

Effect of Integrated Yoga Therapy in the Treatment of a 55-Year-old Patient with Type 2 Diabetes Mellitus of Mongoloid Race

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Abstract

A 55 year old mongoloid race woman patient hailing from Manipur diagnosed with Type2 Diabetes Mellitus (T2DM) since 2013, had voluntarily agreed to join in the Yoga intervention programme for treatment of T2DM patients conducted by Endocrinology Department of JNIMS with the help of Yoga research scholars from August 2017. An ideal yoga module was prepared for Diabetes patient comprising of breathing exercise, asanas, pranayama, kriya, bhajan, and meditation. She was allowed to practice 6 days in a week under supervision of a yoga expert for 4 months in addition to the standard treatment for Diabetes Mellitus. Highly encouraging results were obtained in the patients in not only maintaining the normal blood sugar levels but also in leading a more flexible healthy lifestyle without any stress of blood pressure, easier normalisation of HbA1c, preventing rise in body weight and maintaining lipid profile within normal range. The significant outcome of the case study is that the health of the woman returned to normalcy in terms of complete restoration of physical and mental well being which is the symbol of success through holistic treatment of yogic life style.

Keywords: Type 2 Diabetes Mellitus; Yoga Module; Clinical Test; HbA1c; Lipid Profile; Holistic Treatment

Introduction

Type 2 Diabetes Mellitus (T2DM) is non-communicable metabolic disease characterised by chronic hyperglycaemia resulting from defects in insulin secretion, insulin action or both. The prevalence is progressively increasing all over the world reaching an alarming situation. According to the International Diabetes Federation diabetes atlas (eight edition, 2017) there were roughly 425 million people with diabetes, a figure that is projected to increase to 629 million by 2045 [1]. In spite of the advancement of modern medical science and its delivery system with improved outcomes, the glycaemic control in patients with T2DM remains suboptimal [2]. It is also reported that risk for T2DM rises with increasing age and is further elevated in certain racial and ethnic groups [7]. In India, the disease is increasing as an epidemic with more than 61.3 million diabetic individuals. As such, World Health Organisation has predicted India to become the diabetic capital of the world [11] by 2030 with a projected increase by 48% (146 million).

Conventional mono-therapy through oral/injection medication only is insufficient to maintain adequate glycemic control [2,11]. Yoga, the ancient Indian vedic culture and tradition which is known as body and mind medicine, is considered to be one of the most effective

means to control the psychosomatic, psychiatric diseases and other stress born diseases like asthma, anxiety, depression, diabetes, hypertension, cancer etc [7,8,11]. Yoga encompasses behavioural change, yogic diet, practising asanas, pranayamas, yoga kriyas, performing bhajans, meditation etc which make a man change holistically. According to vedic literature ‘Yoga-vasistha’, diabetes is considered as “Adhija Vyadhi” (stress born disease) originating in Manomaya Kosa- the astral layer of human existence i.e. psyche). The symptoms of such disease percolate to physical body (Annamaya kosha) through vital force (Pranamaya kosha). Treatment of Stress born diseases (Adhija Vyadhi) needs to tackle holistically not merely by physical symptomatic treatment [7,8,11].

The present case studies were taken up individually with an objective to study the effective management of T2DM after giving yoga intervention regime for 4 months to four mongoloid T2DM patients belonging to Manipur at the Endocrinology Department of Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Imphal, Manipur.

Case Report

Presenting concern

A 55 years old mongoloid woman, a resident of Imphal, suffering from T2DM attended Endocrinology Department of Jawaharlal Nehru Institute of Medical Sciences, Imphal for treatment as OPD patient and gave her consent to join the yoga intervention programme of T2DM patients conducted by the research unit of Endocrinology Department. She was diagnosed as Type2 Diabetes Mellitus patient on the basis of the biochemical parameters and anthropometric data. She reported that she has been suffering from type 2 diabetes since 2013 on strict dietary regime with sub-optimum diabetic control till 2017 and having no family history of diabetes.

Biochemical parameters

Prior to traditional yoga intervention, her BMI was 29.16 kg/m², Fasting Blood Sugar and post prandial blood sugar level were recorded as 135 mg% and 320 mg% respectively. The glycated haemoglobin (HbA1c) was 7.8%. The lipid profile showed 198 mgs% of Cholesterol, 190 mgs % of Triglycerides, 37 mgs % HDL cholesterol, 135 mgs % LDL cholesterol and 38 mgs % VLDL cholesterol. She was symptomatic with polyuria, polydipsia, general weakness. She was offered to participate at the 4-month yoga intervention programme conducted at the premises of JNIMS hospital complex at the morning hours from 6.00 to 7.30 a.m. for 6 days a week.

Methods

After collecting the detailed clinical history, the purpose of the study and her part in the study was explained to her and consent to participate in the programme was taken. She joined the yoga intervention programme for four months in planned yoga module developed by the Doctor and the yoga expert. The detail of the integrated yoga therapy is shown in table 1.

Name of practices	No. of rounds	Time Taken
A. Breathing Practices		
Hand Stretching	5x3	3 min
Hands in and out	5	1 min
Ankle raise breathing	5	1 min
Tiger breathing	5	1 min
Alternate leg rising	5x2	1 min
B. Loosening Exercises		
Bhastika stimulation	20	1 min
Wrist & Elbow Twisting	10	1 min
Shoulder rotation	10	1 min
Neck movement	5x3	
Trunk twisting, forward& backward		2 min
Side bending	10x3	2 min
Hip rotation	10	1 min
Knee extension	10	1 min
Ankle rotation	10x2	1 min
Back stretch	5x2	1 min
C. Suryanamaskara (Therapeutic, Chair Namskaram)	10 or 20	12 min

D. QRT		2-3 min
E. Yogasanas (in sequence)		25 min
<p>(1) Standing:</p> <ul style="list-style-type: none"> a. Ardhakaticakrasana (each side) b. Padahastasana c. Ardhaakrasana d. Parivrutatrikonasana (each side) <p>(2) Sitting:</p> <ul style="list-style-type: none"> a. Pacimotanasana b. Ustrasana c. Sasankasana d. Vakrasana or Ardha-Masyendrasana <p>(3) Prone:</p> <ul style="list-style-type: none"> a. Bhujangasana b. Salabhasana c. Naukasana or Dhanurasana <p>(4) Supine:</p> <ul style="list-style-type: none"> a. Sarvangasana with Halasana b. Matsyasana c. Pawanmuktasana / Supta Bhadrasana 		
F. DRT		5-6 min
G. KRIYAS		
Uddhyana Bandha	5	1 min
Agnisar	5	1 min
Nauli (I, II, III)	3x3	2 min
Neti (Twice in a week)		2 min
Dhauti (Twice in a week)		2 min
Sankhaprasalana (once in a month)		
H. DRT		5 - 6 min

I. Pranayama		25 - 30 min			
<ul style="list-style-type: none"> • Kapalabhati (Stimulation) • Sectional Breathing (preparation for pranayama) <ul style="list-style-type: none"> • Abdominal breathing • Thoracic breathing • Clavicular breathing • Full yogic breathing • Nadi sudhi (alternate nose Breathing) • Sitali, Sitkari, Sadanta • Bhramhari pranayama • Nadanusandhana 	5 5 5 5 9 9 5	2-3 min			
J. Dharana		2-3 min			
K. Cyclic meditation (C.M.)		30-35 min			
L. Counselling on Diet, health, mind & Happiness analysis.		30 min			
M. Bhajan		(on holidays)			
The intervention was strictly followed 6-days in a week touching the eight limbs of yoga through advanced techniques by the patient in 90 minutes duration. The time table is as under:					
Weekly time table of yogic intervention					
Monday	Tuesday	Wednesday	Thurs- day	Friday	Saturday
Asana	Asana	Kriya	Asana	Asana	Kriya
Asana	DRT	DRT	DRT	DRT	DRT
DRT	CM	Pranayama	CM	Pranayama	CM
Pranayama	Concept of diet	Concept of Health	C o n - cept of mind	Concept of spiritual	H a p p i n e s s analysis
Asana: posture, Prana: vital force, kriya: cleansing internally, IRT: Instant relaxation technique, QRT: Quick relaxation technique, DRT: Deep relaxation technique.					

Table 1: Common protocol for integrated yoga therapy to type 2 diabetes mellitus.

Intervention

She practiced the Yoga intervention programme regularly for 16 weeks conducted under the supervision of a qualified yoga therapist strictly following the time table and protocol. The philosophy of yoga always aims at harnessing the full gamut of physical, mental, social and spiritual well-being of human being. The yoga protocol embodied integration of all practices and techniques to treat the 5 layers of human existence holistically.

Outcome measures

The result of the yoga intervention to the present case indicates that there is a significant improvement in all the parameters studied. The base line body weight and BMI reduced from 70 kg to 65 kg (7.14% reduction) and 29.16 kg/m² to 26.64 kg/m² (8.56% reduction) respectively. The Fasting and post prandial blood sugars reduced from base line 138 mg % to 98 mg% (36.95% reduction) and 320 mg% to 146 mg% (54.68% reduction). HbA1c declined from 7.8% to 6.3%. In general parameters, pulse rate of 98/min stabilised to 84/min. The blood pressure of 120/80 mmHg was maintained throughout the study period. The pre intervention record of lipid profile parameters of TC-198, TG-190, HDL-37, LDL-135 and VLDL-38 were re- assessed after intervention and found as TC-139, TG-133, HDL-32, LDL-85 and VLDL- 27. The analysis of the pre and post intervention results revealed that the patient could achieve overall improvement in health physically, mentally, socially and emotionally thereby enabling her to stop the conventional treatment or reduced to one fourth of the dose of antihyperglycaemic agents to maintain good glycaemia.

Discussion

When subjected to a 4-month integrated yoga intervention programme to a 55 years old mongoloid woman of North East India suffering from T2DM, a far reaching effect resulted to lead a normal healthy lifestyle. Her Blood sugar levels (FBS and PPBS) was normalised with optimisation of glycated haemoglobin (HbA1c) to 6.0%. On top of this, her body weight reduction was encouraging (BMI of 29.16 kg/m² reduced to 26.6 Kg/m²). There was improvement in lipid profile status and blood pressure was maintained within normal range. It is further evident that the integrated Yoga module comprising of physical postures, pranayama, breathing practices, relaxation techniques, cleansing techniques (yoga kriyas), spiritual cyclic meditation, including life style change in diet, sedentary habit, emotional behaviour through participation in Om meditation and Bhajans helped in managing the diabetes symptoms holistically as evident from her clinical data. In the present state of stressful society, yoga life style has really proved a body and mind medicine.

Feedback of the patient

The patient was personally contacted and enquired about her health condition after attending the yoga intervention programme for a period of four months at JNIMS, Hospital. She made the following comments. She is a patient of Type-2 Diabetes since 2013 and could not give proper attention for management of sugar levels due to lack of knowledge of diabetes. The advertisements on media about the treatment of diabetes with the integrated approach of Yogic management at JNIMS hospital premise motivated her to join the programme. Within a month of joining the yoga therapy, her sugar level reduces significantly. Tiredness and weakness she experienced during going up the stairs of the hospital building at the beginning of the yogic therapy has all gone. With the reduction of body weight she has regained activeness and vigorousness. Following regular yoga practice and yoga diet for about four months, she herself feels a change in her mental and physical wellbeing. Her physiological activities appear to return to normal. She develops normal appetite, interest in work etc. Meditation and Bhajans make her calm and complete relaxation of both body and mind. Lastly, she commented that yoga therapy only brings her a new normal life.

Conclusion

The outcome measures and feedback of the present study, inferred that integrated approach of yoga intervention acts on the various parts of body organs in miraculous design and brings about definite metabolic changes restoring the normal function of the body organs.

Diabetes is a chronic metabolic disease that adversely affects quality of life. It is very clear that yoga effectively reduces stress, thereby helping diabetes control. Besides, the abdominal stretching during yoga postures is believed to result in the regeneration of pancreatic cells thereby improving insulin secretion and increasing the blood supply and glucose uptake by the relaxed muscles. Lastly, it may be advocated that yoga life style is thought to have the regenerative capacity of body cells beyond the drug action.

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Conflicts of Interest

There are no conflicts of interest.

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