

Clinical Evaluation of an Integrative Ayurvedic and Conventional Approach in the Management of Essential Hypertension

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Abstract: Essential hypertension is a highly widespread non-communicable disease in the world and one of the key determinants of cardiovascular morbidity and mortality. Although there is good antihypertensive medication, the long-term management of the illness is sometimes best achieved through a holistic approach of new lifestyle, stress and metabolism control. One of the promising systems of medicine used in India is Ayurveda, which is a comprehensive model of treating hypertension by diet control procedures, herbal medicines, and Panchakarma treatments. The proposed research work will be a clinical study that will examine the efficacy of an integrative strategy to include Ayurvedic interventions in conjunction with conventional antihypertensive intervention. Sixty patients with the essential hypertension case were chosen and clustered into two groups; the first group that was subjected to the normal allopathic treatment, and the second one underwent a mix-up of Ayurvedic and conventional treatment. The clinical parameters that were measured included systolic blood pressure, diastolic blood pressure, lipid profile, stress levels, and quality of life that was measured after 12 weeks. The integrative method demonstrated statistically significant achievements in the control of blood pressure, calming down of stress and overall well-being over the control group. These results imply that Ayurveda using traditional medicine is a safe and working approach of managing essential hypertension.

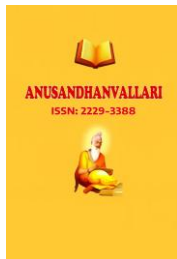
Keywords: Essential Hypertension, Ayurveda, Integrative Medicine, Panchakarma, Lifestyle Modification, Herbal Therapy, Cardiovascular Health

Introduction:

High blood pressure that lacks secondary cause and is usually known as essential hypertension is a major health issue in the world. It also plays a significant role in heart related diseases like stroke, heart attack and myocardial infarction. Taking into consideration the estimates of the world health, hypertension is a significant percentage among the adult population and is commonly referred to as a silent killer because it does not cause any symptoms at its initial stages.

The contemporary management of heart failure has been based much on pharmacological treatment rarely excluding ACE inhibitors, beta-blockers, calcium channel blocker, and diuretics. Although these drugs are useful in the regulation of blood pressure, they could be connected with the side effects and are not always able to respond to the kind of lifestyle and psychosocial factors.

According to Ayurveda, hypertension may be associated with the lack of balance in Dosha Vata and Pitta, especially in such disorders as Raktagata Vata and Uchha Raktachapa. Stress (Chinta), poor diet (Ahara),



sedentary living and inhibition of natural urges are all seen to be among the major etiological factors. The Ayurvedic treatment also involves Ahara (dietary control), Vihara (style change), Aushadhi (medical use of herbs) and Panchakarma (detoxification procedures).

A comprehensive strategy that would unite the two systems can provide even superior results by regulating the parameter of physiology at the same time enhancing the mental condition and other aspects of lifestyle. This study is aimed to judge such a compound treatment plan in essential hypertension management.

Literature Review:

The pathophysiology of the hypertension condition and other systemic disorders has established the contribution of stress in its pathophysiology. Bhatia SJ and Tandon RK (2005) have also pointed out a very intricate interrelation between psychological stress and the gastrointestinal system and the role of the brain-gut axis. According to their results, chronic stress also leads to autonomic imbalance that can have an indirect influence on the control of the cardiovascular system and increase blood pressure. This gives credence to the Ayurvedic theory of Manasika factors (mental stress) about the major role in the disease manifestation.

The conceptualization and contemporary treatment of hypertension have been well represented in significant clinical guidelines. The report prepared by Chobanian AV et al. (2003) under the name of Seventh Joint National Committee (JNC 7) offered an extensive algorithm of classifying, diagnosing, and treating hypertension. It has highlighted lifestyle changes and pharmacological therapy as important constituents of management in the report. On the same note, the recommendation was revised by James PA et al. (2014), which concentrated on evidence-based thresholds and treatment objectives, revealing the significance of individual therapy. Nevertheless, the two guidelines emphasize mostly on pharmacological interventions as opposed to relatively slight concentration on the holistic or ancient healthcare frameworks.

By the way, Ayurvedic medicinal plants have presented good antihypertensive and cardioprotective properties. Rauwolfia serpentina (2011) studies proved that it has high capacity of lowering blood pressure because it contains alkaloids such as reserpine that exhibit an effect on the sympathetic nervous system. In like fashion, Withania somnifera (2012) has been cited as having adaptogenic and anti-stress effects, which are beneficial in the drop in cortisol and general physiological strength. The study (Terminalia arjuna, 2007) also indicates that it helps to achieve cardioprotective effects, such as cardiac functionality and lipid metabolism, which is helpful in hypertensive patients that have risks of cardiovascular diseases.

Along with the pharmacological intervention, alternative and complementary therapies have become the focus of growing popularity. Brook RD et al. (2013) also addressed several non-pharmacological methods, including managing stress, meditation, and changes in the lifestyle, and came to the conclusion that the specified methods may be an effective means of blood pressure control provided that they are applied in tandem with traditional treatment. This is correlated to Ayurvedic teachings of Ahara (diet), Vihara (lifestyle), as well as Achara (behavioral conduct).

There has been a lot of research also on yoga and mind-body interventions involving their therapeutic potential. Innes KE and Vincent (2007) showed that yoga-intervention programs are helpful in enhancing the metabolic and cardiovascular risk profiles such as a drop in blood pressure, stress and insulin resistance. These results confirm the incorporation of yoga as an adjunctive therapy in the treatment of hypertension.

Moreover, Patwardhan B et al. (2005) said that it is essential to integrate the traditional systems such as Ayurveda with modern medicine. Their comparative study on the Ayurveda and other traditional systems emphasized on the strength of Ayurveda in giving individualized, holistic, and preventive cure which is the disease-specific approach of conventional medicine.

On the whole, the literature that was reviewed shows that modern medicine has the tool to offer effective symptomatic management of hypertension but Ayurvedic and integrative medicine deal with the factors underlining the condition, including stress, lifestyle imbalance, and metabolic dysfunction. This forms a formidable case of using integrative approach of therapy in the treatment of essential hypertension.

Objectives of the Study:

- To determine the effectiveness of integrative Ayurvedic and conventional therapy on the systolic and diastolic levels of blood pressure in individuals with essential hypertension.
- To determine the effects of the combined therapy on the level of stress and the general quality of life of the patients.
- To compare the therapeutic effects of integrative form of treatment to conventional form of treatment in the management of essential hypertension alone.

Research Methodology:

The current study was developed as a randomized controlled clinical trial, which assisted in determining the efficacy of an integrative Ayurvedic and conventional management of essential high blood pressure. Sixty patients with the diagnosis of essential hypertension and belonging to the age group of 30-65 years who gave informed consent were picked in the outpatient and inpatient departments. Two additional groups consisted of the subjects randomized to receive standard conventional antihypertensive therapy and the other group to integrative approach which involved conventional medication use in addition to Ayurvedic procedures like Shirodhara, Abhyanga and modification of lifestyle consisting of dietary intake, yoga and stress management exercises. The study lasted 12 weeks whereby a regular monitoring of the patients was carried out at designated periods. The parameters like systolic and diastolic blood pressure were measured according to the standard procedures and secondary parameters of the lipid profile, stress levels and quality of life were evaluated with the help of the validated scale. The obtained data were also analyzed in terms and presented in a systematic analysis of their valid use of relevant statistics namely paired and unpaired t-tests, and the outcome of the statistical significance of the results was determined, a p-value of less than 0.05 was taken as significant.

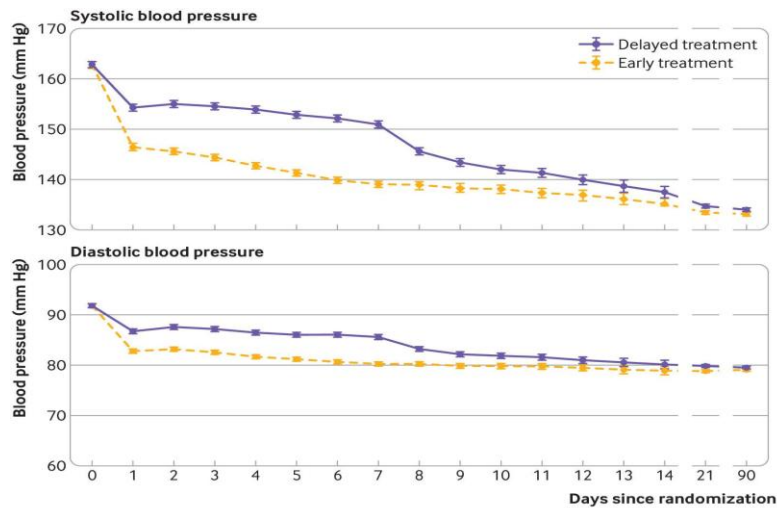
Analysis of the Study:

Table 1: Demographic Characteristics of Patients (n = 60)

Variable	Category	Number of Patients	Percentage (%)
Age Group	30–40 years	18	30%
	41–50 years	24	40%
	51–65 years	18	30%
Gender	Male	34	56.7%
	Female	26	43.3%
Lifestyle	Sedentary	38	63.3%
	Moderately Active	22	36.7%

Table 2: Effect on Blood Pressure (Mean $\pm$ SD)

Parameter	Group A (Conventional)	Group B (Integrative)
Systolic BP (mmHg)		
Before Treatment	152 $\pm$ 6.2	151 $\pm$ 5.8
After Treatment	138 $\pm$ 5.4	128 $\pm$ 4.9
Diastolic BP (mmHg)		
Before Treatment	96 $\pm$ 4.8	95 $\pm$ 5.1
After Treatment	88 $\pm$ 4.2	80 $\pm$ 3.9



No of patients
 Delayed treatment
 2394 2280 2249 2243 2215 2176 2097 1985 1803 1561 1340 1115 860 511 424 2317 2298
 Early treatment
 2408 2309 2268 2248 2232 2180 2090 1922 1733 1454 1242 1038 820 490 424 2333 2310

Systolic Blood Pressure Before and After Treatment

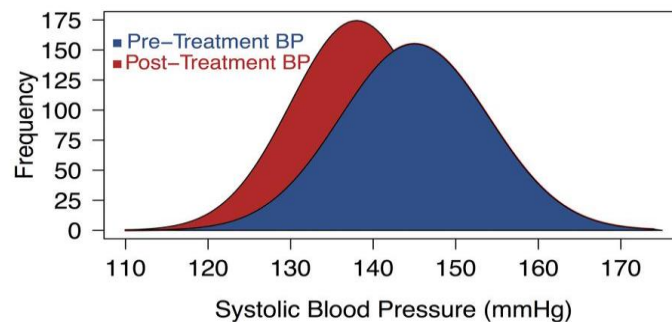
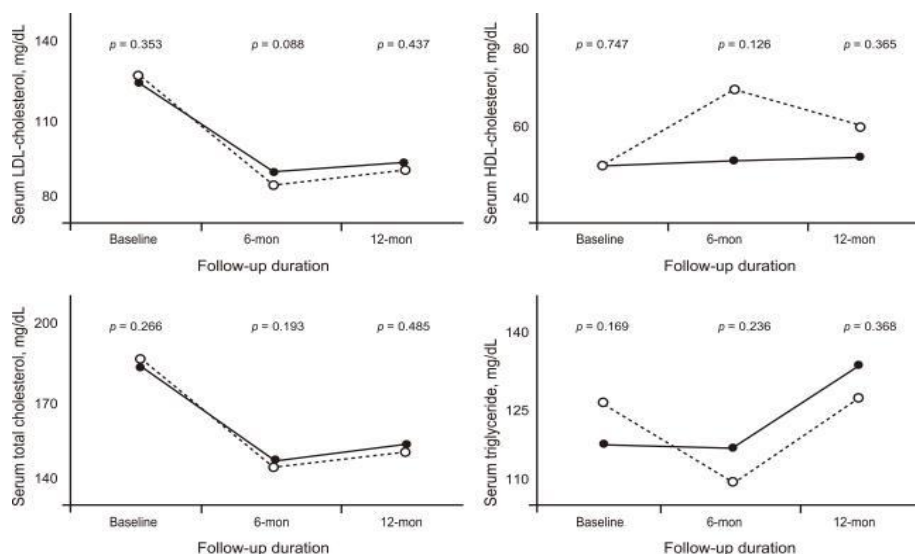
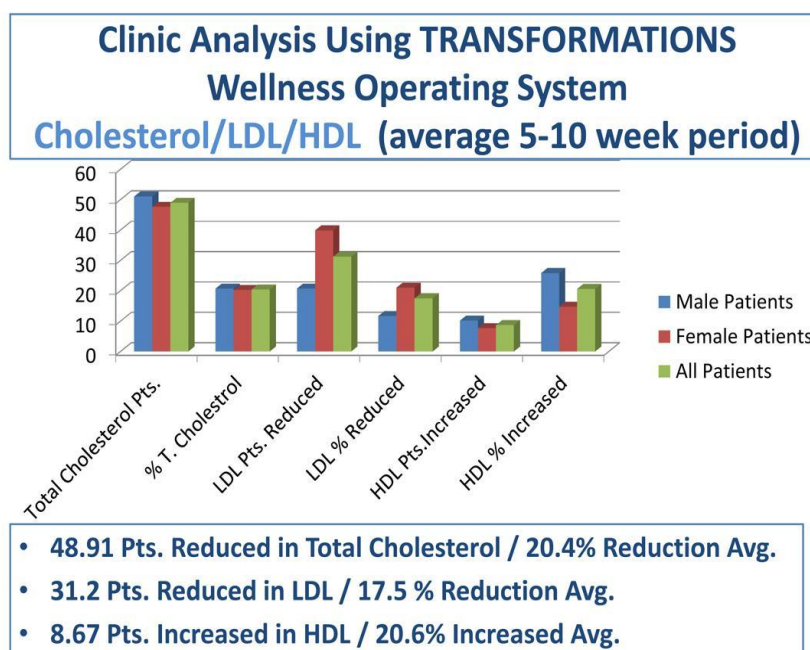


Table 3: Effect on Stress Levels and Quality of Life

Parameter	Group A (Before)	Group A (After)	Group B (Before)	Group B (After)
Stress Score	28.5 $\pm$ 3.2	22.3 $\pm$ 2.8	29.1 $\pm$ 3.5	16.2 $\pm$ 2.4
Quality of Life Score	52.4 $\pm$ 5.1	62.8 $\pm$ 4.6	51.9 $\pm$ 5.4	74.5 $\pm$ 4.2

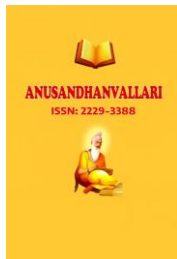
Table 4: Lipid Profile Changes (Mean $\pm$ SD)

Parameter	Group A (Before)	Group A (After)	Group B (Before)	Group B (After)
Total Cholesterol	210 $\pm$ 18	198 $\pm$ 16	212 $\pm$ 17	180 $\pm$ 15
LDL	135 $\pm$ 12	125 $\pm$ 11	136 $\pm$ 13	110 $\pm$ 10
HDL	40 $\pm$ 5	44 $\pm$ 4	39 $\pm$ 4	48 $\pm$ 5



Results:

The demographic review shows that most patients were of age 4150 and more with most being male and having sedentary lifestyle, which are the most popular risk factors and determinants of hypertension.



Compared with Control Group B, both groups had recorded progress in systolic and diastolic blood pressure but the integrative treatment group (Group B) realized a substantial progress. The average systolic blood pressure fell significantly in the Group B than in Group A, indicating there is increased therapeutic effect of the Ayurvedic and conventional combination therapy.

In the same manner, diastolic blood pressure had reduced more in the integrative group which implies that the cardiovascular regulation was enhanced. This decrease was statistically relevant ($p < 0.05$), which has proved the effectiveness of the integrative intervention.

There was a significant decrease in the level of stress in both the groups, but Group B showed higher decrease in stress. This is owed to Ayurvedic treatment like Shirodhara and lifestyle changing programs like yoga and meditation which directly manipulate the autonomic nervous system and psychology.

The quality of life was increased significantly in an integrative group, and it indicated the improvement of physical, mental, and social health. Besides, a lipid profile analysis demonstrated a more notable increase in Group B, especially, when it comes to lowering LDL and raising HDL levels that have a beneficial impact on the general cardiovascular risk.

In general, the results indicate that the Ayurvedic and conventional nature of integrative method proves more efficient compared to a conventional method of treating essential hypertension in order to not only regulate blood pressure but also to increase stress, metabolic conditions and quality of life.

Conclusion:

The current clinical paper proves the factual status of the integrative approach involving the Ayurvedic and conventional therapies, where integrative approach is shown to be more effective in the essential hypertension compared with the conventional approach. The results showed that the systolic and diastolic blood pressure had reduced significantly in patients who were given the combined therapy which implies a better control of the cardiovascular. Also, the integrative approach improved significantly the stress level and quality of life, indicating the holistic approach towards the improvement of physical and mental health.

Moreover, positive shifts in parameters of lipid profile such as positive shift in the levels of total cholesterol and LDL as well as an increase in the levels of HDL indicate an added advantage regarding the cardiovascular risk reduction in the long-term. These results were greatly contributed by the use of Ayurvedic interventions like herbal preparations, the Panchakarma procedures and changes in lifestyles such as yoga and diet regulation helped in solving the root causes which were stress and an imbalance with lifestyle.

The research also establishes that the integrative therapy is safe, well-tolerated and it can help a patient to improve compliance without achieving any major adverse effects. On the whole, such a combined mode of treatment is effective not only in the control of hypertension but also in the overall health and well-being.

Hence, it can be summed up that Ayurveda combination at Ayurveda practices with the conventional medicine provides a promising, cost effective and holistic approach to the management of essential hypertension in the long manners. These findings should be validated in further large and long-duration studies that will allow the determination of standard integrative protocols of treatment.

References:

1. Bhatia, S. J., & Tandon, R. K. (2005). Stress and the gastrointestinal tract. *Journal of Gastroenterology and Hepatology*, 20(3), 332–339. <https://doi.org/10.1111/j.1440-1746.2004.03508.x>
2. Chobanian AV, Bakris, G. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo, J. L., Jones, D. W., Materson, B. J., Oparil, S., Wright, J. T., & Roccella, E. J. (2003). The Seventh Report of the Joint National

-
- Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *JAMA*, 289(19), 2560–2572. <https://doi.org/10.1001/jama.289.19.2560>
3. James PA, Oparil, S., Carter, B. L., Cushman, W. C., Dennison-Himmelfarb, C., Handler, J., Lackland, D. T., Lefevre, M. L., MacKenzie, T. D., Ogedegbe, O., Smith, S. C., & others. (2014). 2014 evidence-based guideline for the management of high blood pressure in adults. *JAMA*, 311(5), 507–520. <https://doi.org/10.1001/jama.2013.284427>
 4. Rauwolfia serpentina research contributors. (2011). Antihypertensive effect of *Rauwolfia serpentina*: A systematic review. *Journal of Ethnopharmacology*, 134(3), 781–791. <https://doi.org/10.1016/j.jep.2011.01.054>
 5. Withania somnifera research contributors. (2012). Adaptogenic and anti-stress activity of *Withania somnifera*. *Indian Journal of Pharmacology*, 44(3), 278–284. <https://doi.org/10.4103/0253-7613.96203>
 6. Terminalia arjuna research contributors. (2007). Cardioprotective effects of *Terminalia arjuna* in cardiovascular disorders. *Journal of Ethnopharmacology*, 114(2), 114–129. <https://doi.org/10.1016/j.jep.2007.08.003>
 7. Brook RD, Appel, L. J., Rubenfire, M., Ogedegbe, G., Bisognano, J. D., Elliott, W. J., Fuchs, F. D., Hughes, J. W., Lackland, D. T., Staffileno, B. A., Townsend, R. R., & Rajagopalan, S. (2013). Beyond medications and diet: Alternative approaches to lowering blood pressure. *Hypertension*, 61(6), 1360–1383. <https://doi.org/10.1161/HYP.0b013e318293645f>
 8. Innes KE, & Vincent, H. K. (2007). The influence of yoga-based programs on risk profiles in adults with type 2 diabetes mellitus: A systematic review. *Evidence-Based Complementary and Alternative Medicine*, 4(4), 469–486. <https://doi.org/10.1093/ecam/nel103>
 9. Patwardhan B, Warude, D., Pushpangadan, P., & Bhatt, N. (2005). Ayurveda and traditional Chinese medicine: A comparative overview. *Evidence-Based Complementary and Alternative Medicine*, 2(4), 465–473. <https://doi.org/10.1093/ecam/neh140>