Int J Pharm Bio Sci 2013 Jan; 4(1): (B) 169 - 172

Research Article **Bio Chemistry**

International Journal of Pharma and Bio Sciences

ISSN 0975-6299

INFLUENCE OF PRANAYAMAS AND YOGA-ASANAS ON BLOOD GLUCOSE, LIPID PROFILE AND HBA1C IN TYPE 2 DIABETES

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ABSTRACT

Characteristic features of type II diabetes besides hyperlipaedimia an hyperglycemia is impaired insulin secretion and obesity and is a major health hazard. In this study we aimed to see whether pranayamas and yoga asanas have any influence on certain parameters. 100 patients of type-II D.M. without complications (aged 35 to 65 years) were divided in to two groups. Group –I patients received conventional medicines alone while group II patients performed yoga along with conventional medicine. Duration of study was 90 days. Basal recordings of blood glucose, lipid profile and HbA1C were taken at the time of recruitment and second reading after 90 days of study. Results showed a significant improvement of all biochemical parameters except TG in group II patients while group I patients showed insignificant improvement thus broadcasting the beneficial effect of yoga regimen on these parameters in diabetic patients.

KEYWORDS: - Diabetes mellitus, lipid profile, HbA1C, Blood glucose, pranayamas and yoga asanas.

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INTRODUCTION

Type II D.M. is a highly prevalent chronic disease strongly associated with obesity and fat distribution[1,7]. A number of behavioral interventions' have been suggested for preventing and controlling type II D.M. including increased physical activity, diet modification and cessation of smoking[2]. In order to regulate the stress psychology which is associated with insulin resistance, obesity and hypertension; mind body interventions have been suggested[8].

Yoga has been applied in the field of therapeutics in modern times[9]. It improves oxidative stress and glycaemic status of diabetes through neuro-endocrinal mechanism[3, 4]. Yogic practices are supposed to change one's attitude towards the situation of life by developing mental relaxation and balance. Yoga benefits' are the diabetic patients by reducing the weight, maintaining the supply of blood to various muscles, reducing the stress hormones and by improving the release of insulin from pancreas[6]. The purpose of this investigation is to systematically analyze and synthesize yoga interventions designed to prevent and control type to D.M.

MATERIALS AND METHODS

The study of conducted in the department of Biochemistry Gandhi Medical College in association with yoga Kendras Bhopal and Department of Pathology Gandhi Medical College. The study design was two groups of 50 subjects each. One group is taking only conventional medicines (group-I) and the other practicing yoga along with conventional medicines (group-II).

Participants were type-II diabetics not taking insulin, recruited opportunistically by general practice staff with diabetic duration not more than 10 years. Patients with rheumatoid arthritis, cancer, pulmonary TB, myocardial infarction and those who were not willing to perform yoga were excluded.

First, (Primary) outcome measure was HbA1C. Secondary outcome measures included lipid levels, blood glucose levels, quality of life related to diabetes.

STATISTICS

All the values are expressed as Mean $\pm$ SD. Paired students t-test was applied to assess the statistical significance in the change in mean values of biological parameters before and after yogic intervention.

RESULTS

Table I shows the lipid profile and other diabetic markers in type-II diabetes who were on conventional antidiabetic therapy and observed no statistical difference in mean values of lipid profile, fasting blood sugar and HbA1C, $P>0.05$ between two groups.

Table II shows that the group who were on yoga with conventional medicine shows greater control on diabetic markers than the group who was on conventional therapy alone. $P> 0.01$ except triglycerides ($P> 0.05$)

Table-1
showing levels of biological Parameters at the commencement of the study

Parameters	Group I	Group II	P Value
Total Cholesterol	188.75±41.20	179.92±35.16	>0.05
LDL	121.6±32.24	112.35±26.48	>0.05
HDL	37.03±3.99	39.83. ±3.95	>0.05
TRIGLYCERIDES	164.60±25.15	169.38±30.9	>0.05
FASTING BLOOD GLUCOSE	162.30±30.95	161.03±32.93	>0.05
HbA1C	7.19±1.40	7.07±1.34	>0.05

Table-2
showing serum levels of biological Parameters after 90 days of yogic intervention

Parameters	Group I	Group II	P Value
Total Cholesterol	187.06±33.42	169.95±26.16	<0.01
LDL	117.56±33.87	94.93±26.44	<0.01
HDL	37.48±4.73	42.31. ±3.59	<0.01
TRIGLYCERIDES	159.16±23.99	156.72±31.02	>0.05
FASTING BLOOD GLUCOSE	156.77±29.93	139.65±30.89	<0.01
HbA1C	6.85±1.19	6.30±0.95	<0.05

DISCUSSION

The purpose of this study was to test the efficacy of yoga in treating type-II D.M. Idea is to systematically analyze a study yogic intervention designed to control type2diabetes. In comparison to standard care lone, yoga resulted in significant reduction in blood glucose, cholesterol, LDL and HbA1c levels and a significant improvement in HDL levels of subjects belonging to group II, while group I subjects showed insignificant difference. Yet there were no significant changes in TG levels. The parameters were taken twice, one at the commencement of study and the other after 90 days of study. There was a remarkable reduction in the blood glucose levels after 90 days of yogic intervention. Jain et al[11, 15] found that there was a significant reduction in hyperglycemia with decrease in oral hypoglycemic drugs for maintenance of normoglycemia in response to yoga therapy. The decrease in lipid profile seen in this study is in agreement with some studies conducted earlier. Sahay et al and Bajlani et al[12] reported a significant reduction in LDL, free fatty acids and increase in HDL levels. More over Sahay et al have also reported a significant decrease in the body fat and increase in lean body mass in type 2 diabetes after yogic interventions. This study was conclusive of a significant drop in HbA1c levels after 90 days of yogic practices. Monro R [13, 14, 15] et al repotted value of HbA1c. Mean differences indicated that yogic interventions lowered the levels of HbA1c.

ACKNOWLEDGEMENT

Authors express sincere thanks to Dr. Neel Kamal Kapoor dept. of Pathology GMC-Bhopal and Dr. B.K.Agrawal Dept. of Biochemistry GMC-Bhopal for their contribution in study design and statistics.

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