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EFFECT OF YOGASANA AND PRANAYAMA AS A PREVENTIVE ASPECT OF MEDOVAHA AND MUTRAVAHA STROTAS IN DIABETES MELLITUS: A REVIEW

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ABSTRACT

Diabetes Mellitus is a disease related to the impaired glucose tolerance of the body, substantially insulin functioning is affected. Type 1 diabetes is difficult to treat with Yoga. Whereas, Type 2 diabetes which is caused by disarranged life style, stress related diseases can be effectively treated with Yoga. Yoga is basically restraint of activities of mind. It helps maintain health in a person by keeping the individual's body, mind and spirit in perfect equilibrium with nature. Various Asanas in Yoga stimulates the organs which in turn improves the metabolic activities. This means that the chemical transformations within a cell are carried out more efficiently. The various trials have reported a general beneficial effect of yoga in diabetic patients. These effects were most prominent in FPG levels and lipid profiles. Certain long-term parameter, such as HbA1c was reported to improve slightly with the practice of yoga. It has been seen that Nerve conduction velocity is increased by Yoga. Thus improving blood supply to muscle and increasing muscular receptor activity. While a few Asanas help balance the functioning of the endocrine system and mutravaha strotas. It massages and tones the abdominal organs like pancreas and liver, stimulate the nervous andcirculatory system which in turn helps in controlling diabetes. Yoga Pranayamas help us to control our breath and through this breath control to attain the mental poise or samatvam (Bhagvat Gita). Thus Yoga lessens the negative impact of stress and promotes multiple positive downstream effects on metabolic function, neuroendocrine status and various vascular complications.

KEYWORDS: Diabetes Mellitus, Yoga, Pranayama, Stress.

INTRODUCTION

Diabetes mellitus (DM) commonly referred to as diabetes is, a group of metabolic diseases characterized by high levels of blood glucose with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin production, insulin action, or both over a long period of time. The prevalence of diabetes is on the rise, more alarmingly in the developing nations. Ranked 8th among leading causes of death Sedentary habits and unhealthy dietary patterns are the major risk factors for the development of various lifestyle disorders, including diabetes. Psychological stress also increases the risk and severity of diabetes. Lack of physical activity was found to increase the risk of diabetes by 3 times and the risk of coronary artery disease. Dietary control and exercise are established treatment modalities in patients with type 2 diabetes and other lifestyle disorders, including obesity, hypertension, and dyslipidaemia. Urbanisation, the intake of calorie-rich food, use of various machines, less open space for exercise, a busy modern lifestyle, and lack of motivation reduce the likelihood of adherence to dietary control and exercise as a management option in people with diabetes. Moreover, individuals with diabetes have a reduced capacity to engage in exercise because of overweight, physical unfitness, sedentary lifestyle, limited joint mobility, and other diabetes-related complications, including cardiovascular disease, peripheral neuropathy, and diabetic foot problems.

According to Acharya Charak Vyayam, Upwas, Dhoompan and swedan like activities are beneficial for Prameh patient. Pathyakara Aahara Vihara, Pranayama, Yogasanas etc. play vital role in preventing Diabetes mellitus. Therefore the present paper has been designed with following aims and objectives i.e. to focus upon lifestyle along with Pathya Vihara (Yogasanas) as Ayurvedic treatment regime effective in managing type II Diabetes and to chart out non invasive, cost effective, easily adaptable but effective changes. Yoga, which originated in India more than 5,000 years ago, aims at balancing and harmonizing the body, mind, and emotions. Increasing evidence suggests that yoga practice tackles the pathophysiologic mechanisms of diabetes and helps in controlling diabetes and its complications.

MATERIAL AND METHODS

The whole study is based on the literary material viz. Brihat Trayis, thesis related to topic, API textbook of Medicine and information from contemporary modern texts, available resources from the internet.

OBSERVATIONS

Yoga is a group of physical, mental and spiritual practices or disciplines. Yoga in Indian traditions, however is more than physical exercise, it has a meditative and spiritual core. Many studies have tried to determine the effectiveness of Yoga as a complementary intervention for Diabetes Mellitus Surya namaskar (sun salutation).

Surya namaskar involves a series of dynamic yoga postures performed in a specific sequence. A brisk surya namaskar performed in an energetic way increases cellular requirements for oxygen and glucose. To meet these requirements, insulin production is stimulated through brain signalling.

In a study, a yoga intervention consisting of 25 minutes of surya namaskar along with other yoga postures and a deep relaxation technique in perimenopausal women resulted in a significant decrease in diastolic blood pressure and hip circumference, and beneficial effects on glycaemic outcomes.

Asanas (yoga postures)

Asanas emphasize the relationship of body, mind, and awareness, focusing on the synchronization of breathing and movement. They involve stretching/twisting movements and relaxation. The key to performing a yoga posture is that it should be performed with stability and comfort. Seated postures such as ardhamatsyendrasan, yoga mudra, and mandukasan improve pancreatic function. Asanas with forward bends massage and pressurize the pancreas and stimulate the secretion of insulin. Twisting poses, such as vakrasan and ardhamatsyendrasan (seated spinal twist) squeeze the intestines and massage them to prevent the stagnation of colonic contents. For therapeutic benefits, the poses need to be maintained for approximately 30 seconds to 1 minute, depending on individual capacity, and the duration may be gradually increased. A study showed that yoga postures had a positive effect on glucose utilization and fat redistribution in individuals with type 2 diabetes. In patients with diabetes, pancreatic cells may be rejuvenated and pancreatic β-cell sensitivity may be increased by the alternating abdominal contractions and relaxations involved in yoga practice. Improved blood supply to muscles may enhance insulin receptor expression in the muscles, causing increased glucose uptake.

In a study, it was observed that optimum control of diabetes was achieved by practicing dhanurasana and ardhamatsayendrasana. Halasana, vajrasana, bhujangasana, and naukasana

were also found to be effective. However, yoga mudra and shalabasana worsened participants' diabetic status, for reasons that are not clearly understood.

A study evaluated the effects of four specific sets of asanas, dhanurasana+matsyendrasana, halasana+vajrasana, naukasana+bhujangasana, and setubandhasana+pavanamuktasana, on releasing insulin from the pancreas. Increased sensitivity of the β-cells of the pancreas to the glucose signal was observed, which appeared to be a sustained change resulting from a progressive long-term effect of the asanas.

It was suggested that as little as 10 minutes of the yoga intervention combined with standard medical care could improve metabolic health significantly.

Pranayama (yogic breathing)

Pranayama is controlled or regulated yogic breathing practice. The slow breathing technique in pranayama causes comprehensive changes in body physiology by controlling the autonomic nervous system; it regularizes the rate and pattern of breathing and regulates the heart rate and its variability.

Slow pranayamas, such as anulom vilom (alternate nostril breathing), chandranadi (left nostril breathing), sitkari (cooling breaths), and bhramari (humming bee breath) augment cerebral blood flow and oxygenation, thereby improving the neuronal activities of the brain centres, including those present in the limbic areas, hypothalamus, and medulla, as well as improving sympathovagal outflow. Anulom vilom pranayama (alternate nostril breathing) has been shown to yield significant improvements in components of health-related fitness (i.e., cardiorespiratory endurance, flexibility, and percentage of body fat). The vibrations created in bhramari prayanama (humming bee breath) have a soothing and calming effect on the mind and could play a vital role in improving mental and physical health. Right nostril breathing is believed to have a sympathetic stimulating effect and may be recommended in people with diabetes. Bhastrika pranayama (bellow-breathing) is a powerful and energetic pranayama referred to as “the breath of fire.” It helps in the regulation of the pineal, pituitary, and adrenal glands, which play an important role in the regulation of metabolism.

Bandha (lock)

Bandha refers to a hold, tightening, or lock. It constricts a certain part of the body and re-directs the flow of blood and lymph to other parts. Asanas or pranayama may be combined with

bandhas.

Uddiyan bandha (abdominal lock), which involves creating negative pressure in the abdomen and contracting the abdominal area, may have a therapeutic effect in the management of diabetes. It is believed that the negative pressure created in the abdominal cavity may improve pancreatic function.

Om chanting

Scientific analyses have shown that chanting "Aum" is based on the physics of sound, vibrations, and resonance, and has a positive influence on health. Chanting the "Aum" mantra results in stabilization of the brain, removal of negative thoughts, and increase of energy, and mental improvements and relaxation of the body take place within minutes of practice. Pranava pranayama (chanting "Aum") in the supine posture produces an integrated relaxation response, which may have clinical significance in the management of hypertension and diabetes.

Evaluation of the immediate effects of the mind-sound resonance technique in people with diabetes mellitus showed its potential role in enhancing cognitive function.

DISSCUSSION

Yoga and Pranayama works on the possible mechanisms: 1. They effectively reduce stress thus reducing glucagon and possibly improving insulin action. 2. Weight reduction thus improves glucose tolerance of cells. 3. Muscular relaxation development and improved blood supply to muscle thus increasing muscular receptor activity. 4. Blood pressure maintenance thus preventing diabetic complications. 5. Many yogic postures do produce stretch on the pancreas. 6. Cardio respiratory fitness improves glucose tolerance and receptor mechanism as well.

Duration and Frequency of Yoga Practice

The recommended type, duration, and frequency of yoga practice have not been clearly defined, and studies have analysed various frequencies and durations of yoga practice. Durations of yoga practice ranging from 10 minutes, 25 to 35 minutes, and 60 minutes daily, 45- to 60-minute sessions 6 days a week, and three sessions of 75 minutes each per week, to 90-minute sessions twice weekly have shown beneficial results. Many studies have reported beneficial effects after 3 months of the intervention, while in a few studies, interventions of 15 days, 40 days, and 6 months were evaluated. Adherence to yoga practice was shown to

have an impact on its beneficiale.

CONCLUSIONS

Yoga therapy is relevant for wellness, as well as for illness. The latest scientific evidence suggests the potential role of yoga-based lifestyle modifications in the management of diabetes and its associated risk factors. It is suggested that psychoneuro-endocrine and immune mechanisms have holistic effects in diabetes control. Parasympathetic activation and the associated anti-stress mechanisms improve patients' overall metabolic and psychological profiles, increase insulin sensitivity, and improve glucose tolerance and lipid metabolism. Yoga practices such as cleansing processes, asanas, pranayama, mudras, bandha, meditation, mindfulness, and relaxation are known to reduce blood glucose levels and to help in the management of comorbid disease conditions associated with type 2 diabetes mellitus, resulting in significant positive clinical outcomes.

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