

Original article:

Effect of yoga asanas as an adjuvant measure in known hypertensive patients receiving antihypertensives

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Abstract

Objective: To determine the wellbeing of mild to moderate hypertensive patients by using wellbeing assessment scale and to determine the efficacy of adjuvant yoga therapy on the degree of control of hypertension

Methods : Patients(n=60) with mild to moderate hypertension of \leq 3 years duration on monotherapy or dual therapy,(either Amlodipine, Atenolol, Enalapril & Combination of amlo+aten, amlo+envas, aten+envas) and previously not exposed to yoga therapy & age between 30-60 years are recruited and randomly allocated into two groups after informed consent.

Study group(n=30): yoga therapy is given along with antihypertensive therapy

Control group(n=30): they are given only antihypertensive therapy blood pressure control , weight, waist circumference and Wellbeing assessment (done by questionnaire) are done for both the groups at the beginning of study and every fortnight thereafter.

Results: In the study group body weight mean reduced from a baseline of 65.83 to 63.73, waist circumference decreased from 94.76 to 91.10, well being score reduced from 10.03 to 6.03.Systolic BP mean reduced from 162.53 to 131.10 and Diastolic BP mean reduced from 102 to 89.93 which are statistically highly significant.In the control group body weight mean reduced from a baseline of 66.85 to 64.85, waist circumference decreased from 97.06 to 95.06, well being score reduced from 10.03 to 9.46.Systolic BP mean reduced from 162.53 to 153.66 and Diastolic BP mean reduced from 101.10 to 96.66 which are statistically highly significant.

Conclusion: Adjuvant yoga therapy offers effective control of BP by offering weight reduction and improvement in well being which indirectly caused adequate control of BP.

Keywords: yoga, antihypertensives, well being,

Introduction

Hypertension is the most common medical disorder affecting more than one billion people throughout the world. It is the major contributor of stroke, ischemic heart disease, heart failure, renal dysfunction and blindness.¹ It is directly responsible for 57% of all stroke deaths & 24% of all coronary heart disease in India.²

Hypertension is a lifelong condition that is usually treated by antihypertensives, but distressing side effects of drugs, poor control of hypertension, hypertension induced complications often leading to non adherence of therapy³. Hence polymodal approach of controlling BP in the initial few years of onset, preventing associated complications, mortality is the need of the hour. Yoga and meditation are relaxation techniques which are non invasive, easy to

practice, cost effective interventions which do not have any appreciable side effects or symptoms⁴. Adjuvant yoga with meditation bring down psychological stress & give wellbeing (subjectively experienced by the patient) and can ensure adequate control of blood pressure, drug compliance & improved quality of life.⁵

An ideal health package should include counseling, nutrition, physical exercise, meditation & prayer for the promotion of positive mind set and create a feeling of wellbeing .⁶ yoga therapy as an adjuvant is considered needed because of the balance created in the neurons and the endocrine system which directly influences all other systems and organs of the body.

AIM

To study the beneficial effect of adjuvant Yoga in mild to moderate hypertensives.

Objective

- 1.To determine the wellbeing of mild to moderate hypertensive patients by using wellbeing assessment scale
- 2.To determine the efficacy of adjuvant yoga therapy on the degree of control of hypertension

Methods

This study was a Prospective, Randomized, Comparative, Open labelled, Case Control Study conducted in Out Patients attending hypertension clinic & yoga clinic.

The study was started after obtaining approval from Institutional Ethics Committee. Written informed consent in regional language obtained from patients, willing to participate in the study.

Patients who are already practising yoga, Patients who are not willing to do yoga, who are not able to do yoga & Patients with associated co-morbid medical conditions were excluded from the study

Mild to moderate hypertensive (systolic BP-140-179mmHg, diastolic BP- 90-109mmHg) patients with less than 3 years of onset and treatment on single or dual antihypertensives (amlodipine 5 mg od, atenolol 25 mg od, enalapril 2.5 mg od, amlo 5mg+aten 25mg, amlo 5mg+ envas 2.5 mg, aten 25mg+ envas 2.5 mg.) as decided by the physician. Randomization done by , patients attending Hypertension OP on Mondays, Wednesdays & Fridays are enrolled in Study group, Patients attending Hypertension OP on Tuesdays, Thursdays & Saturdays are enrolled in Control group
Study group(n=30): yoga therapy is given along with antihypertensives

Control group(n=30): they are given standard antihypertensives

The two groups were assessed for continuous 3 months after enrollment for the study. The required sample size of 60 patients were reached by 6 months of time.

Yoga therapy is provided to the study group at the first visit for one hour and he is trained to do the same for one week under supervision by yoga therapist. Once patient is trained & confident he is advised to do the same daily at home for one hour.

Degree of Blood pressure control , weight, waist circumference and Wellbeing assessment (done by questionnaire) are done for both the groups at the beginning of study and every fortnight thereafter.

Warwick Edinburgh mental wellbeing score⁷

s.no	parameters	Scoring scale			
		0	1	2	3
1	Feeling unwell/ in need of rest/ tonic/ health drink				
2	Aches and pains/ feeling stressed/ insomnia				
3	Feeling bad tempered- not at all/ occational/ frequent / always				
4	Feeling not energetic/ not confident/ not relaxed				
5	Feeling not interested in new things/ not able to deal with problems				

Score : 0-5- mildly affected, 6-10 moderately affected, 11-15 severely affected.

The study group patients were counseled by yoga consultant regarding diet & life style modifications and the required adjuvant yoga therapy. The yoga therapist educated and supervised the yoga postures, mudras, breathing exercises & meditation. Patients advised to practice these measures daily, the well being assessed during follow up.

The study group were trained with four types of yoga asanas.

- 1.Chandranadi,
- 2.Savasana,
- 3.Tadasana,
- 4.Bhujangasana

Yoga therapy as an adjuvant is considered needed because of the balance created in the neurons and the endocrine system which directly influences all other systems and organs of the body.

Yoga stretches keeps muscles flexible and pliant, may also help keep the arteries pliable and thereby lowering BP naturally. Lowers stress by reduction in stress hormones and by inducing deep relaxation of the body associated with reduction in nervous system activity and feeling of well being due to increase in antioxidants and reduction in cortisol level.¹²

Results

Table-1a

Paired Samples Test -control group Antihypertensives without yoga									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
BW0 - BW3		2.1000	1.6421	.2998	1.4868	2.7132	7.004	29	.000
WC0 - WC3		3.667	1.516	.277	3.101	4.233	13.246	29	.000
SH0 - SH3		23.433	14.168	2.587	18.143	28.724	9.059	29	.000
DH0 - DH3		12.067	5.514	1.007	10.008	14.126	11.985	29	.000

Table-1b

Paired Samples Test- study group Antihypertensives with yoga									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
BW0 - BW3	2.0000	1.4444	.2637	1.4607	2.5393	7.584	29	.000	
WC0 - WC3	3.200	1.648	.301	2.584	3.816	10.633	29	.000	
SH0 - SH3	8.867	7.583	1.384	6.035	11.698	6.405	29	.000	
DH0 - DH3	4.433	3.170	.579	3.250	5.617	7.661	29	.000	

Table-1c

Well being score control group, Chi-Square Tests-

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	43.750 ^a	30	.050
Likelihood Ratio	41.491	30	.079
Linear-by-Linear Association	10.413	1	.001
N of Valid Cases	30		

a. 42 cells (100.0%) have expected count less than 5. The minimum expected count is .07.

Table-1d

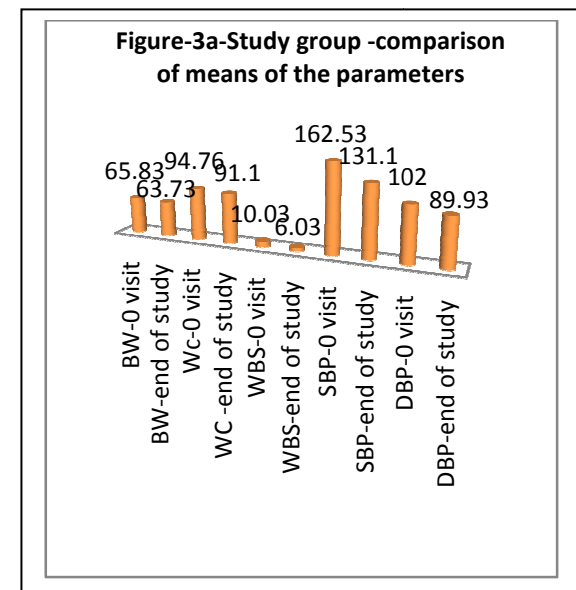
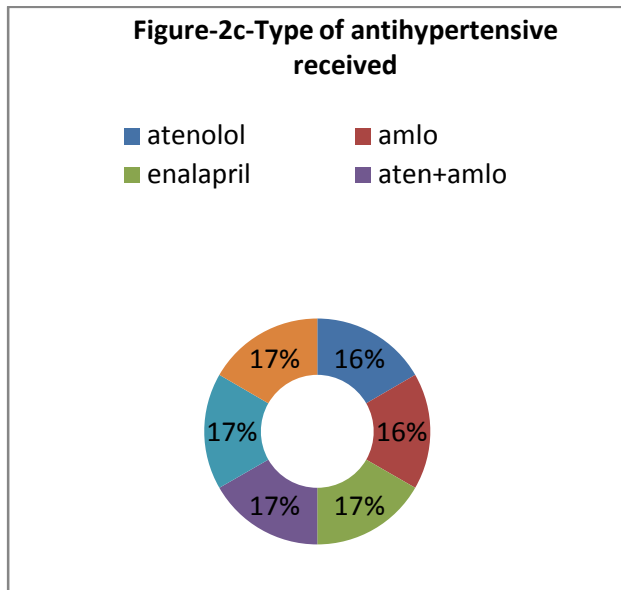
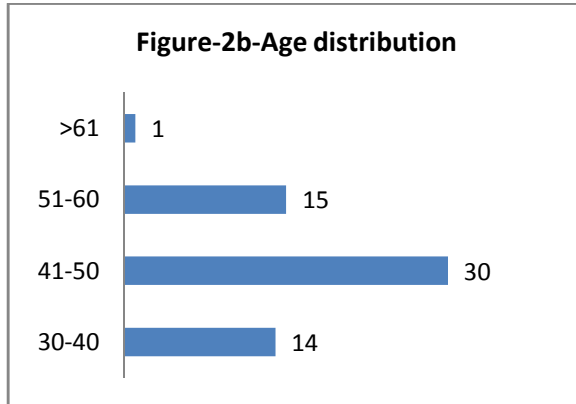
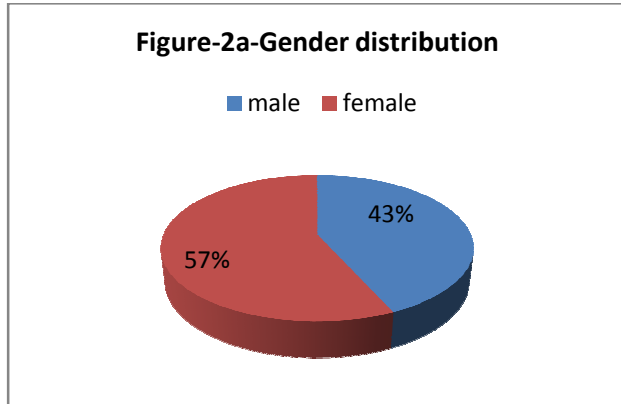
Chi-Square Test- Study group					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.055 ^a	1	.002		
Continuity Correction ^b	7.717	1	.005		
Likelihood Ratio	13.566	1	.000		
Fisher's Exact Test				.002	.001
Linear-by-Linear Association	9.720	1	.002		
N of Valid Cases	30				
a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.03.					

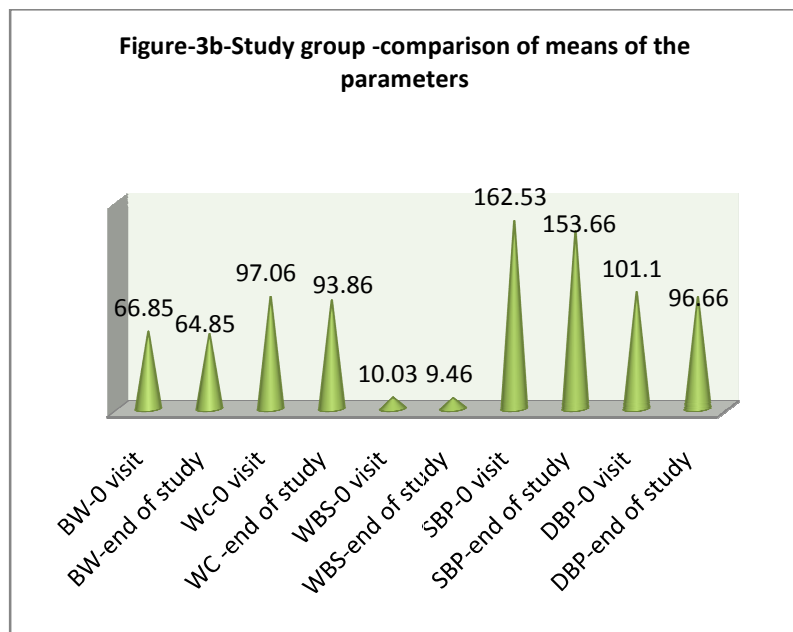
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Discussion

A recent meta-analysis was conducted of 17 randomized and nonrandomized trials of yoga and hypertension. Results showed that yoga had a modest effect on both SBP [-4.17 mm Hg] and DBP [- 3.26 mm Hg]. There was substantial heterogeneity present across the included studies.

The effects of yoga on BP varied by the type of yoga intervention and by comparison group but not by duration of yoga practice.

The analysis was restricted to studies using interventions incorporating three elements of yoga practice [postures, meditation and breathing] larger reductions of SBP and DBP [-8.17 mmHg and-6.14 mmHg] were observed. Yoga was also associated with a significant decline in SBP and DBP [-7.96 mm Hg and -5.52 mm Hg] relative to no treatment but not

when compared to exercise or other intervention types [27].

Limitations

Patients received three different monotherapy and three different dual drug combination for their hypertension. BMI would have been better index than initial body wt to reflect the real benefits as the initial body wt varied between 52kg to 82kg. efficacy each drug with a sample size of 30 would have been a valid intervention.

Conclusion

Compared to mono or dual drug therapy for hypertension, adjuvant yoga therapy offers effective control of BP by offering weight reduction and improvement in well being which indirectly caused adequate control of BP.

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