EFFECTS OF PSYCHONEUROBICS INTERVENTION ON LIPID PROFILE OF DIABETIC PATIENTS WITH DYSLIPIDEMIA

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ABSTRACT

The present study was conducted to assess the effectiveness of PsychoNeurobicson management of dyslipidemia in patients of type II diabetes mellitus.

This randomized parallel study was carried out in Parul Institute ofAyurveda, Gujarat, India. 50 type II diabetics with dyslipidemia were randomized into control and experimental (PsychoNeurobics) groups. The control group was prescribed oral hypoglycemic drugs. The experimental group practiced PsychoNeurobics daily for one hour duration along with oral hypoglycemic drugs for two months.

The lipid profiles of both the groups were compared at the start and at the end of two months.

After intervention with PsychoNeurobics for a period of two months the experimental group showed a decrease in total cholesterol, Triglycerides and LDL, with an improvement in HDL.

PsychoNeurobics, being a lifestyle incorporating exercise and stress management training, targets the elevated lipid levels in patients with diabetes through integrated approaches.

1. INTRODUCTION

The major risk factor for cardiovascular disease in diabetes mellitus is dyslipidemia.1 the characteristic features of diabetic dyslipidemia are a high plasma triglyceride concentration, low high-density lipoprotein (HDL) concentration and increased concentration of small dense low-density lipoprotein (LDL) particles. Insulin resistance leads to increased flux of free fatty acids and hence the lipid changes.2

Caloric restriction and weight loss for the overweight individual with diabetes mellitus have been of proven therapeutic value. However, there is no consensus on the ideal dietary composition for these patients. Genetic factors and the lipid phenotype of the individual determine the way the plasma lipid profiles change in this patients.3 Lifestyle changes, including increased physical activity and dietary modifications have, however, been the cornerstones of management of dyslipidemia in diabetes.4

In view of these observations, the present study was undertaken to assess the effect of PsychoNeurobics practice on the lipid profile in patients with type II diabetes mellitus (DM).

2. MATERIALS AND METHODS

2.1. Setting

Patients reporting to the out-patient department of KC department in Parul Institute ofAyurveda,Gujarat, India, in the year 2021 were the participants of this randomized parallel study. The study was conducted after the approval of the Ethics Committee of the Medical faculty and all subjects volunteered for the trial.

2.2. Study sample

The guidelines of the National Diabetes Data Group and the third set of the Adult Treatment Panel of the National Cholesterol Education Program (NCEP ATP III) were used to recruit 50 patients with type II diabetes and dyslipidemia.5,6 Known diabetic patients who were on treatment with sulphonylureas were included in the study. Patients who are smokers, alcoholics, pregnant, on long-term steroids and those with known retinopathy, nephropathy, coronary artery disease and cerebro vascular diseases were excluded from the study.

The experimental group was prescribed oral hypoglycemic drugs and in addition followed lifestyle modification in the form of one hour daily practice of PsychoNeurobics for a period of 2 months at the KC department. The control group was prescribed oral hypoglycemic drugs only and did not perform PsychoNeurobics during this period.

2.3. Methodology

Detailed history of the patients including age, gender, and disease history including duration and complications, treatment details including drug, dosage and duration of treatment were noted in the questionnaire. Body weight and height were measured using standard protocols. Body mass index (BMI) was calculated. The patients were advised to come fasting overnight and 5 ml blood samples were withdrawn from each patient under all aseptic conditions and collected in plain bottles. The fasting blood samples were analyzed for triglycerides (TG), total cholesterol (TC) and high-density lipoprotein–cholesterol (HDL–C). Cholesterol were estimated by modified Roeschlav's method 7 and Triacylglycerol by the method of Wako modified by Mc Gowan et al.8HDL cholesterol was assessed by phosphotungstic acid method.9 LDL cholesterol was not separately estimated but calculated from the formula: LDL cholesterol = Total cholesterol – [HDL cholesterol + TG/5].

PsychoNeurobics classes were conducted by me .The experimental group was taught a series of PsychoNeurobicsexercises. They were instructed to practice them daily for 1 h duration and were asked to record the number of minutes they

engaged per day. PsychoNeurobics treatment consisted of practice of meditation and chakra alignment to be practiced for 1 h duration. At the end of 2 weeks of supervised training each subject was given advice to practice regularly at home. All subjects were required to contact KC department once every month for follow up advice. The control group was asked to report to hospital every month for their follow up after being given advice on going medical treatment at the start of the study. There were no alterations made in the treatment and dietary habits of either group during the study period. Both the groups were advised to continue with their carbohydrate restricted fiber rich diet.

The lipid profiles of all the participants were measured at the end of 2 months. Data were entered in Microsoft Excel and SPSS Version 12 was used for analysis. Paired and unpaired t tests were employed to compare measures. A p value of <0.05 as significant and a p value of <0.01 was considered highly significant.

3. RESULTS

A total of 50 type II diabetic patients, 26 males and 24 females of mean age 45 years participated in the study. The average duration of diabetes in the participants was 5–10 years. Both the groups were similar in respect to mean age, sex, BMI, glycemic control, Serum triglycerides and HDL levels. The total cholesterol and LDL levels were, however, significantly higher in the experimental group compared to control group.

The study showed that 2 months of PsychoNeurobics practice resulted in a non-significant decrease in BMI from 25.12 ± 1.54 to 23.59 ± 1.38 kg/m2. There was a significant reduction in total cholesterol, triglycerides and LDL cholesterol. Mean total cholesterol before PsychoNeurobics was 244.86 ± 28.09 mg% and was reduced to a mean of 219.56 ± 32.02 mg%. Triglycerides showed a significant reduction from 151.88 ± 43.08 mg% to 130.11 ± 28.82 mg% while the LDL reduced from 144.74 ± 28.45 to 120.51 ± 34.31 mg%. There was a non-significant elevation in HDL from 44.63 ± 9.35 mg% to 47.15 ± 8.17 mg %

After a period of 2 months the control group showed a significant increase in body weight, non-significant increase in BMI, total cholesterol, triglycerides and LDL and a decrease in HDL.

4. DISCUSSION

The present study was aimed at studying the effect of practicing PsychoNeurobics in patients with type II DM for 2 months. The practice of PsychoNeurobics in these patients resulted in a decrease in BMI, total cholesterol, triglycerides and LDL cholesterol and an increase in HDL.

Improving glycemic control has not yet been shown to prevent development of macro-vascular complications in type II DM. Alternately, carefully controlled treatment measures with exercise, dietary modification and oral drugs can be expected to improve diabetic lipid disorder.10

The effect of PsychoNeurobics on blood lipid profiles has been widely reported.11, 12PsychoNeurobics raises HDL levels and decreases the concentration of very low-density lipoprotein cholesterol and triglycerides.13 PsychoNeurobics and HDL appear to be linked via HDL's role in triglyceride metabolism.14

It is, however, seen that diabetic patients usually cannot sustain the levels of recommended physical activity for them due to varied reasons like age, obesity, cardiovascular disease and other complications. Compliance and motivation for performing activity at 50–70% of maximum aerobic capacity regularly is quite poor.15

PsychoNeurobics has a beneficial effect on insulin kinetics and the lipid profile resulting from it. PsychoNeurobics helps in redistribution of body fat and reduction in central obesity which leads to insulin resistance. A decrease in insulin resistance, increase in insulin receptors and sensitivity, shift of peak level of insulin to left with normalization of insulin glucagon ratio was also reported.16

The dynamic meditation is postulated to rejuvenate pancreatic cells, increase insulin secretion and hence correct the impaired insulin secretion in chronic diabetes.17

Various studies have reported physical, physiological, psychological and endocrinological changes with the practice of PsychoNeurobics .The practice of Raja yoga meditation was found to lower serum cholesterol by Vyas, 18 while Sahay and Bijlani19 noted that yoga practice causes significant reduction in free fatty acids, LDL, VLDL and an increase in HDL.

The beneficial effect of PsychoNeurobics in the management of hyperlipidemia and obesity cannot just be attributed alone to the simple excess calorie expenditure as there is no rapid muscle activity and energy generation involved in meditation.

Repeated stress is known to lead to persistent elevation of cortisol which causes central obesity and insulin resistance.20 It increases gluconeogenesis and diminishes peripheral uptake of glucose.21 Decreased glucose uptake and insulin secretion can also occur due to stress induced release of growth hormone and β endorphin.22 Elevated cortisol is also linked to dyslipidemia, and higher blood pressure.23 Meditation also brings about a hypo-metabolic state and reduces stress induced sympathetic over activity.24 Better ability to overcome stress resulting in lowered cortisol levels can be cited as possible mechanism for improvement in lipid profile in patients practicing PsychoNeurobics .

Dyslipidemia is usually associated with the abnormalities in lipolysis; triglyceride metabolism and free fatty acid turn over in a case of insulin resistance. Impaired lipoprotein lipase and increased hepatic lipase activity is thought be a resulting from insulin resistance in diabetes. Chronic exposure to elevated free fatty acids have been associated with impaired insulin secretion.25 The improvement in lipid profile with practice of PsychoNeurobics could be due to increased hepatic lipase and lipoprotein lipase. This would increase the uptake of triglycerides by adipose tissue and affect the lipoprotein metabolism.

PsychoNeurobics practice is also proved to affect mental balance of an individual allaying apprehension, stress and bringing about hormonal balance and feelings of wellbeing. This sense of wellbeing is attributed to its ability to increase endogenous melatonin secretion. This can explain the probability of greater compliance with its practice even in long-term and its use as an effective intervention in control of the disease.

5. CONCLUSION

5.1. Strength of study

The PsychoNeurobics package was designed after extensive literature review by specialists and was a perfect combination of meditation (spa) and chakra alignment targeted at the disease under study. Excellent compliance of study sample and there were no drop outs. Experimental group patients voluntarily reported to KC department and were self-motivated for the practice of PsychoNeurobics .The control group was also under constant surveillance by the diabetic care clinic.

5.2 Limitations of the study

Direct supervision of the patients was not possible for the entire period of the study. Dietary data were not recorded. Long-term study was not possible due to threat of non-compliance of the patients.

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