How Does Yogic Intervention Affect Diabetes and Asthma?

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Abstract
The purpose of the present study was to find out the effect of Yogic intervention on diabetic and asthmatic patient. A pretest-posttest study was conducted at a district of Bihar. In 15 patients were selected for case study and their ages ranged from 33-56 years. All of them had a positive diabetic and asthmatic history. Of them, 9 people were taking medication (oral pills for diabetes) for last 10 years. Before starting the Yogic intervention all patients stopped their medicine and continued their diabetic diet. Their fasting and Postprandial (pp) blood sugar level were taken. Then, they started yogic practices (Asana, Pranayam, Hath ayoga shatkarma and Relaxation) 40 minutes a day for 30 days. After 30 days fasting and postprandial readings of blood sugar level were taken again. A marked fall in blood sugar was observed in the majority of cases. All the subjects expressed their feeling of subjective wellbeing and freedom from such symptoms as, tension, headaches and digestive ailments. In the Yogic treatment of asthma, subjective improvement is usually seen after two weeks. At the beginning of the study all patients were suffering from coughing, wheezing and sneezing. But after 30 days no more of such symptoms were found. In a few cases there was no difference between pre and post results. On the whole, the results were very encouraging. It also indicates that we have to continue our Yoga practice regularly and consistently.

Keywords: Diabetes Melletus, Asthma, Yogic Asanas and Bihar

INTRODUCTION

With India having the highest number of diabetic patients in the world, the sugar disease is posing an enormous health problem in the country. Calling India the diabetes capital of the world, the International Journal of Diabetes in Developing countries says that there is an alarming rise in prevalence of diabetes, which has gone beyond epidemic proportions to a pandemic one. The International Federation estimates that the number of diabetic patients in India more than doubled from 19 million in 1985 to 40.9 million in 2007. It is projected to increase to 69.9 million by 2025. Currently, up to 11% of India's urban population and 3% of the rural population above the age of 15 is diabetic. Diabetes affects all people in society, not just those who live with it. Studies have shown that the high incidence of diabetes in India is mainly because of a sedentary lifestyle, lack of physical activities, obesity, stress and consumption of a diet rich in fat, sugar and calories. The prevalence of diabetes is high in Indians as a whole and is rising very rapidly due to urbanization and westernization. A recent national survey showed that the prevalence of diabetes in an urban adult is 12:1. Several factors are related to this phenomenal increase directly or indirectly.

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Diabetes Mellitus (DM) is a disease related to the impaired glucose tolerance of the body, insulin functioning is affected. Diabetes Mellitus is a chronic imbalance in the mechanism regulating blood sugar level. When it occurs, the glucose absorbed into the blood from the digestive system is prevented from being effectively used in the muscles and tissues, or from being stored in the liver in the form of glycogen or as fat. Diabetes Mellitus can be of Type I and Type II or pancreatic diabetes or gestational diabetes. Type I DM is known as absolute (juvenile-onset) diabetes, caused by no production of insulin and this is very difficult to treat with Yoga. This form of diabetes most commonly occurs in young people and is rarely cured. Type II DM is called relative (mature-onset) diabetes, caused by lifestyle, obesity, infections, increasing age, heredity and stress-related disease can be effectively treated with Yoga. There are various degrees of this type of diabetes, from mild to severe. Some cases are even unnoticeable (latent). Symptoms of diabetes can be excessive thirst, excessive hunger or excessive/frequent urination, dehydration etc.

Asthma is a common respiratory disorder that occurs when the bronchial tubes (bronchi) are narrowed. The tubes lead from the windpipe-called the trachea into the lungs and they carry the oxygen we breathe into all parts of the lungs and provide a path for the carbon dioxide to escape up the trachea when we breathe out. This narrowing of the bronchi causes difficulty in breathing, specifically when breathing out. The typical attack is characterized by a sudden shortness of breath and wheezing, also sometimes accompanied by coughing. The breathing up of phlegm is not a prominent part of the attack, but if it occurs, the patient may also have bronchitis. An asthma attack is triggered by infections like common cold and sinusitis, irritants and allergens breathed in like fumes and dust, food allergens, psychological changes, physical exertion and even medicinal drugs. Identifying the causes and treating the symptoms early on can help prevent attacks and make it worse.

Ancient yoga techniques, due to their psychological and physical effect on body and mind can be applied in the treatment and management of physiological and psychosomatic disorders. But traditional yoga was not developed as a system of therapy. Yoga therapy in its present form is a new discipline. Yoga therapy is more effective than general yoga practice as a safe means of treating medical conditions and also applies equal focus on mind, body and spirit. Yoga exercises including the poses, breathing and relaxation techniques put one in control of one’s mind and emotions, making one more relaxed and allowing him to breathe easier. This will also help the lungs work better and enhance airflow during an asthma attack.

The role of Yoga in promoting health and preventing and managing psychosomatic disorders has been established by numerous scientific studies (Funderburk, et al. 1997). Yogic techniques produce consistence physiological changes and have a sound scientific basis (Khalsa, 2004). Yogic lifestyle modification produces remarkable improvements and can make an appreciable contribution to primary prevention as well as management of lifestyle diseases (Sharma and Gupta, 2008). Rajan (2014) found that yoga improved the overall health of the subjects practising Paschimottanasana and Shavasana.
It is now recognized that DM is a lifestyle and psychosomatic disorder in which factors such as sedentary habits and physical, emotional and mental stress play a major role. Modern research has focused on the psycho-physiologically beneficial effect of Yoga as it is more than a mere physical exercise. It has been reported that even a short lifestyle modification and stress management education program based on yoga reduces risk factors for DM and asthma within 9 days.

Long term Yogic practice is associated with increased insulin sensitivity and attenuation and a negative relationship between body weight or waist circumference and insulin sensitivity. With no appreciable side effects and multiple collateral benefits, Yoga is safe, is simple to learn and can be practised even by the ill, elderly or disabled individuals. Being safe, economical and simple as a therapy it should be considered as a beneficial adjuvant for DM and asthma patient.

Many studies have reported the beneficial effect of yoga on diabetes (Desai et al., 1985). Some studies have mentioned up to 65 per cent beneficial effect of yogic therapy for diabetes (Divakar et al., 1981). Udupa has mentioned 5 cases of juvenile diabetes which were completely controlled by yogic treatment (Tulpule, 1977). Malhotra et al. (2004) reported that yoga asana for 30-40 minutes a day has a beneficial effect on glycaemic control and lipid profile in mild to moderate Type 2 diabetes.

Several studies have focused on why the practice of yoga has been more successful than other forms of exercise. Bhole (1984) and Udupa have measured the effect of yoga on mental stresses. Muhammad has shown the differences between physical exercise and yoga. He has reported how doing yogic practice without exertion has more benefits. The mechanism of yogic practice and other exercise is very different (Gore, 1985). Yogic practices are supposed to change one’s attitude towards the situation of life, by developing mental relaxation and balance. One study focused on the practice of the postures in a slow, smooth and non-exertion manner (Gore, 1988). The postures were maintained comfortably and easily for a length of time and the patients were taught to focus on breathing or some infinitely vast object like the sky or the ocean while doing the yoga postures. Two-thirds of the patients were significantly benefitted by this treatment. The others also showed improvement. Various studies have shown the effectiveness of yogic techniques in treating asthma, hypertension, diabetes and ischemic heart disease (Patel, 1985). Saxena and Saxena (2009) found in his study that breathing exercises (pranayama), specifically expiratory exercises, improved lung function subjectively and objectively.

Some institutions in India offer treatment programmes for diabetes (Shankardevananda, Swami). The patients generally stay for between two or five weeks and follow a program of instruction and practice of yoga asanas for at least one hour in the morning and the evening, dietary control, meditation and breathing exercise. Of the many yogic practices in common use, only those most relevant to the specific needs of people suffering from asthma and diabetes are included here. The selection has been made to alleviate the physical and mental problems associated with these illnesses, improve general health and as a beginning on the path of spirituality.
OBJECTIVES OF THE STUDY

The study aimed the following objectives:

1. To study the effect of Yogic intervention on diabetic patients.
2. To study the effect of Yogic intervention on asthmatic patients.

THE HYPOTHESIS OF THE STUDY

Following hypothesis were formulated for empirical verification:

1. There will be significant differences in blood sugar level of fasting and PP between pre and post Yogic intervention.
2. There will be a difference in symptoms of Asthma between pre and post Yogic intervention

MATERIALS AND METHODS

Fifteen patients with mild to moderate diabetes or asthmatic in the age group of 33 to 56 years were selected for a case study from Bhagalpur district of Bihar for the present study. Of them, 9 were taking medications (oral pills for diabetes) for the last 10 years and 6 patients were asthmatic. The subjects in this study were given yogic practice (Asana, Pranayam, Hatha yoga Shatkarma and Relaxation) daily for 40 minutes a day for 30 days. The glucometer was used to measure the blood glucose level. Symptoms of asthma were recorded according to chest X-ray, BP, pulse rate and ECG. The t-test was used to comparing the level of significance in the present study

RESULT AND DISCUSSION

Before starting the Yogic intervention all patients stopped their medicine and continued their diabetic diet. Their fasting and Postprandial (pp) blood sugar level were taken. Then, they started yogic practices (Asana, Pranayam, Hatha yoga shatkarma and Relaxation) 40 minutes/day for 30 days. After 30 days of yogic intervention, fasting and postprandial readings of blood sugar level were taken again.

Table 1: Fasting and PP blood sugar level

The table 1 below describes the results of the pre and post yogic intervention fasting (F) and postprandial (PP) blood glucose level (mg %)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>PP</td>
</tr>
<tr>
<td>1.</td>
<td>95</td>
<td>155</td>
</tr>
<tr>
<td>2.</td>
<td>110</td>
<td>165</td>
</tr>
<tr>
<td>3.</td>
<td>124</td>
<td>190</td>
</tr>
</tbody>
</table>
Table 2: Average Blood Sugar Level in Fasting

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>9</td>
<td>120</td>
<td>29.53</td>
<td>4.90</td>
<td>p&lt;.01(df=8)</td>
</tr>
<tr>
<td>Post-test</td>
<td>9</td>
<td>98.55</td>
<td>18.09</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Average Blood Sugar Level of PP

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>9</td>
<td>188.44</td>
<td>28.18</td>
<td>16.97</td>
<td>p&lt;.01(df=8)</td>
</tr>
<tr>
<td>Post-test</td>
<td>9</td>
<td>150.55</td>
<td>22.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1; Graphical representation of average blood sugar level

Table 2 and 3 shows that significant differences between pre and post Yogic intervention fasting (t=4.90; p<.01, df=8) and PP (t=16.97; p<.01, df=8) blood- sugar level were observed. Figure 1 also presents a marked fall in the average blood sugar level in the majority of cases. All the subjects expressed their feeling of subjective well-being and freedom from such symptoms like tension, headaches and digestive ailments.
Table 4: Average BP and Pulse rate of Asthmatic Patients

<table>
<thead>
<tr>
<th>Condition</th>
<th>N</th>
<th>Average BP</th>
<th>Average Pulse Rate</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>6</td>
<td>154/91</td>
<td>118 beats/minute (bpm)</td>
<td>High</td>
</tr>
<tr>
<td>Post-test</td>
<td>6</td>
<td>128/82</td>
<td>82 beats/minute</td>
<td>Low</td>
</tr>
</tbody>
</table>

In the Yogic treatment of asthma, subjective improvement is usually seen after two weeks. At the beginning of the study, all patient was suffering from coughing, wheezing and sneezing. But after 30 days no more of such symptoms were found in X-ray or ECG. Table 4 presents a comparison between pre and post Yogic intervention in terms of BP and Pulse rate. The results further, revealed that after Yogic intervention average BP and Pulse rate was decreased. In a few cases, there was no difference between pre and post results. On the whole, the results were very encouraging. It also indicates that we have to continue our Yoga practice regularly and consistently.

This research as it stands highlights some very important points helpful from both the patient’s and the doctor’s point of view. The first is that yoga has been able to dramatically decrease blood sugar levels immediately and effectively, without the demand for medicines and therefore lessen the chance of side effects. The next point is that all the patients experienced subjective well-being. Yoga also has a stabilizing effect on the body's immune system. It is now proven that regular and consistent practice of yoga increases the body's tolerance to infection as well as its local resistance to infections in the respiratory tract.

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