

Effect of Pranayama Practices on the Management of Hypertension

Dheeraj Jeph¹, Suresh Kumar Meena², Mamta Meena³, Nidhi Gupta⁴

¹Professor, Department of Physiology, SMS Medical College, Jaipur

^{2,3}Assistant Professor, Department of Physiology, SMS Medical College, Jaipur

⁴Associate Professor Department of Physiology, SMS Medical College, Jaipur

Received: 15-01-2022 / Revised: 23-02-2022 / Accepted: 30-03-2022

Corresponding author: Dr. Nidhi Gupta

Conflict of interest: Nil

Abstract

Introduction: Pranayama, relaxation methodology, has shown to alter autonomic activities as it increases parasympathetic activity and thus lowers cardiovascular parameters.

Methods: On the basis of the medical OPD, thirty-three (N=33) hypertensive persons, aged 45-65 years, from SMS Hospital, Jaipur were examined with three variables: Systolic diastolic pressure and pulse rate. The subjects were randomly assigned into two groups. The group-1 (Experiment group) underwent selected pranayama practices and also received medical treatment and the group-2 (Control Group) received only medical treatment by the physician of the above-mentioned hospital. Pranayama Practices of 45 minutes was done by subjects in morning for a total period of 12 weeks.

Results: The result of pre-Post-test with ANCOVA revealed that management of group-1 (Pranayama with drugs) was more effective than in group-2 (Patients only on Medical Treatment) in controlling the Hypertension.

Conclusion: There is decrease in sympathetic drive to the heart by practicing pranayama. A practitioner of pranayama not only tries to breathe but at the same time also tries to keep his /her attention on the act of breathing, leading to concentration. These acts of concentration remove his attention from material world and decrease his stress. Stress free individual adapts better to daily emotional, physical and mental stress thus increase parasympathetic activity and improve state of health.

Keywords: Pranayama, Drug, Hypertension.

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Introduction

Yoga Hypertension is a common disorder affecting 15% of adult population in India, yet much progress has been made to prevent and control this disorder [1]. Hypertension is more prevalent in urban than in rural areas.

The reason could be the difference in heredity, smoking, body fat and lifestyle of

urban people and villagers. In majority of the cases, the actual cause of this disorder is unidentified which is the reason why it is called 'Primary hypertension' or 'essential Hypertension'. Out of so many risk factors for essential hypertension stress is one of the modifiable risk factors as recently reviewed by WHO scientific

group. Chronic psychological stress and negative affective states contribute significantly to pathogenesis and progression of hypertension [2]. The other type is called secondary hypertension in which the causes may be renal, endocrine, neurological or mechanical. There is evidence that pranayama training produces deep psychosomatic relaxation [1,3,4] and improvement of cardio-respiratory efficiency [5]. Raghuraj et al have found that practice of nadishuddhi pranayama results in alteration of autonomic balance [6]

Tell et al have demonstrated that pranayama breathing through right nostril results in an increase in sympathetic activity whereas left nostril breathing reduces it. [7]

The aim of present study was to assess the usefulness of yoga in treating hypertensive.

Methods:

Thirty-Three (N=33) hypertensive, age 45-65 years, who reported at the SMS Medical college, Hospital, Jaipur, have been included on the basis of the medical OPD diagnosis. The subject's body weight was in range of 51-81 kgs. The subjects were divided into two equal groups randomly. One group was kept experiment group and other was kept as control group and labeled as Group-1 and Group- 2. respectively.

The group-1 was allowed to undergo selected pranayama practices along with their medical treatment, whereas the group-2 was given only medical treatment as prescribed by physician in the SMS Hospital, Jaipur.

All the subjects were pre and Post tested with systole blood pressure (SBP), Diastolic blood Pressure (DBP) and Pulse rate (PR)

The duration of study was 12 weeks. The practice session of pranayama. Chandra-

Bhedi, Anulom-Vilom, Dheerog-Swas, Bhrumari, Om chanting and Meditation was practicing in the morning on empty stomach with 45 minutes duration each day at the yoga OPD SMS Hospital, Jaipur.

A standard sphygmomanometer of (Diamond, India) was used along with microtone stethoscope to assess blood pressure. A stopwatch trade in japan calibrated to 1/100th of a second was used for counting pulse rate. A standard weighting machine was used for measuring body weight.

Analysis of covariance (ANCOVA) was employed to compare the different treatment of effects of pranayama and drugs in controlling intensity of Hypertension. Scheff's post Hoc test was also applied to test the significance of difference between pairs of adjusted means.

Results

Table 1 indicates that in systolic blood pressure (SBP), the initial scores fall short of significance of the 0.05 level (F ratio=0.856).

This result suggests that the initial measures(means) of blood pressure did not differ significantly among both groups.

However, this difference was statistically significant (F ratio=26.0781 P<0.01) at the final test (Post intervention).

Control group treated with drugs (F=10.824, P<0.01) showed a reduction in systolic blood pressure but the reduction is much less than experimental. Group (Group 1). Experimental group which underwent yoga training (F=44.079, P<0.01) showed that yoga intervention with drug therapy was more effective as compared to drugs therapy alone in controlling Systolic blood pressure, Diastolic blood pressure and pulse rate.

Table 1: Mean, SD and analysis of variance of the initial and final test scores of experimental group and control group in systolic blood pressure (SBP), diastolic (DBP) and Pulse rate (PR)

Variables	Control Group (Drugs) Mean±SD	Experimental Group(Yoga+Drugs) Mean±SD	F-ratio	
SBP (mm of Hg)	Initial	158.62 (11.52)	156.44 (09.20)	00.856
	Final	134.86 (12.65)	123.09 (10.14)	26.078**
	F-Value	40.823**	44.078**	
DBP (mm of Hg)	Initial	106.45 (10.31)	108.63 (09.92)	03.150
	Final	096.54 (08.29)	082.36 (09.14)	19.350**
	F-Value	64.479**	68.253**	
PR (per min)	Initial	098.12 (08.56)	092.61 (09.03)	06.266*
	Final	081.34 (08.07)	064.62 (09.53)	35.780**

* P<0.05 **P<0.01

Discussion

The result revealed that both yoga intervention and drugs treatment lowers BP and HR in hypertensives but yoga intervention with drug therapy was more effective.

However, only mild and moderate cases of hypertension may be controlled easily without drugs. Severe cases may need pharmacological intervention. In several previous studies it was also observed that Yoga lowers systolic pressure [8,9,10]. It was observed in an earlier study that yogic training produces a significant decrease in BP associated with improvement of baroreflex sensitivity and attenuation of sympathetic and renin- angiotensin activity [11]. In the cases of stress related hypertension, yoga might modify the states of anxiety [12], thus reducing hypertension. There is significant reduction in HR better in experimental group. This in accordance with the results of earlier studies where they observed a significant reduction in resting HR after 2 weeks of yogasanas and pranayama training.[13,14]

Conclusion

There is decrease in sympathetic drive to the heart by practicing pranayama. A practioner of pranayama not only tries to

breath but at the same time also tries to keep his /her attention on the act of breathing, leading to concentration. These acts of concentration remove his attention from material world and decrease his stress. Stress free individual adapts better to daily emotional, physical and mental stress thus increase parasympathetic activity and improve state of hypertension

Acknowledgment

The authors are grateful to the Hospital authority and its Medicine Department of SMS Hospital, Jaipur for their Cooperation.

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