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Effect of Yoga with Varma Therapy and traditional medicine on cardiac variables among middle-aged diabetes mellitus men

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Abstract
India is the global center for diabetes. Yoga promotes relaxation, which is also essential for the body's internal organs to work properly. Maintaining a normal blood sugar level by normal blood pressure. The present investigation to find out the effect of yoga with varma therapy and traditional medicine on blood sugar variables among middle-aged men. To achieve this purpose, forty men pre-diabetic parsons were randomly selected from Sivakasi, Tamilnadu, India as subjects. The selected subjects age, height and weight range were 42 ± 5 years, 165 ± 8 cm and 74 ± 8 kg respectively. The average blood glucose level of selected subjects observed 120 ± 4 as therefore the selected subjects were identified as pre-diabetic persons. They were randomly split into four equal groups, and all groups contains of ten (n=10) subjects in each, in which they known as group I yoga with varma group, group II yoga with traditional medicine group and group III yoga with varma and traditional medicine group. The group IV would be considered as control group, which did not undergo any specific physical activity or therapy except their regular activities and diet. The consent obtained from the participants, nevertheless, they were free to leave their consent, in case they feel any uneasiness during the tenure of their participation, but there were no withdraw in this study. All the subjects of the four groups were tested by selected dependent variables for the present study such as systolic blood pressure and diastolic blood pressure prior to and immediately after the training programme. All the subjects of the four groups were tested on criterion variables at prior to and immediately after the training program for significance by applying independent 't' test to find the initial and final mean differences on each variable. The analysis of covariance was used to find the difference among the group if the difference on initial and final mean. In addition to this, Scheffe's post-hoc test will be employed to find the paired mean differences. The magnitude of improvement also calculated to know the improvement from the baseline score on selected variables. The level of confidence is fixed at 0.05, for significance. The result of present study observed that the yoga, varma and traditional medical application had significant contribution for reducing of blood pressure. The present study concluded that the yoga with varma and traditional medicine group has highly positive impact in the management of blood pressure among middle-aged diabetes men.

Keywords: Yoga, varma, traditional medicine, systolic & diastolic blood pressure, diabetes men

Introduction

Diabetes to be effectively controlled, a customized diet, regular exercise, insulin administration, and oral hypoglycemic drugs are all necessary. Care must include regular patient and physician monitoring as well as supportive education. As people become more sedentary and the effectiveness of medications decreases, regular exercise, especially "yoga," seems to be a helpful and affordable adjuvant in the management of diabetes mellitus (Grover, 2002) [9]. In case of total lack of insulin, patients are given insulin injections. Whereas in case of those where cells do not respond to insulin many different drugs are developed. As taking into consideration possible disturbances in carbohydrate-metabolism (Scartezzinim 2000) [18]. Studies conducted in India in the last decade have highlighted that not only is the prevalence of diabetes high but also that it is increasing rapidly in the urban population. It is estimated that there are approximately 33 million adults with diabetes in India. This number is likely to increase to 67.2 million by the year 2027 (Seth, 2004) [20].

Research on human biology has given yoga a lot of attention as a way to enhance life quality. Similar beneficial outcomes, such as decreased body weight, cholesterol, and blood pressure, have been observed in studies with cardiac patients. Recent assessments of yoga's benefits for diabetes management have also revealed that it may help adults with diabetes mellitus regulate their lipid levels, diet, and body composition. The findings support those of Vizcaino and Stover (2016) [24], who discovered that yoga had a beneficial effect on blood pressure and lipid profiles.

The term varmam as Vazhi Aatral. Varmam is one among the ancient old commonly used external therapies. It is one among the South Indian Marital Arts. In modern Varma therapy is called as Thanuology. Varma points are so called life centres where saram (a vital energy) raverses through it. By giving pressure as mentioned in literature Vata, Pitha, Kapha normalises the deranged humour. The varma is a channelized pathway of transporting the energy to various parts of our body to maintain the homeostasis. In case of orthopaedic disorder Varma therapy plays a major role in it. It is also involved in treating conditions like diabetics, cervical spondylosis, lumbar spondylosis, ligament injuries), osteo arthritis, hemiplegia etc. Varmam is a comprehensive, low cost and effective therapy in treating orthopaedic cases.

In the last few years, there has been an exponential growth in the field of herbal medicine and these drugs are gaining popularity both in developing and developed countries because of their natural origin and less side effects. Many traditional medicines in use are derived from medicinal plants, minerals and organic matter. To date, over 400

traditional plant treatments for diabetes have been reported, although only a small number of these have received scientific and medical evaluation to assess their efficacy. The hypoglycemic effect of some herbal extracts has been confirmed in human and animal models of type 2 diabetes. The World Health Organization Expert Committee on diabetes has recommended that traditional medicinal herbs be further investigated. [Karthik Nagarajan, 2018] [12].

The critical components of diabetes management are medication, diet and physical activity and exercise (Falci, 2016) [8]. However, many complementary and alternative practices have been used by people in both the prevention and treatment of diabetes such as yoga, varma and traditional medical application (Medagama, 2014) [15].

However, there are few reports as regards to the influence of yoga on blood pressure. Hence, the present study was undertaken to assess the beneficial effects of yoga, varma therapy and traditional medicine on blood pressure in middle-aged diabetes mellitus men.

Methodology

To achieve this purpose, forty men pre-diabetic parsons were randomly selected from Sivakasi, Tamilnadu, India as subjects. The selected subjects age, height and weight range were 42 ± 5 years, 165 ± 8 cm and 74 ± 8 kg respectively. The average blood glucose level of selected subjects observed 120 ± 4 as therefore the selected subjects were identified as pre-diabetic persons. They were randomly split into four equal groups, and all groups contains of ten (n=10) subjects in each, in which they known as group I yoga with varma group, group II yoga with traditional medicine group and group III yoga with varma and traditional medicine group. The group IV would be considered as control group, which did not undergo any specific physical activity or therapy except their regular activities and diet. The consent obtained from the participants, nevertheless, they were free to leave their consent, in case they feel any uneasiness during the tenure of their participation, but there were no withdraw in this study. All the subjects of the four groups were tested by selected dependent variables for the present study such as systolic and diastolic blood pressure prior to and immediately after the training programme. The whole experimental program was implemented for six days per week for twelve weeks. In every day training session, the practice lasted approximately between forty-five minutes and an hour, which included warning up and relaxation. under yogasana, a batch of twelve asana, which are commonly called of Suryanamaskar was given to the subjects, followed by Ardhakaticakrasaa, Eka Pada Asana, Vajrasana, Janu Sirsasana, Parivritta Janusirsasana, Baddha Konasana, Ek Pada Kapotasana, Balasana, Makarasaa Majariasana, Pawanmuktasana, Sethubandhasana, Viparitakarni, Markatasana, Savasana, Chandra Bhendana, Nadi Shuddhi, Anuloma Viloma, Bhramari Pranayama, Ujjayi, Silent Meditation. The pranayama practices with 2 to 5 sets of 5 to 15 repetitions increased every 3 weeks respectively. Shanmuki Mudra, Aswini Mudra, Brahma Mudra, Bhujangini Mudra, ViparitaKaranifollowed as mudra practice. The varma therapy such as Urumi Kaalam (At the end of the Sternum bone in between the rib cage), Nangana Poottu (Sacrocliac joints), Aamai Kaalam (Mid of the thigh - Quadriceps Femoris), Vaayu Kaalam (T 12 Point of the Spinal Cord). The traditional medicine such as Sirukurinchaan Chooranam (Gymnema_sylvestre), Morning before breakfast, Tirikadugu Chooranam (Sukku, Millagu, Tippili) every day after Lunch. TriphalaChooranam (Nellikkai, Kadukkai, Thandrikkai), every day after dinner. The traditional medicines are mixed with hot water before consume. All the subjects of the four groups were tested on criterion variables at prior to and immediately after the training program for significance by applying independent 't' test to find the initial and final mean differences on each variable. The analysis of variance (ANOVA) was used to find the difference among the group if the difference on initial and final mean. After eliminating the influence of pre-test, the adjusted post-test means of experimental groups were tested for significance by using ANCOVA. In addition to the, Scheffe's post-hoc test will be employed, when the F-ratio of the adjusted post-test means is significant, to find out the paired mean difference if any among the groups for each variable, separately. Further the magnitude of improvement between pre and post data of experimental groups and control group assess by using percentage calculation on selected criterion variables. The level of confidence fixed at 0.05, for significance. The data on selected criterion variables were analyses using IBM SPSS software version 21.0.

Results

Table 1: Independent 'T' Test Among Experimental and Control Group on Selected Cardiac Variables

	YVC	YTMC	YVTMC	CG
Systolic Blood Pressure	5.58*	4.03*	7.15*	1.406
Diastolic Blood Pressure	5.33*	6.64*	6.62*	1.90

The table value for df-18 is 1.734. * Significant at 0.05 level.
YVC - Yoga with Varma Group, YTMC - Yoga with Traditional Medicine Group, YVTMC - Yoga with Varma and Traditional Medicine, CG - Control Group.

The pre and post data of YVC, YTMC, YVTMC and CG on systolic blood pressure were 122.10-120.50, 122.50-121.00, 122.90-120.10 and 122.50-122.80. The pre and post data of YVC, YTMC, YVTMC and CG on diastolic blood pressure were 81.70-80.30, 81.60-80.20, 81.70-79.70 and 81.90-81.40. The obtained 't' value significant of YVC, YTMC, YVTMC on selected cardiac variables, were as the CG no significant on selected cardiac variables. The results on above table indicate that the experimental group's shows significant reduction on blood pressure due to respective yoga, varma and traditional medical practice protocol, whereas, control group had no significant among pre-diabetic middle-aged men.

Table 2: Analysis of covariance among experimental and control group on cardiac variables

Adjusted Post Test Mean	Yoga with Varma	Yoga with TM	Yoga with Varma and TM	Control Group	SOV	SS	df	MS	F
Systolic Blood Pressure	120.49	121.00	120.11	122.80	B	42.41	3	14.13	23.57*
					W	20.99	35	0.60	
Diastolic Blood Pressure	80.31	80.26	79.71	81.30	B	12.85	3	4.28	21.86*
					W	6.85	35	0.20	

*Significant, (The table values of df 3 and 35 was 2.866, 2.874 respectively)

The result of above table shows that, there was a significant difference among yoga with varma group, yoga with traditional medicine group, yoga with varma and traditional medicine group and control group on systolic blood pressure and diastolic blood pressure among pre-diabetic middle-aged men. Since, the obtained 'F' value found significant, the scheffe's post hoc test was applied to find out the paired mean difference presented in table III.

Table 3: Scheffe's post hoc test on paired mean among experimental and control group on blood sugar variables

Variables	Test	Yoga Varma Vs Yoga TM	Yoga Varma Vs Yoga Varma & TM	Yoga Varma Vs Control Group	Yoga TM Vs Yoga Varma & TM	Yoga TM Vs Control Group	Yoga Varma & TM Vs Control Group
Systolic blood pressure	Mean Difference	0.510	0.381	2.310*	0.890*	1.800*	2.690*
	P Value	0.159	0.320	0.000	0.017	0.000	0.000
Diastolic Blood Pressure	Mean Difference	0.046	0.600*	0.992*	0.554*	1.038*	1.592*
	P Value	0.818	0.005	0.000	0.008	0.000	0.000

*Significance at 0.05

The result on paired mean difference shows that the experimental groups show better reduction on selected cardiac variables when compared with control group. The results of study show that the yoga with varma group, yoga with traditional medicine group, yoga with varma and traditional medicine group had better reduction on blood pressure among pre-diabetic middle-aged men. The table also shows that there was no significant difference on blood pressure level between yoga with varma group and yoga with traditional medicine group. However, the improvement was in favor of yoga with varma and traditional medicine group when compare with rest of the experimental groups.

Magnitude of Improvement

Magnitude of Improvement	Yoga with Varma	Yoga with TM	Yoga with Varma and TM	Control Group
Fasting Blood Sugar	1.33%	1.24%	2.33%	0.24%
Postprandial Blood sugar	1.74%	1.75%	2.51%	0.61%

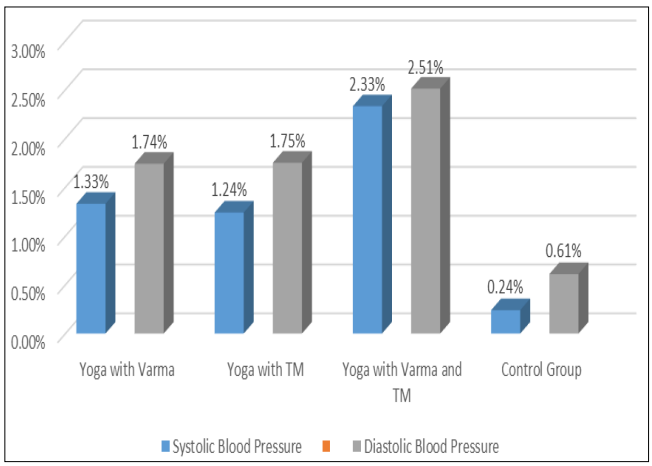

Fig 2: The Bar Diagram Shows the Magnitude Of Improvement Among Experimental And Control Group On Blood Pressure

Discussion

The result on present study reviles that the yoga varma and traditional medicine on diabetes men. Therefore, the result discussed with previous research results to identify the correlation with the same on logical manner as follows. Both diabetes mellitus and pre-diabetes significantly raise the risk of stroke and cardiovascular disease.

Cohen *et al*., 2016 [6] reported that at 12 and 24 weeks, the systolic and diastolic blood pressure of all groups of enrolled patients and completers had dramatically dropped. To regulate blood glucose levels, a variety of medications are being developed and sold for diabetes patients. Long-term use of these drugs, however, carries hazards of its own, including negative consequences, drug tolerance, and substance dependency. As a result, there has been a broad search in recent years for non-pharmacological ways to both prevent and manage diabetes mellitus problems (Innes, 2007) [10].

According to Manjunatha *et al*., 2005 [14] "Yoga helps treat diabetes mellitus by releasing insulin from the pancreas." Following five days of doing four sets of asanas in a random order, their results showed that the asanas' effectiveness raised the panceatic B cells' sensitivity to the glucose signal. The exact mechanism of yoga poses and synchronized breathing with the mechanism of somatoendocrine insulin kinetics was the subject of a study by Malhotra *et al*. According to their findings, there was a significant decrease in both the waist-hip ratio and rises in serum insulin levels. They showed that yoga poses had a positive impact on NIIDDM fat redistribution and glucose utilization. As an alternative to diet and medicine, yoga poses can be used to treat diabetes. [Malhotra 2005] [13].

The present study participants have reported feeling less anxious and more at ease, as well as having a more joyful and contented sense of well-being. Yoga has helped them become more aware and active through their altered posture and coordinated breathing during pranayama; anxiety, stress, a sense of well-being, and hormone balance are all impacted by a person's mental state. Telles, 2010 [23] noted observations that were consistent.

The results of the current study show that there is a significant difference in the levels of HbA1C compared to those who practice yoga who have not practiced yoga in Type 2 diabetic subjects. According to Aljasir *et al*., 2010 [1] "Yoga has been researched to treat both the symptoms and complications of T2DM." The findings of the study indicated a statistically significant role of yoga in the regulation of diabetes. It suggests that diabetics can benefit from the ability of yoga to improve the quality of life.

The results of this study also in line with the findings of Hegde, *et al*., (2011), and Ebnezar, *et al*. m (2012) [7], who were also reported that there was a significant improvement in blood pressure after the yogic practices. The findings of Yang, *et al* (2009), also shown that there was a significant improvement in blood pressure after the yogic practices.

The present research findings also suggested that varma and yogic therapy stabilize the blood pressure.

Because of its anti-inflammatory, anti-oxidant, blood lipid-regulating, and anti-glucose qualities, herbal medicine is mostly used to treat diabetes mellitus. Herbal medicine is a useful supplemental and alternative treatment for diabetes mellitus because of its better holistic quality, which allows it to treat the condition through numerous targets. (Anne McIntyre, 2010). However, there are some deficiencies in herbal medicine that need to be studied further. Herbs, especially some herbal formulas, contain a variety of ingredients, and it is difficult to accurately identify the active ingredients and toxic ingredients. Most of the above studies are animal experiments. Large-scale, multicenter clinical studies still lack reliable and detailed information. Furthermore, there have also been few reports on follow-up observations of patients with diabetes mellitus treated with herbal medicine (Chang, 2013) [5]. As a result, it has been noted that varma therapy and yoga traditional medicine considerably lower blood pressure. Additionally, the participants' subjective emotions corroborated the outcome.

Conclusion

It is possible to draw the conclusion that the group that combined yoga, varma, and traditional medicine had the greatest effect on a particular blood pressure based on the findings and discussion of the current study on these three practices for controlling blood pressure in middle-aged males. The groups that engaged in yoga with traditional medicine and yoga with varma therapy showed comparable increases in systolic blood pressure. Based on baseline results, both groups also shown improvements in blood pressure indicators. This finding also encourages there is a scope to carry out the various research studies in this regard.

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