

Immediate effect of shavasana on blood pressure in pre-hypertensive patients

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Abstract

Background: In last few decades, the prevalence of hypertension has been drastically increased in India. According to WHO(World Health Organization) and Seventh Report of the Joint National Committee (JNC 7) persons with blood pressure above optimal levels, but not clinical hypertension (systolic blood pressure of 120-139 mmHg or diastolic blood pressure of 80-89 mmHg), are defined as having "Prehypertension". Shavasana is one of the most popular yogic exercise used for relaxation of body.

Aim: Aim of the study is to find out the immediate effect of Shavasana on blood pressure in prehypertensive patients.

Methodology: In present study 56 patients with prehypertension were taken, age 30 years – 60 years. Blood pressures were measured before and after the Shavasana.

Result: Result showed that Shavasana is beneficial in reducing blood pressure in prehypertensive patients.

Conclusion: The practice of Shavasana for short duration immediately improves cardiovascular parameters.

Keywords: Shavasana, blood pressure, prehypertension

Introduction

In last few decades, the prevalence of hypertension has been drastically increased in India. Few studies are done to see the high prevalence rate of hypertension in Pune, Nashik and Amravati regions. The multilevel analysis has shown that the variation in the rate of prevalence of hypertension is higher at the community level as compared to the variation in the prevalence rate at the district level in Maharashtra ^[1]. Hypertension is more prevalent in urban than in rural areas ^[2]. The prevalence of cardiovascular diseases and hypertension is rapidly increasing in developing countries. Hypertension affects nearly 26% of the adult population worldwide. Hypertension is an important independent predictor of cardiovascular disease, cerebrovascular accidents and death. The WHO(World Health Organization) and The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of high blood pressure (JNC 7) defines hypertension as blood pressure more than equal to 140/90 mmHg. ^[3] Persons with blood pressure above optimal levels, but not clinical hypertension (systolic blood pressure of 120-139 mmHg or diastolic blood pressure of 80-89 mmHg), are defined as having "Prehypertension". Persons with prehypertension have a greater risk of developing hypertension than do those with lower blood pressure levels. In addition, prehypertension is associated with increased risk of major cardiovascular events ^[3].

The literature indicates that prehypertension is a prevalent condition with potentially important implications for individual and health. Prehypertension is a common condition across age, sex, ethnicity, and geographical boundaries in countries with develop and developing economies worldwide. Individuals with prehypertension have a twofold to threefold higher risk of developing hypertension than those who are normotensive. ^[4]

The systolic blood pressure is the maximum pressure in the arteries when the heart contracts and the diastolic blood pressure is the minimum pressure in the arteries. Hypertension increases the risk for a variety of cardiovascular diseases including stroke, artery disease, heart failure and peripheral vascular disease. Hypertension is asymptomatic condition, symptoms do not arise unless the complication is developed which result in delayed diagnosis and treatment especially among the uneducated and unexplained social groups such as rural population ^[5].

Blood-pressure is the product of cardiac output and systemic vascular resistance. The patients with arterial hypertension may have an increased cardiac output, an increased systemic vascular resistance, or both. In the younger group, the cardiac output is often elevated, while in older patients increase systemic vascular resistance and increase of the vasculature play a dominant role ^[6].

Yoga is an effective adjunct therapy in hypertension and many studies have demonstrated the scientific bases of using it as a therapy and also as an effective lifestyle modification measure. Yoga as a therapy is simple and inexpensive and can be easily adopted in most patients without any complications ^[7]. Shavasana also known as corpse posture. It is a very simple yogic asana. It is claimed to be effective in relaxing the mind and body. It involves deep breathing and leads to systemic relaxation of body. It may alter cardio respiratory and autonomic parameters. Effect of Shavasana have been studied along with many other yogic exercises to find out combined effect of multiple yogic exercises on the body ^[8].

Shavasana or corpse pose is a relaxation technique in yoga. It is the yogic criya that is claimed to have particular anti-stress effect. In shavasana, as the position of the body is horizontal, relaxed and fully supported, no system of body is required to work against gravity. Thus, the flexors and

extensors muscle groups can relax at the same time as there is no need to balance the body against gravity. Further, the person practicing shavasana remains inwardly alert but is less conscious of the external environment ^[8]. Shavasana practice has been shown to increase the level of GABA (Gamma-Aminobutyric Acid), a chemical in the brain that helps to regulate nerve activity. GABA is reduced in people with mood and anxiety disorders ^[8].

Materials and methods

Study design - Quasi experimental

Study setting – at hospital in Nashik, Sampling technique -

Convenient sampling, Duration of the study - 6 months,

Sample size – 56

Inclusion Criteria ^[9, 10, 11]

Patients between age group- 30 to 60 years, Patients giving informed and written consent, Prehypertensive patients [SBP-(120-139 mmHg) DBP- (80-89 mmHg)].

Exclusion Criteria ^[9, 10, 12, 13]

Patients with any other pre-diagnosed cardiac disease, major pulmonary, renal, endocrinal and neurological diseases, Gestational hypertension, psychologically unstable, not able to perform relaxation exercise.

Procedure

56 Patients with prehypertension were selected. They were screened for inclusion and exclusion criteria. Before the procedure of Shavasana systolic blood pressure, diastolic blood pressure was recorded by using mercury sphygmomanometer. Then Shavasana for 30 minutes was performed as per instructions.

1. Patient were asked to lie down in supine position and thin pillow was given to him/her below his neck.
2. Patient were asked to close his eyes and Keep his legs slightly apart.
3. Patient were asked to relax his all parts of body completely.
4. Patient were asked to place his arms alongside with palms open, facing upward.
5. The head turned on comfortable side or kept facing up.
6. Patient were asked to focus the mind on the body.
7. Patient were asked to breath slowly and deeply without any jerky moments.
8. Patient were asked to feel the energy coming in the body with each inhalation while stress going out.
9. Patient were asked to pay attention to each part of body one by one starting from the toes upward, one should see if any tension or uneasiness is felt anywhere and if so, one should try to give it up.
10. Care was taken to avoid sleep.

After Shavasana, again all parameters were recorded.

Data collection

Project started after the grant of permission from the ethical committee members. The subject included were 56, aged 30–60 years. The outcome measure was systolic and diastolic blood pressure. The data was analyzed with paired t-test method.

Result& Discussion

Result

The result of this study showed significant reduction in the mean of Pre and Post intervention of Systolic and Diastolic Blood Pressure in the patients. The p-value for Systolic Blood Pressure was less than 0.0001 which is extremely statistically significant. The p-value for Diastolic Blood Pressure was less than 0.0001 which is extremely statistically significant.

Discussion

The aim of our study was to examine the immediate effects of Shavasana on Blood Pressure in Prehypertensive patients. In this study 56 patients were taken, they received Shavasana. In Patients, Systolic Blood Pressure measured before and after the treatment. By using paired T-test, changes giving a p-value <0.0001 and result showed extremely statistically significant. Thus stating that shavasana has beneficial effects in reducing systolic blood Pressure.

In patients, diastolic blood pressure also measured before and after the treatment. By using paired T-test, changes giving a p-value <0.0001 and result showed extremely statistically significant. Thus stating that shavasana also had beneficial effects in reducing diastolic blood pressure.

According to Sharad Jain et al, in his study, "Immediate Effect of Shavasana on Cardiac Output and Systemic Peripheral Resistance in United Young Adults." explain that Cardiac output and peripheral resistance are the key determinants of blood pressure. Blood pressure and heart rate are important cardiovascular parameters. Both are controlled by autonomic nervous system mediated via baroreceptors reflex mechanism. Cardiac output is product of stroke volume and heart rate. Increase in sympathetic activity increases venous return by producing venoconstriction in splanchnic circulation and also increased force of contraction of heart leads to more pumping of blood in each cardiac cycle which leads to increased systolic blood pressure. Increased sympathetic arterioles and increased total peripheral resistance leads to increase in the diastolic blood pressure. Increased sympathetic activity is responsible for increased cardiac output and heart rate and vice versa. Any maneuver which can decrease the sympathetic activity will decrease blood pressure, cardiac output, total peripheral resistance and heart rate. Shavasana results in decrease in sympathetic activity and also increase in parasympathetic activity ^[8].

According to Danilo F Santaella et al, in his study, "Yoga Relaxation (shavasana) decreases cardiac sympathovagal balance in hypertensive patients." explained that Shavasana relaxation decreased cardiac sympathovagal balance by increasing parasympathetic cardiac modulation and decreasing cardiac sympathetic modulation ^[14].

According to Shinde.V. et al, in his study, "A Study on the effect of relaxation technique and shavasana on stress and pulse rates of medical students", explained that Shavasana provides the most natural position of the body which helps in complete physical and mental rest. Anatomically, there can be no better position than this for complete relaxation in which no imbalance is left in the muscles of the limbs. Even

heart rate and blood pressure is reduced because there is no need to apply greater force to circulate blood ^[15].

Tables and Figures

Table 1: Comparison of Pre and Post mean treatment scores of systolic blood pressure.

Paired T Test	Systolic Blood Pressure	
	PRE	POST
Mean	125.8	115
SD	3.01	2.11
P-Value	< 0.0001	
Result	extremely significant	

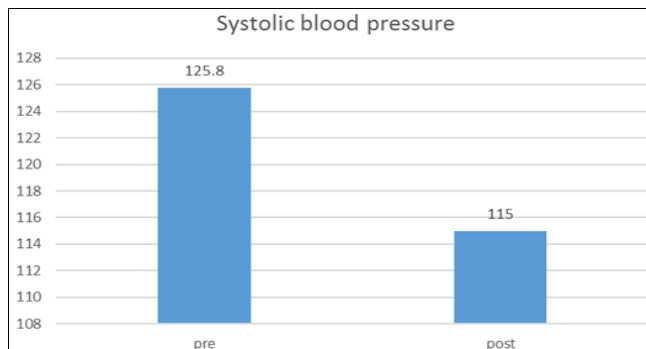


Fig 1: Comparison of pre and post mean treatment scores of systolic blood pressure.

Table 2: Comparison of pre and post mean treatment scores of diastolic blood pressure.

Paired t test	Diastolic blood pressure	
	PRE	POST
Mean	84.82	73.51
SD	2.82	3.26
P-value	< 0.0001	
Result	extremely significant	

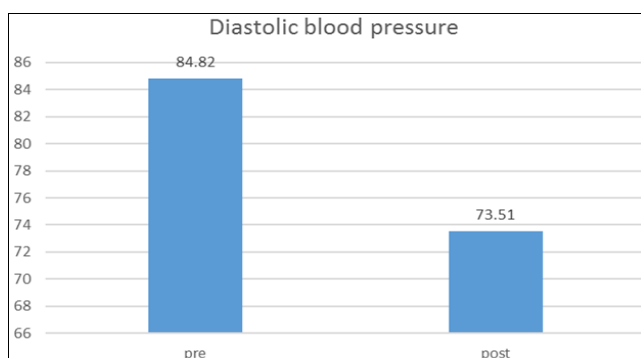


Fig 2: Comparison of pre and post mean treatment scores of diastolic blood pressure.

Conclusion

Shavasana can be useful exercise for the patient suffering from Prehypertension and other cardiac disease and other stress related problems.

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