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Original Research Article

Positive Effect of Raj Yoga and Om Meditation on Hypertension and Type II Diabetes Mellitus in Mithilanchal Area

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Abstract

Background: Yoga is well known for improving oxygenation to the biological system and combating oxidative stress which is responsible for numerous lifestyle diseases which includes type 2 diabetes and hypertension. Therefore, the present study was conducted to evaluate the positive effects of Raj yoga and Om meditation in modifying and improving the quality of life in type II diabetic with hypertension patients.

Aims and Objectives: This study is contemplated to focus on the results of Raja yoga and Om meditation in patients with DM and Hypertension in Mithilanchal area.

Materials and Methods: An interventional, prospective and open labeled study was done involving 30 patients of type 2 diabetes along with hypertension from April 2022 to June 2022. Patients received yoga therapy for 45 days along with the standard treatment. Oxidative stress markers such as changes fasting blood glucose levels, systolic & diastolic blood pressure, body mass index and symptoms associated with type 2 diabetes were evaluated before and at the end of the yoga therapy.

Results: Significant reduction in the levels of malondialdehyde ($P<0.01$), blood glucose ($P<0.05$), Systolic blood pressure ($P<0.01$) body mass index ($P<0.001$) and improvement in the unpleasant symptoms were observed after yoga therapy when compared to same patients before starting yoga therapy.

Conclusions: Regular practice of Raja yoga and Om meditation results that yoga intervention has therapeutic values in patients having type 2 diabetes with hypertension. This may have direct impact on the dose minimization of hypoglycemic drugs of the patient which requires further study in this area.

Keywords: Raja Yoga and Om Meditation; Diabetes Mellitus; Hypertension; Blood, Pressure; Heart Rate

Background

Yoga is an ancient discipline designed to balance physical, mental, emotional and spiritual wellbeing in an individual. Yoga therapy has gained popularity nowadays because of its unique nature of delivering positive improvement towards numerous disorders as well as subsiding the disease progression. It includes gentle stretching of muscles and breathing exercises with wide range of classical asanas and

pranayama practices. Many studies proved the pathogenic role of oxidative stress in lifelong disorders which necessitates this study to be involved with type 2 diabetes along with hypertensive patients.

Raj yoga and Om meditation is said to cure many illnesses. The vibrations that it creates give a sense of positivity to our life. It is believed that Om meditation takes you closer to God. Om meditation brings in self-realization and a feeling of oneness with the Lord. Om meditation is believed to be a stress buster [1]. It helps in calming the brain. Studies show that meditation also helps in relieving the symptoms of posttraumatic stress disorder. Om meditation works wonders for those with low self-esteem if they practise meditation regularly. The word 'Om' contains a cosmic positive energy which helps in creating positive vibrations and gives a divine feeling. Among all benefits that 30 meditation offers, the most important of all is that it helps you relieve yourself from thoughts that obstruct your thinking process. Also, one can practise Sakshi Bhavana while meditating. Sakshi Bhavana is a process in yoga where you witness thoughts coming in and going out of your mind [2].

Material and methods

It was an interventional, prospective and open labeled study (April 2022 to June 2022). The present study involved 30 Patients of either sex between the age group of 40 to 60 years old diagnosed with type 2 diabetes mellitus as well as hypertension undergoing treatment for more than 5 years as outpatients were recruited for the study after explaining the complete study purpose and procedures. Recruitment of the patients was done after Institutional Ethics committee approval. Informed consent was obtained from the patients who were willing to participate in the study in the prescribed format in regional language.

If the patient was illiterate, left thumb imp--ression in the presence of an impartial witness was taken. The demographic details of the patients were obtained and recorded. History of the patients was taken. As there was no control group included in this study because of the longer treatment status of the patients. The general & systemic examinations were carried out.

Inclusion Criteria

1. Patients with Hypertension diagnosed with Type 2 Diabetes within five years.
2. Patients aged 40- 60 years.
3. Both sexes.
4. Patients who are willing to participate in study.

Exclusion Criteria

5. Pregnant and lactating women.
6. Patients who are physically handicapped and mentally ill.
7. Patients with any complications of diabetes (retinopathy and nephropathy).
8. Patients who were practicing yoga for a month or more.
9. Patients with neoplastic, hepatic, thyroid dysfunctions, respiratory and any cardiovascular disorder or other medical illness (i.e. respiratory and heart failure and renal disease)
10. Patients doing other physical activities. (Swimming, aerobic exercises, etc)

Intervention with yoga schedule

The yogasana schedule was designed by naturopathist involves the combination of asanas and breathing exercises. All the patients were trained in order to the follow the yoga schedule for 45 days.

Yoga schedule starts with OM chanting (5 min) followed by naadi suthi prayanama as well as ujjai prayanama (5 min) and various asanas includes Ardha Halasana, Naukasana, Ushtrasan, Ardha pawanmuktasana, Salabasana, vakrasana, Bhujangasan, Chakrasana, katikasana and Shavasan (20 min). These asanas are selective according to the Patient

condition. They were recommended to practice these asanas twice a day. They were also handed over a booklet regarding the same. If they found any difficulty in performing those asanas or if they felt any pain or injury while performing any asana, the particular asana was modified by the yoga specialist. Patients practicing yoga were asked to report once in 15 days to ensure that they were practicing the yogasana schedule regularly and that they had no difficulty in performing the asanas. The subjects were allowed to withdraw from the study at any point, if they so desired. Statistical analysis was done using Paired t test.

Results

In present study total 30 patients in which 6 patients were withdrawn from the study due to the reason irrelevant to yoga practice. The variation was observed in the regularity pattern among the patients. Out of 24 patients, 14 were male and 10 were female with Mean±SD age of 53±9 years. Significant reduction in the levels of malondialdehyde (<0.01), fasting blood glucose (<0.05), systolic blood pressure (<0.01) and body mass index (<0.001) was observed after the yoga therapy with Om mediation as shown in the Table 1.

Table 1: The changes in the parameters before and after 45 days of yoga therapy with Om mediation

Parameters	Before 45 days	After 45 days	p-value
Malondialdehyde (□M/L)	64.95±14.97	47.25±18.50	<0.01
Blood glucose Levels (mg/dl)	200.96±78.01	137.26±53.15	<0.05
Systolic blood pressure (mmHg)	141.4±10.04	135.66±9.14	<0.01
Diastolic blood pressure (mmHg)	93.8±12.25	89.3±7.90	0.2117
Body Mass Index (BMI)	23.24±2.68	22.85±2.66	<0.001

Values are expressed in Mean±SD. P value shows significant for malondialdehyde levels (0.01), blood glucose levels (0.05), systolic blood pressure (0.01) and body mass index (0.001).

The diabetic complications were progressively decreased after the yoga therapy with Om mediation and the significant improvement in their wellbeing patterns was assessed through the validated self-made questionnaire (Table 2). Few patients even reported that they reduced the frequency of taking the hypoglycemic medications themselves, still they found good glycemic control. Data of those few patients has not been shown separately as it is beyond the scope of this study.

Table 2: The changes in the parameters before and after 45 days of yoga therapy with Om mediation

Symptoms Questionnaires	Percentage Distribution of number of patients based on the severity (%)									
	0		1+		2+		3+		4+	
	Before	After	Before	After	Before	After	Before	After	Before	After
Lack of energy	0	29	4	58	17	13	54	0	25	0
Urinary frequency	0	29	8	50	25	21	63	0	4	0
Aching Intensity in calves	16	17	21	33	50	17	29	0	16	0
Intensity of dry mouth	27	54	15	38	27	8	31	0	0	0
Thirst frequency	8	29	12	46	29	25	38	0	13	0
Existence of	79	87	0	13	0	0	17	0	4	0

Irritability before the meal										
Feeling of Numbness or Loss of sensation in feet	29	42	12	29	25	21	17	8	17	0
Palpitation Frequency	46	71	0	27	29	4	17	0	8	0
Sense of Fatigue	50	54	17	29	21	17	0	12	0	0

Discussion

In the result of chronic stress, sympathetic nervous system (SNS) activation causes the release of Noradrenaline and Epinephrine which leads to increase in heart rate, force of contraction and increased peripheral vascular resistance. In addition, SNS stimulates the release of renin which in turn increases Angiotensin II and Aldosterone secretion causing sodium and water retention. The overall effect on cardiovascular system (CVS) contributes to the increased blood pressure [3].

Low blood glucose level due to fasting is the normal stimulus for Glucagon. During periods of stress, trauma or severe exercise, the increased release of Adrenaline, stimulates the secretion of Glucagon even in euglycemic state, in anticipation of increased glucose use[3]. Adrenaline and Glucagon stimulate gluconeogenesis form glycogen store in liver and adipose tissue. Adrenaline supresses the release of insulin, while glucagon antagonizes the effect of insulin, resulting in severe hyperglycemia.

Glycogenolysis, gluconeogenesis and decreases utilization of glucose in muscle and adipose tissue causes Insulin Resistance [4]. There is increased release of other anti-insulin hormones like corticosteroids, growth hormone which causes neoglucogenesis, decrease peripheral utilization of glucose leading to persistent hyperglycemia [5]. In diabetic patients, gluconeogenesis is induced by stress hormones (Adrenaline and Glucagon) contributes to hyperglycemia. Hyperglycemia leads to changes in osmolarity of body fluids, intracellular acidosis and increased production of free radicals (ROS) [6-8].

Yoga therapy which induces asanas and prayanama relieves mental stress, increase blood flow and oxygenation to all the tissues. This reduces the sympathetic over activity, release of stress hormones, production of reactive oxygen species and the

synthesis of inflammatory mediators. Therefore, yoga therapy decreases insulin resistance, control hyperglycemia and correction of haemolytic anaemia.

Limitation

The limitation of the study was the sample size as there were many dropouts. The number of long-term Raja yoga and Om meditation practitioners who were diagnosed diabetics was very less in the present center. The rest of the subjects enrolled for the study showed maximum compliance. Hence, we recommend similar but multicentric study with increased sample size from various centers across different regions of Bihar.

Conclusion

It can be concluded from this study that Regular yoga practice is very effective in minimizing the oxidative stress and also beneficial in improving glycemic parameter and blood pressure. From the questionnaire, the patients indicated that they had reduced unpleasant side effects when they were on the yoga intervention.

Yoga was not beneficial in reducing the BMI in this short-term study. These findings suggest that yoga Intervention has therapeutic, preventative and protective effects in Patients with type 2 diabetes with hypertension by reducing the symptoms of the disease status effectively.

References

1. Watkins, G. R. Music therapy: proposed physiological mechanisms and clinical implications. Clinical nurse specialist, 1997:11(2), 43-50.
2. Hyde, I. H., & Scalapino, W. The influence of music upon electrocardiograms and blood pressure. American Journal of Physiology-Legacy Content, 1918:46(1), 35-38.
3. Bertram G Katzung, Anthony J Trevor. Basic and clinicalpharmacology. Mcgraw Hill Education. 13th edition, 2015.
4. Laurence Brunton, Bruce A. Chabner, Bjorn Knollman. Goodman, Gillman's. The pharmacological basis of therapeutics. Tata McGraw - Hill Education. 12th edition 2011.
5. KD Tripathi. Essentials of medical pharmacology. Jaypee Brothers Medical Publishers. 7th edition 2013.
6. Halliwell B, Chirico S. Lipid peroxidation: its mechanism, measurement, and significance. Am J Clin Nutr May 1993; 57(5): 715S–724S.
7. TPA Devasagayam, KK Boloor, T Ramasarma. Methods for estimating lipid peroxidation: An analysis of merits and demerits. IJBB Oct 2003, 40: 300–308.
8. Lorenzo A Gordon, Errol Y Morrison, Donovan A McGrowder, Ronald Young, Yeiny Terry Pena Fraser, Eslaen Martorell Zamora, Ruby L Alexander Lindo, and Rachael R Irving. Effect of exercise therapy on lipid profile and oxidative stress indicators in patients with type 2 diabetes. BMC Complement Altern Med 2008; 8(1): 21.