

Effectiveness of Abdominal Breathing Exercise on Blood Pressure among Hypertensive Patients.

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Abstract: Hypertension is the most widely seen hereditary disease in Indian population. Treating hypertension is associated with a reduction in cardiovascular complication. Among relaxation techniques, abdominal breathing exercise is found to be cost effective and can be performed easily by the patients with hypertension for reducing stress, tension, anxiety through which it reduces the blood pressure also. This research was carried out to evaluate the effectiveness of abdominal breathing exercise on blood pressure among hypertensive patients. The research design adopted was quasi experimental design, Time series design with multiple institution of treatment. The study was conducted at PSG Hospitals, Coimbatore on 60 samples (30 in experimental group and 30 in control group) were selected by using purposive sampling method. Pre test data was done for both groups by interview and observation method. For experimental group abdominal breathing exercise was demonstrated two times a day for 1 week or till discharge of the patients and the control group received the routine care. For control group pre assessment of blood pressure followed by routine care. In experimental group and control group post assessment of blood pressure was monitored with the interval of 30 minutes, 1 hour and 4 hours gap. The study findings revealed that, abdominal breathing exercise is effective in reducing blood pressure among hypertensive patients in experimental group.

Index Terms: Effectiveness, Abdominal Breathing Exercise, Blood Pressure, Hypertensive Patients.

INTRODUCTION:

High Blood pressure or hypertension is the pressure exerted on the walls of the arteries during ventricular systole and diastole. It is affected by factors such as cardiac output, distension of the arteries and the volume, velocity and viscosity of the blood. Worldwide, 7.6 million premature deaths (about 13.5% of the global total) were attributed to high blood pressure. High blood pressure is largely preventable by adopting lifestyle modifications at early stages. Treating hypertension is associated with a reduction in cardiovascular complication. Reduces and manage mental stress through yoga, meditation and other relaxation techniques. Among these relaxation techniques abdominal breathing exercise helps to keep the body's internal rhythm results in less tension and overall sense of well being. With regular practice people will breathe from the abdomen most of the time, even while asleep. Breathing deeply can help lower blood pressure. It relaxes the body and lowers the heart rate, reducing the chronic stress and tension that raises the blood pressure.

STATEMENT OF THE PROBLEM:

A study to assess the effectiveness of abdominal breathing exercise on blood pressure among hypertensive patients in a tertiary care setting, Coimbatore.

OBJECTIVES:

- To assess the level of blood pressure among hypertensive patients in experimental group and control group.
- To evaluate the effectiveness of abdominal breathing exercise on blood pressure among hypertensive patients.
- To associate the pre test level of blood pressure with their selected demographic variables of hypertensive patients among experimental group and control group.

ASSUMPTION:

- All the patients who practice abdominal breathing exercise will have reduced blood pressure.
- Patients with high blood pressure are very difficult to control through drugs and diet alone.

HYPOTHESES:

- **H₁:** There will be a significant difference in level of pre test blood pressure and post test blood pressure among hypertensive patients in experimental group.
- **H₂:** There will be significant difference in level of post test hypertension between experimental group and control group after abdominal breathing exercise.

- **H₃:** There will be a significant association between pre test level of blood pressure with their selected demographic variables of hypersensitive patients among experimental group and control group.

MATERIALS AND METHODS

The research approach adopted was Quantitative research approach with Quasi-experimental, Time series design with Multiple institution treatment. The study was conducted at PSG Hospitals, Coimbatore on 60 samples (30 in experimental group and 30 in control group). Pre test data was done for both groups by interview and observation method. For experimental group abdominal breathing exercise was demonstrated two times a day for 1 week or till discharge of the patients and the control group received the routine care. For control group pre assessment of blood pressure followed by routine care. In experimental group and control group post assessment of blood pressure was monitored with the interval of 30 minutes, 1 hour and 4 hours gap. Descriptive and inferential statistical methods were used to analyze the data.

RESULT AND DISCUSSION

Table1: Comparison of pre test and post test blood pressure within experimental group at various time intervals using paired 't' test (n=30)

Experimental group		Mean \pm SD	Paired 't' value	df	Table value	
Pre test	Morning	104.83 \pm 5.09				
	Evening	103.39 \pm 3.69				
Post test	Morning	30 Minutes	99.42 \pm 3.83	7.47***	df=29	2.04
		1 Hour	96.01 \pm 3.91	9.95***		
		4 Hours	93.96 \pm 8.17	10.98***		
	Evening	30 Minutes	97.92 \pm 3.6	7.56***		
		1 Hour	94.74 \pm 4.38	11.76***		
		4 Hours	92.25 \pm 4.57	12.88***		

The table 1 reveals that in experimental group, the post test calculated 't' values were gradually increased and remarkable progress in the values from 30 minutes to 4 hour in morning and evening. There was a significant reduction in blood pressure after abdominal breathing exercise at 30 minutes, 1 hour and 4 hours. The table value was 2.04 which is lesser than the calculated 't' value at the level of $p \leq 0.05$. This indicates that there was a significant difference between the pre test and post test scores of blood pressure among hypertensive patients who received abdominal breathing exercise.

Table 2. Comparison of blood pressure between experimental group and control group using independent 't' test n= 60

Post Test		Experimental group (n=30)	Control group (n=30)	Calculated 't' test	Df	Table value
		Mean \pm SD	Mean \pm SD			
Morning	30 Minutes	99.42 \pm 3.93	102.31 \pm 3.89	2.25***	df=58	2
	1 Hour	96.01 \pm 4.11	102.75 \pm 3.82	6.38***		
	4 Hours	93.96 \pm 8.17	99.90 \pm 4.17	6.41***		
Evening	30 Minutes	97.92 \pm 3.61	102.30 \pm 3.76	4.11***		
	1 Hour	94.74 \pm 4.38	101.92 \pm 4.12	7.39***		
	4 Hours	92.25 \pm 6.57	103.29 \pm 3.77	11.40***		

Note:***-Significant at the level of $p \leq 0.05$

The table 2 depicts that in experimental group there was a reduction in blood pressure minimum 4 hours. In control group, the patient's blood pressure abnormally varied like remained and changed. The independent 't' test value was greater than the table value 2.0 at the level of $p \leq 0.05$ and there was a gradual increase in the independent 't' test value from 30 minutes to 4 hours in morning and evening. This showed that abdominal breathing exercise significantly reduced

the blood pressure of hypertensive patients in the experimental group than who received the routine care in control group. Hence it was concluded that abdominal breathing exercise was effective in reducing blood pressure of hypertensive patients.

Association between pre-test level of hypertension with their selected demographic variables in experimental group and control group.

In experimental group, there was no significant association between pre test level of blood pressure and demographic variables such as age, gender, total years of hypertension, body mass index, education, occupation, types of family, marital status, religion and income among hypertensive patients at the level of $p < 0.05$.

In control group, there was an association between pre test level of blood pressure and the demographic variables such as total years of hypertension and types of family at the level of $p < 0.05$.

CONCLUSION

The present study was intended to assess the effectiveness of abdominal breathing exercise on blood pressure among hypertensive patients in a tertiary care setting, Coimbatore. The statistical analysis of this study showed that there was a faster reduction in blood pressure among hypertensive patients in the experimental group than control group. This study proved that abdominal breathing exercise would reduce the blood pressure in hypertensive patients by reducing the stress and anxiety level.

REFERENCE

1. Brunner and Suddarth. (2013). *Text book of Medical Surgical Nursing*. (8th edition). Philadelphia: Lippincott Company. Page no: 845-850
2. Carlos. (2013). Effect of Abdominal Breathing Exercise in Reduction of Stress among Hypertensive Patients : *International Journal of Cardiology*, 54(40): 32-36
3. Chacko.N.Joseph. (2015). Correlates, Awareness, Treatment and Control of Hypertension in a middle aged Urban Population in Kerala: *Indian Medical Journal of India*, 126(60): 135-140
4. Chanda Rajak, et al., (2013). Effect of Alternate Nostril Breathing on Cardio Respiratory Functions: *Nepal Medical College Journal*, 10(1): 25-27
5. Chin Yi Wu. (2014). Treatment of Hypertension with Abdominal Breathing Exercise: *International Journal of Cardiology*, 5(1): 32-35
6. Dutta, A& Ray, M.R. (2013). Effectiveness of Music Therapy in Reduction of Stress among Working Women's at Home setting, MSc Nursing Dissertation, Adithya College of Nursing, Bangalore. Submitted to Rajiv Gandhi University of Health Sciences, Karnataka.