

## CLINICAL EVALUATION OF THE EFFECT OF CERTAIN YOGIC PRACTICES ON HYPERTENSION

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### ABSTRACT

Hypertension is a chronic disorder, posing a major public health challenge worldwide. Even a mild case with very few symptoms lowers the life span and decreases the quality of life for remaining years. Effects of the majority of modern medicines are limited and long term use may cause serious side effects. Practice of Yoga could be a safe and effective non-pharmacological therapy for the management of Hypertension. In this clinical study 20 cases of control group were subjected to standard drug therapy and 20 cases of trial group were subjected to selected yogic practices along with standard drug therapy. They were followed up three times, at the interval of 15 days each. Out of 40 patients, 19 patients of control group and 19 patients of trial group were available for the assessment at the end of treatment. The selected yogic practices including asana and pranayama revealed significant additive effect along with standard drug therapy, on subjective symptoms and Systolic and Diastolic Blood Pressure.

**Keywords:** Hypertension, Asana, Pranayama, Non-pharmacological therapy

### INTRODUCTION

Hypertension is a disease of gradual insidious onset with no specific features to start with. It has a strong tendency to increase with advancing age, so the prevalence of hypertension also increases with age. Most patients with hypertension have no specific symptoms referable to their blood pressure elevation and identified only during the course of clinical examination. Its first diagnosis is made either during routine checkup or when it shows some features like occipital headache, easy fatigability, nephropathy, Cerebro-vascular disorder etc. Hypertension is also called as silent killer, as

it may not cause symptoms until it leads to complications.

World Health Organization from time to time advises for more researches new drug development programs including alternative medicine as treatment choice for vast majority of hypertensive patient's population. Yoga is ancient Indian paradigm for harmonizing the body-mind complex. Asana and pranayama, the important parts of yoga, improve physical, mental and spiritual health. For hypertensive patients, asana and pranayama are inexpensive, non-pharmacological techniques without any side effects and the patient can do it easily at

any stage of life, with little training. Regular observance of yogic practices may reduce the dose requirement of drugs or helps to withdraw the pharmacological therapies in the patients of hypertension. Taking into consideration the safety and efficacy of yogic practices, this study was done to observe the adjuvant effect of yoga on Hypertension.

### **OBJECTIVE OF STUDY**

The main objective of this study was to observe the effect of Yoga along with medicines on Hypertension, for better management.

### **MATERIAL AND METHODS**

This randomized clinical trial was conducted after ethical approval from institute committee. Total 40 patients of hypertension were selected from the OPD of Cardiology, and Swasthya Rakshana clinic, SSH, IMS and from free Yoga camp organized in the dept. of Swasthavritta and Yoga. Patients with different age group, gender, and socio-economic status were randomly selected, on the basis of following criteria:

#### **Inclusion criteria:**

- Patients of age between 20-65 years.
- Patient fulfilling the diagnostic criteria of Essential Hypertension

#### **Exclusion criteria:**

- Age <20 years and > 65 years.
- Patients of Sec. Hypertension, Ischemic Heart Disease, Myocardial Infarction, Cardiac Arrhythmias, Valvular Heart Disease, Diabetes Mellitus, Chronic Renal Failure, Nephritis or any other chronic systemic disorders.
- Substantial abnormalities in hematological, cardiovascular, renal, hepatic and metabolic functions.

**Plan of Study:** All registered cases were divided into two groups A and B (20 patients in each group). Patients of control group A were advised to take standard drug therapy and of group B were advised to practice selected asana and pranayama along with standard drug therapy. Standard drug therapy includes Amlodipine and Atenolol in different doses according to the severity of disease. Patients were reviewed up to three follow-ups at the interval of 15 days each. One patient from each group was dropped out before the completion of study.

**Yogic Practices Advised:** Patients were advised for yogic practices twice a day with empty stomach. Before the practice of Asana and pranayama they were advised to do preparatory practice of joint movements for 10 minutes.

#### **I) Asana**

Vajarasana = 15 minutes

Makarasana = 15 minutes

Shavasana = 15 minutes

Ekapada-Pawanamuktasana = 10 rounds with each leg

#### **II) Pranayama (without breath retention)**

Anuloma-viloma = 3 rounds of 20 inspirations and expirations

Bhramari = 3 rounds of 10 inspirations and expirations

#### **Assessment Criteria:**

The assessment of the effect of treatment was based on both subjective (clinical features) and objective (Systolic and Diastolic Blood Pressure) parameters. Subjective Assessment was completely based on grades depending on severity of symptoms told by patients. The collected data were tabulated and analyzed statistically. Intra-group comparison between the findings at the time of registration (BT) and at

final follow up (AT), and inter-group comparison between group A and B was done to find the significance.

**OBSERVATIONS AND RESULTS**

In this study group maximum numbers of cases i.e. 70% were in the age group of 41-60 yrs. The incidence was less in younger age group. Out of 40 patients of hypertension 62.5% were male, 70% belonged to urban area, and maximum inci-

dence (85%) was seen in people of middle socio-economic status. 57.5% cases were of mix dietary habits while 42.5% were vegetarian. Maximum patients (65%) were under stage I hypertension and rests were in the grade of Stage II hypertension. Habit of addiction was observed 19 (47.5%) cases, while non-addicts were 21 (52.5%).

**Assessment of Subjective Parameters:**

Symptom	Grading	Group A		Group B		t <sup>2</sup> value (Intragroup comparison between BT & AT)		t <sup>2</sup> value (Intergroup comparison between groups A & B)	
		BT (n=20)	AT (n=19)	BT (n=20)	AT (n=19)	Group A	Group B	BT	AT
Headache	0	03	07	03	17	20.98 P<0.001	23.99 p<0.001	$\chi^2 = 0$ P > 0.05	$\chi^2 = 9.16$ P < 0.001
	1	03	12	03	02				
	2	09	00	09	00				
	3	05	00	05	00				
Palpitation	0	00	04	01	16	28.69 P<0.001	32.23 P<0.001	$\chi^2 = 2.22$ P > 0.05	$\chi^2 = 15.60$ P < 0.001
	1	00	12	01	03				
	2	10	02	10	00				
	3	10	01	08	00				
Easy Fatigability	0	00	00	00	18	23.46 P<0.001	36.99 P<0.001	$\chi^2 = 1.29$ P > 0.05	$\chi^2 = 34.28$ P < 0.001
	1	00	13	01	01				
	2	11	06	12	00				
	3	09	00	07	00				
Irritability	0	00	00	02	18	19.74 P<0.001	31.79 P<0.001	$\chi^2 = 0.66$ P > 0.05	$\chi^2 = 34.29$ P < 0.001
	1	01	13	00	01				
	2	11	06	12	00				
	3	08	00	06	00				
Oedema	0	06	12	07	18	11.32 P<0.001	15.49 P<0.001	$\chi^2 = 0.14$ P > 0.05	$\chi^2 = 3.96$ P > 0.05
	1	05	07	05	01				
	2	08	00	07	00				
	3	01	00	01	00				
Vertigo	0	08	17	07	18	08.33 P<0.001	12.63 P<0.001	$\chi^2 = 1.10$ P > 0.05	$\chi^2 = 0$ P > 0.05
	1	12	02	13	01				

								P > 0.05	0.05
<b>Insomnia</b>	0 1	01 19	07 12	04 16	18 01	04.26 P<0.001	19.19 P<0.001	$\chi^2 = 0.91$ P > 0.05	$\chi^2 = 11.69$ P < 0.001

Above table shows that the effects of prescribed Yogic Practices along with prescribed medicine in group B were promising. On intra-group comparison (between BT and AT), the results were highly significant (p<0.001) for all subjective parameters in both groups A and B. In all symptoms before treatment, on inter-group comparison between group A and B there was no signif-

icant difference in both groups. On inter-group comparison after treatment we found highly significant results in terms of headache, palpitation, easy fatigability, irritability and insomnia. In case of oedema and vertigo the results were not significant. Thus, overall effect of treatment on symptoms was better in group B as compared to group A.

**Assessment of Objective Parameters:**

Variable	Group A		Group B		Intra-group comparison between BT & AT (paired t-test)		t-value (Intergroup comparison between groups A & B) (unpaired t-test)
	BT(n=20) Mean±SD	AT(n=19) Mean±SD	BT(n=20) Mean±SD	AT(n=19) Mean±SD	Group A Mean±SD	Group B Mean±SD	
<b>Systolic BP</b>	156.30 ± 9.60	143.50 ± 6.70	158.00 ± 8.36	125.00 ± 2.94	12.80 ± 4.74 t=12.07 p<0.001	33.00 ± 7.38 t=19.87 p<0.001	t=10.04 P<0.001
<b>Diastolic BP</b>	97.60 ± 9.72	88.90 ± 6.50	97.60 ± 5.79	82.20 ± 1.44	8.76 ± 4.22 t=4.22 p<0.001	15.40 ± 5.70 t=12.09 p<0.001	t=4.08 P<0.001

On Intra-group comparison (between BT and AT), the effects of therapy were significant with respect to systolic and diastolic blood pressure. These values were reduced significantly after therapeutic interventions in both groups. On inter-group comparison

between A and B the effect of therapy was found better in group B as compared to group A. These observations signify the additive effect of selected asana and pranayama to reduce hypertension. Hypertension, a major risk factor for various cardiovascular

disorders, could be controlled by regular practices of Yoga.

## **DISCUSSION**

Hypertension is a silent killer so early detection and prevention could minimize the morbidity and mortality. Incidences of pre-hypertension and mild hypertension are much greater which are largely beyond the records of statistics. In these grades of blood pressure relative incidence of death is more. Only an extensive simple routine checkup can detect the disease early which can simplify the therapeutic measures. Hypertensive people who receive appropriate counseling and comply with therapy usually are more or less normal in daily work and do not have more psychological distress than others. However, it is clear from the data obtained that the antihypertensive drugs are only able to reduce the elevated blood pressure, but not significantly arrest the course of pathogenesis or mortality.

Since anti-hypertensive drugs alone cannot control the disease, certain non-pharmacological therapies such as Yoga plays a great role in control of hypertension. Yoga, the ancient Indian science basically developed for mental and spiritual transformation and not as a therapy. However, it has been observed by recent studies that different yogic practices are beneficial for the treatment of various disorders. Yoga has preventive, curative and rehabilitative features which can be used as adjuvant therapy for treatment of hypertension. Some studies are available in the published literature on yoga therapy to prove the effect of yoga on hypertension. Datey et al. (1969) and Udupa & Singh et al. (1978) in their studies on hypertension reported encouraging results with yoga therapy. Reduction in blood pressure

was found associated with decrease in catecholamines level in blood. Yogic practices raised the arousability of cerebral cortex and help in sending decreased impulses to the hypothalamus, which in turn decreases the sympathetic tone, reducing the peripheral resistance and ultimate reduction in blood pressure.

In this study patients of Group B were subjected to regular practices of selected asana and pranayama. These asana are steady and comfortable postures designed to relax and strengthen the body and mind. The intensity of emotional state associated with our external and internal experiences is reduced. Our brain become less responsive to stress factors and thus helps to control the hypertension. Prana is the vital force of our body, pranayama are the group of techniques to stimulate or balance the vital energy. Regular practices of pranayama decrease the sympathetic arousal and relax the mind, so effective in hypertension. Yoga rebalances the nadis through systematic application of asana and pranayama. Asana stretch and unlock the nadis and allow the flow of prana to go on unimpeded. Pranayama remove blockage, circulate prana, clean impurities from the body and extend vitality into the tissues and brain. All these practices work on body and mind to balance blood pressure.

## **CONCLUSION**

Results of this study prove that selected yogasana and pranayama have definite additive effect with the standard drug therapy in the treatment of hypertension on both subjective and objective parameters. Yogic practices are non-pharmacological measures with proved efficacy and safety, cost of therapy is nil and patient can practice them at home easily with a little training. So

they should be incorporated in the daily routine of hypertensive cases.

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