



EFFECT OF YOGA THERAPY WITH VARMA THERAPY ON BLOOD SUGAR (FASTING) AND TRIGLYCERIDE AMONG MIDDLE AGED TYPE II DIABETIC MEN

Health Science

Dr. A.s. Selvam

Assistant Professor, Department of Yoga & Well Being, Saveetha school of Law, Saveetha University (Deemed University), Chennai-77, Tamil Nadu, India.

ABSTRACT

The present random group experimental study was designed to find out the effect of Yoga therapy with Varma Therapy on Blood Sugar (Fasting) and Triglyceride among middle aged type II diabetic men. It was hypothesized that there would be significant difference among middle aged type II diabetic men practicing Yoga therapy with Varma Therapy than the control group on Blood Sugar (Fasting) and Triglyceride. To achieve the purpose of the study, thirty (30) middle aged type II diabetic men residing in Chennai age between 45 to 55 years were selected randomly in two groups, namely experimental group and control group of twenty (15) subjects each. Training period of this study was twelve weeks. Experimental group underwent Yoga therapy with Varma Therapy for twelve (12) weeks, six days a week for a maximum of one hour in the morning. The control group was kept in active rest. The pre test and post test were conducted before and after the training for both the groups. To analyses the data (ANCOVA) test was used. The test of significance was fixed as 0.05 level of confidence. It was concluded that there was significant decreased in practicing Yoga therapy with Varma Therapy (experimental group) than the control group on Blood Sugar (Fasting) and Triglyceride among middle aged type II diabetic men.

KEYWORDS

Yoga therapy, Varma Therapy, Blood Sugar (Fasting) and Triglyceride

INTRODUCTION

Diabetes is a metabolic disorder characterized by hyperglycemia, abnormal lipid and protein metabolism along with specific long-term complication affecting the retina, kidney and nervous systems (Qureshi SA et.al (2009). The two types of diabetes mellitus are, insulin-dependent (IDDM) and noninsulin dependent (NIDDM). First is due to low insulin-production by the pancreas and the more common type, NIDDM usually starts after the age of 40 and has many contributory causes such as obesity, heredity, lack of exercise, auto immunity and stress (Robin Monro et.al., 1990). According to an estimate of International Diabetic Federation (IDF), in 2017 there are about 425 million people with diabetes throughout the world. It is also estimated that there would be 629 million people with diabetes in the world in 2045 (IDF Diabetes Atlas – 2017). There are two major types of diabetes type 1 and type 2. All the types of diabetes have something in common. Yoga therapy with varma therapy has been studied for controlling both the important symptom and complication associated with type 2 diabetes mellitus (www.yoga-point.com).

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of Yoga therapy with Varma Therapy on Blood Sugar (Fasting) and Triglyceride among middle aged type II diabetic diabetics men.

HYPOTHESIS

It was hypothesized that there would be significant difference in Yoga therapy with Varma Therapy than the control group on Blood Sugar (Fasting) and Triglyceride among middle aged type II diabetic men.

REVIEW OF RELATED LITERATURE

Innes KEt.al., (2011) conducted the study on association of fructosamine to indices of dyslipidemia in older adults with type 2 diabetes. To evaluate the association of serum fructosamine values to lipid profiles and to other indices of glycemia both at baseline and over time in adults with type 2 diabetes (T2DM). Forty adults aged 45 or older with T2DM, not taking insulin, and an HbA1c of 6-10% were subjected to a randomized controlled trial regarding the effects of an 8-week yoga program on glycemia and related cardiovascular disease risk indices in adults with T2DM. Fasting blood was drawn to determine glycemia (HbA1c, glucose, and fructose mine) and dyslipidemia (LDL, HDL, total cholesterol, cholesterol: HDL ratio, LDL: HDL ratio, and triglycerides) pre and post-intervention. Since the relation of fructose mine to other indices of glycemia and to lipid profiles did not differ between treatment groups either at baseline or over time, groups were pooled for analysis. Baseline fructose mine values were significantly correlated with HbA1c ($r=0.77$, $p<0.0001$), glucose ($r=0.72$, $p<0.0001$), LDL: HDL ratio ($r=0.46$, $p=0.01$), cholesterol: HDL ratio ($r=0.55$, $p=0.002$), and triglycerides ($r=0.39$, $P=0.032$), but not to other lipid indices at baseline. Change in fructose mine over 8 weeks was significantly correlated with change in HbA1c

($r=0.63$, $P=0.0001$), glucose ($r=0.39$, $p=0.029$), cholesterol ($r=0.65$, $p<0.0001$), LDL ($r=0.55$, $P=0.001$), LDL:HDL ratio ($r=0.53$, $P=0.003$), and cholesterol: HDL ratio ($r=0.52$, $P=0.002$), and was more strongly related to change in lipid values than were other indices of glycemia. Fructosamine was significantly correlated with measures of dyslipidemia and glycemia both at baseline and over time, and may represent a relatively sensitive and low cost index of short to medium term change in both glycemia and certain lipid profiles. Although, findings from this study should be interpreted with caution, and warrants replication in larger prospective studies.

Nagarathna SRet.al., (2012) conducted the randomized control study on efficacy of yoga based life style modification program on medication score and lipid profile in type 2 diabetes. Several studies have documented the beneficial short term effects of yoga in type 2 diabetics. In this potential two-armed interventional randomized control study, 277 type 2 diabetics of both genders aged above 28 years who fulfilled the study criteria were recruited from 5 zones in and around Bengaluru, India. They were subjected to a yoga-based life style modification program or exercise-based life style modification program. Integrated yoga special technique for diabetes included yogasanas, pranayama, meditation and lectures on yogic life style. Control intervention included physical exercises and life style education.

Medication score, blood glucose, HbA1c and lipid profile were assessed at baseline and after 9 months. Intention to treat analysis showed better reduction ($p<0.05$, Mann-Whitney test) in the dose of oral hypoglycemic medication required (Yoga-12.8 %) (Yoga-12.3 %) and increase in HDL (Yoga-7 %) in Yoga as compared to the control group; FBG reduced (7.2 %, $P=0.016$) only in the Yoga group. There was significant decline within groups ($P<0.01$) in PPBG (Yoga-14.6 %, Control-9 %), HbA1c (Yoga-14.1 %, Control-0.5 %), Triglycerides (Yoga-15.4 %, Control-16.3 %), VLDL (Yoga-21.5 %, Control-5.2 %) and total cholesterol (Yoga-11.3 %, Control-8.6 %). Thus, the study proved that yoga based life style modification program is correspondent to exercise-based life style modification in reducing blood glucose, HbA1c, triglycerides, total cholesterol and VLDL. It was concluded that the Yoga is better than exercise in decreasing oral hypoglycemic medication requirement and LDL; and increasing HDL in type 2 diabetics.

METHODOLOGY

For the purpose of this random group experimental study, Yoga therapy with Varma Therapy was given for six days per week for twelve weeks. All the subjects were randomly assigned to experimental group and control group each consisted of 15 subjects. Experimental group was involved in Yoga therapy with Varma Therapy practices for twelve (12) weeks; control group was kept in active rest. The yogic practices with Varma Therapy given to experimental group include prayer,

Loosening the joining, Suryanamakar, Tadasana, Trikonasana, Ardhakatichakrasana, Paschimottasana, Ustrasana, Ardhamats yendrasana, Tandasana, Bhujangasana, Salabasana, Dhanurasana, Navasana, Sarvangasana, Savasana, Nadi shudhi, Kapalabati, Japa Meditation and yoga nidra (Relaxation) and Varma points: Vayu Kalam, Hummi Kaalam, Otu varmam, Jadapprial Varmam, Pidari Kaalam Aamaikalavarmam, Annakalavarmam, Punalvarmam, Moottuvarmam, Kallidaikalavarmam, Nervarmam, adappakalam Techniques. Initially pre-test was taken and after the experimental period of twelve weeks, post-test was taken from both the groups. The differences between initial and final Blood Sugar (Fasting) and Triglyceride were considered as the effect of Yoga therapy with Varma Therapy on selected subjects. .

RESULTS AND DISCUSSION

The data pertaining to the variables collected from the two groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance.

RESULTS ON BLOOD SUGAR (FASTING)

The Analysis of Covariance (ANCOVA) on Blood Sugar (Fasting) Yoga therapy with Varma Therapy and control group was analyzed and are presented in Table-I.

**Table-I
COMPUTATION OF ANALYSIS OF COVARIANCE OF TRAINING GROUP AND CONTROL GROUP ON BLOOD SUGAR (FASTING) (in mg/dl)**

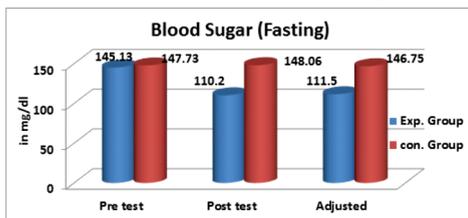
Test	EXP GROUP	CON GROUP	SV	SS	Df	MS	F
Pre test Mean	145.13	147.73	Between	50.7	1	50.7	0.99
			Within	1432.66	28	51.16	
Post test Mean	110.2	148.06	Between	10754.13	1	5377.06	52.83*
			Within	2849.33	28	101.76	
Adjusted test Mean	111.5	146.75	Between	9001.60	1	4500.80	86.78*
			Within	1400.22	27	51.85	
mean difference	34.93	0.33					

* Significant at 0.05 level of confidence (Table F ratio at 0.05 level of confidence for df 1 and 28 = 4.20, 1 and 27 = 4.21).

The obtained F-ratio value for the Blood Sugar (Fasting) were greater than the table value, it indicates that there was a significant difference among post test and adjusted post-test means of the Yoga therapy with Varma Therapy group than the control group.

The pre-test, post-test and adjusted post-test mean values of Yoga therapy with Varma Therapy and the control group on Blood Sugar (Fasting) were graphically presented in Figure I.

**FIGURE I
BAR DIAGRAM SHOWING THE MEAN DIFFERENCE OF YOGA THERAPY WITH VARMA THERAPY AND CONTROL GROUP ON BLOOD SUGAR (FASTING) (in mg/dl)**



* Significant at 0.05 level of confidence

RESULTS ON TRIGLYCERIDE

The Analysis of Covariance (ANCOVA) on Triglyceride Yoga therapy with Varma Therapy and control group was analyzed and are presented in table-II.

**Table-I
COMPUTATION OF ANALYSIS OF COVARIANCE OF TRAINING GROUP AND CONTROL GROUP ON TRIGLYCERIDE (in mg/dl)**

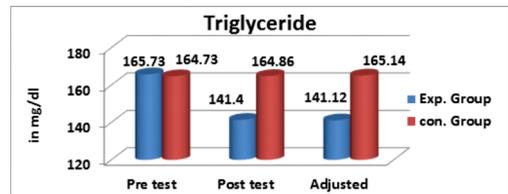
Test	EXP GROUP	CON GROUP	SV	SS	Df	MS	F
Pre test Mean	165.73	164.73	Between	7.5	1	7.5	0.37
			Within	553.86	28	19.78	
Post test Mean	141.4	164.86	Between	4130.13	1	2065.06	52.21*
			Within	1107.33	28	39.54	
Adjusted test Mean	141.12	165.14	Between	4271.05	1	2135.52	61.67*
			Within	934.86	27	34.62	
mean difference	24.33	0.13					

* Significant at 0.05 level of confidence (Table F ratio at 0.05 level of confidence for df 1 and 28 = 4.20, 1 and 27 = 4.21).

The obtained F-ratio value for the Triglyceride were greater than the table value, it indicates that there was a significant difference among post test and adjusted post-test means of the Yoga therapy with Varma Therapy group than the control group.

The pre-test, post-test and adjusted post-test mean values of Yoga therapy with Varma Therapy and the control group on Triglyceride were graphically presented in Figure II.

**Figure 2
BAR DIAGRAM SHOWING THE ADJUSTED POST TEST MEANS OF EXPERIMENTAL AND CONTROL GROUPS ON TRIGLYCERIDE (in mg/dl)**



* Significant at 0.05 level of confidence

CONCLUSIONS

It was concluded that there was significant decreased in Yoga therapy with Varma Therapy than the control group on Blood Sugar (Fasting) and Triglyceride among middle aged type II diabetic diabetics men.

REFERENCES

- Robin Monro, Nagarathna and Nagendra (1990), "Yoga for Common Ailments", New York, USA: Simon & Schuster Inc., Pp. 76 .
- Dr.SwamyShankardevananda (2005), "Yogic Management of Asthma and Diabetes", Munger, Yoga Publication Trust.Pp.43-46.
- Innes KE,Selfe TK and Vishnu A.(2011), "Association of Fructosamine to Indices of Dyslipidemia in Older Adults with Type 2 Diabetes", Diabets and Metabolism Syndrome", 5:4,Pp.179-182.
- Qureshi AS, Asad W, Sultan V.(2009),The effect of Phyllanthus emblica Linn. on type II diabetes, triglycerides and liver specific enzyme, Pak J Nutr., 8, Pp.125-8.
- Nagarathna SR,Usharani, MR, Raghavendra Rao, A, ChakuRKulkarniand Nagendra, HR(2012), "Efficacy of yoga based life style modification program on medication score andlipid profile in type 2 diabetes a randomized control study", International Journal of Diabetes in Developing Countries, 32:3, Pp. 122-130.
- Diabetes Mullitus, world health organization fact sheet 1999; (138).

WEBSITES

- www.medscimonit.com
- www.wikipedia.org
- www.who.com
- www.yoga point.com