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Original Article

EFFECT OF YOGASANA ON GLYCAEMIA AND INSULIN SENSITIVITY IN TYPE II DIABETES

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ABTRACT

Globally Diabetes Mellitus is a major health problem. The prevalence of NIDDM accounts for 85 % of Diabetes worldwide. This study was conducted to establish the effectiveness of yoga on diabetic individuals . 30 Subjects in the age group of 30 - 60 years ,with diabetes was taken for study .Fasting Blood sugar and fasting insulin levels were estimated. The subjects were taught few asanas, and asked to practice it for 4 weeks. At the end of four weeks, again the sugar and insulin levels estimated . This study proved that yogasanas can be considered for increasing insulin sensitivity to glucose .

Keywords: *Yogasanas, Diabetes mellitus, Insulin, Blood sugar*

INTRODUCTION

Diabetes Mellitus poses a major health problem globally and is one of the top five leading causes of death in most developed countries. The WHO has estimated that in 1995 ,19.4 million individuals were affected by diabetes in India ,and these numbers are expected to increase to 57.2 million by the year 2025.

Diabetes worldwide is closely linked to industrialization, affluence and increasing life expectancy, a combination of factors that has allowed of the problem to grow at frightening rate during the past few decades [1].

Recently , studies show that type 2 diabetes can be prevented by changes in the life style of high risk subjects. ELLIOT JOSLIN in1920 identified exercise, along with dietary management and insulin administration as one of the three components of good therapy .currently ,Diabetes is considered to be largely preventable and treatable through Yoga[2].

Regular practice of Yoga does reduce blood sugar levels ,blood pressure ,weight, the rate of progression to the complications, and the severity of complication as well. Yoga life style will be most suitable to facilitate treatment for this epidemic.

MATERIALS AND METHODS

This study is a cross sectional study, ethical clearance obtained from ethical committee, before the study. All the subjects were informed about the methodology and after their consent, the study was done. This study included 30 subjects in the age group of 30-60 years ,known diabetics and all of them were on oral hypoglcaemics. None of them were hypertensives and did not give history of any other disease . None of them were receiving injectable insulin preparations. All of them had come after completely understanding the study, for performing yogasanas .During the 4 week study period, every subject performed the following sets of asanas for 6 consecutive mornings each from Monday to Saturday .

Breathing exercises - 5 min
Stretching exercises - 10 min
Neck rolls
Shoulder movements
Arm rotations
Elbow movements
Finger movements
Waist bends
Knee rotation
Ankle movements
Asanas 15 minutes
Dhanurasana
Halasana
Vajrasana
Bhujangasana
With an interval of 1 min between the asanas.
Shavasana (corpse pose); 15 min

Blood glucose levels were estimated in the fasting state for all the subjects, by glucose oxidase method . serum insulin was also estimated by ADVIA Centaur Insulin assay in isotope lab, at the start of the study and after 4 weeks ,after completing yogasanas .

RESULTS

	BEFORE ASANAS	AFTER ASANAS	SD
	MEAN	MEAN	
Fasting blood sugar	160.28	152.22	47.13
Fasting insulin	30.36	20.82	14.93

The comparison between variables were analysed using paired t-test. From the above results obtained in the diabetic subjects , fasting blood glucose levels after the asanas were mildly reduced than before the asanas, but not significant.

The results of fasting serum insulin in diabetics were significantly lowered after the asanas than before .P 0.0017, P < 0.05, Stating the significance of insulin sensitivity.

DISCUSSION

A Study undertaken by DR.Vijay viswanathan, DR.chaco and others in 2005, Chennai showed how performing yogasanas can be considered, not as a adjunct ,but as an alternative method to treat Diabetes .

According to the present study, fasting serum insulin levels were significantly lowered after the asanas than before the asanas .This suggests that the performance of asanas has significantly lowered the insulin resistance. In the subjects with higher fasting blood glucose there is mild reduction after the asanas ,but not statistically significant .Jain et al 1993 [3-13]. Performance of asanas in the fasting stage was presumably accompanied by steady and accelerated utilization of glucose, but serum glucose did not fall significantly after the asanas. The reason may be beta cells responded to accelerated glucose utilization with prompt decrease in insulin release.

As per the study conducted by Dela.F.et, .al 2004 [14,15]. ,enhanced insulin sensitivity after the asanas is a progressive long term effect of asanas and it is irrespective of type of asanas done, If the asanas are not practiced regularly ,then the results may not be fruitful, which limits the genuiness of the study.

CONCLUSION

In this study the effect of yogasanas over a period of 4 weeks on blood glucose and serum insulin levels were compared. There is a significant reduction in the fasting serum insulin levels after the asanas, blood glucose levels after the asanas were mildly reduced .This study supports the previous study that performance of asanas as a long term effect led to increased sensitivity of the beta cells of the pancreas to glucose.

Although variety of physical exercises are known to enhance the peripheral sensitivity to insulin, low intensity exercise such as yogasanas, at 50% of maximal oxygen consumption has been shown to be as effective as high intensity exercises at 75% of oxygen consumption in enhancing the same. Hence yogasanas help in the prevention and treatment of Diabetes Mellitus, especially Non insulin dependent Diabetes Mellitus . This approach can also reduce the risk of atherosclerotic vascular disease, which is common in type 2 diabetes.

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Conflict of Interest: Nil

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