover hundreds of chemical additives.

Processed and refined foods are the most common culprits containing “artificial flavors”, but they can appear anywhere. Always check labels of food, vitamins, and even medications [9,10]. Therefore, the artificial food colours and flavours can act as allergens and sensitize and stimulate the immune system. The stimulated immune system begins the process of inflammation in these patients. This inflammation can be a cause of many diseases and in this case the PVD. Inflammation can be acute, chronic, sub-acute and subclinical. Subclinical inflammation if stayed for long duration can be a cause tissue changes. Immune system once stimulated, tends to stay stimulated for about three weeks due to half-life of immune cells. When antihistamine and steroid agents are used as anti-inflammatory and ongoing stimulation of immune system is prevented by dietary abstinence. “In some cases, existing drugs with anti-inflammatory effects are being found to be effective against a variety of diseases resulting from chronic inflammation. The long-term use of aspirin to reduce the risk of cardiovascular disease is well known, but a study at the John Radcliffe Hospital in Oxford, UK, found that people taking aspirin over long periods also had a lower incidence of death from cancer [11]. “The glucocorticoids are widely used in the treatment of inflammation. Unlike the NSAIDs these agents do not relieve pain but reduce inflammation by inhibiting leukocyte function” [12]. This tissue inflammation is controlled which causes immediate improvement in the symptoms and signs of the patients.

Materials and Methods

The study was conducted at Avicenna Medical College from July 2018 to December 2018. Twenty patients were randomly included in the study suffering from peripheral vascular disease. The patients with wet gangrene and necrosis were excluded from the study.

Results

The excruciating pain, cyanosis, and dry gangrene in these patients were improved significantly after this module of management. The symptoms spectrum ranging from excruciating pain, cyanosis and ulcer formation recovered quickly and patients satisfaction level was very higher.

Discussion

The peripheral vascular disease is a pathology which involves small to medium sized arteries of upper and lower limbs. “Peripheral artery disease (PAD) is underdiagnosed, undertreated, poorly understood, and much more common than previously thought [13]. Prevalence of PAD in primary care practices is high, yet physician awareness of the PAD diagnosis is relatively low” [14]. “The unrecognized PAD is common among men and women aged 55 years and older in primary care medical practices and is associated with measurably impaired lower extremity functioning” [15]. “The term peripheral artery disease is now used to denote vascular diseases caused by atherosclerosis of the abdominal aorta, iliac, and lower-extremity arteries leading to stenosis or occlusion. Persons with peripheral arterial

disease (PAD) are at increased risk for all-cause mortality, cardiovascular mortality, and mortality from coronary artery disease. Smoking should be stopped and hypertension, dyslipidemia, diabetes mellitus, and hypothyroidism treated” “In most cases of PAD, atherosclerotic plaques narrow the arterial flow lumen which restricts blood flow to the distal extremity [16] “Reduced blood flow can cause thigh or calf pain with walking due to temporary ischemia of the leg muscles during exertion. Walking pain from PAD is referred to as intermittent claudication which means “to limp”. Many patients with PAD have either no symptoms or atypical complaints that do not strictly conform to the definition of claudication” [17]. In our opinion inflammation involving the vessel wall is the main pathophysiology responsible for narrowing of the lumen. This narrowing is due to spam as well as atherosclerosis of vessel wall due to inflammation which leads to ischemia and necrosis of the tissues. In past, it has been treated by using calcium channel blockers, vasodilators, anti-platelets and later surgical interventions including minor and major amputations.

By now the approach to the management of PVD was as follows. Except for absolute tobacco avoidance, no forms of therapy are definitive for thromboangiitis obliterans (TAO) also, known as Buerger disease [18]. There is some support for a few pharmacologic approaches, but for the most part, such approaches are ineffective. Surgical revascularization usually is not feasible, because of the lack of a distal target for revascularization. Endovascular options for treatment of occlusive lesions are growing in popularity [19-21].

No dietary restrictions were needed and diet had not been shown to affect the course of the disease. Cardiovascular exercise should be encouraged, restricted only by symptoms.

In our opinion, artificial food colours and flavours act as strong allergens and cause different sort of inflammations (acute, chronic, sub-acute and subclinical) which are responsible for the pathology of peripheral vascular disease. Anti-histamine and steroids act as strong anti-inflammatory agents for rapid reversal of the inflammatory process to improve the symptoms and signs of peripheral vascular disease and by abstinence of foods containing artificial colours and flavours, the ongoing process of inflammation is also prevented. Therefore, the patients feel an immediate improvement of the symptoms.

Conclusion

The artificial colours and flavours act as strong allergens responsible for pathology of peripheral vascular disease. By using anti-histamine and steroids and by abstinence of artificial food colours and flavours, the pathology can be reversed and ongoing process is also stopped. This research opens a new window to look into the management of peripheral vascular disease in a different way. The researchers must come forward to do further work in this field.

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