



## EFFECT OF A SELF FORMULATED AYURVEDIC FORMULATION IN ESSENTIAL HYPERTENSION

### Ayurveda

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### ABSTRACT

Hypertension has become a Global Health problem. Many people suffer from this worldwide. But only a few are aware of this deadly disease and its consequences. Those who are aware of their high blood pressure don't take medicines regularly because of many side effects caused by various Anti-hypertensive drugs. *Ayurveda* has a different vision in understanding the pathogenesis of a disease in terms of *Nidana, Dosha, Dushya, Srotasa* involved etc. The present study was carried out on 30 patients with an objective to find an alternative, reliable, safe and cost effective *Ayurvedic* treatment for Hypertension. Patients were subjected through an *Ayurvedic* formulation prepared in the form of *Vati*. The treatment shows excellent improvement in 28.57% patients, marked improvement in 57.14% patients and mild improvement in 3.57% patients. The ingredients used in *Vati* mainly have *Hridaya, Medhya, Mutrala, Vata Anulomaka, Nidrajanana* and *Raktadaba-shamaka* effect. Almost all the drugs have *Tridosahara* properties. The preparation mainly has *Tikta Kashaya Pradhana Rasa, Laghu, Snighda Guna, Sheeta Virya, Katu Vipaka* which helps in management of Hypertension.

### KEYWORDS

Hypertension, Silent killer, Essential Hypertension.

### INTRODUCTION

Now a day, Hypertension is emerging as the most important risk factor for chronic disease burden in India. Various studies have shown a very high prevalence in various parts of India. The studies also reported low awareness and control regarding high blood pressure and its side effects. In India nearby 207 million people were found to be affected among which 112 million were men and 95 million were women. It is also found that Indian states with greater urbanization, human development and social development have more Hypertension. Because of this, India is declared as "Nation of Hypertension".

National data shows that 5-10% of Indians have Diabetes, 25-30% chew or smoke tobacco and 20-30% have high cholesterol. Consumption of vegetables and fruits is low and western junk food and soft drinks have become increasingly popular. Initially, a little rise in pressure usually does not cause any symptom. But a very high blood pressure can cause various symptoms like headache, blurred vision, nose bleeds, difficulty breathing, chest pain, irregular heart beat and confusion etc. If these are ignored then they will result in damage to various organs like heart, Kidney, liver, Eyes etc resulting in various serious health problems.

In this world of competition, stress has become a prevalent part of people's life. Increase in stress leads to repeated elevation in blood pressure. Therefore, the role of stress is of increasing relevance and importance. So, to combat this, an *Ayurvedic* formulation is prepared with the drugs having properties like *Medhya, Hridaya, Vata Anulomaka, Nidrajanana* etc. The overall effect of the preparation is supposed that it helps in relieving stress and keeps the mind calm and thus helps in controlling blood pressure.

### MATERIAL AND METHODS

30 Patients of Essential Hypertension were selected from the O.P.D. / I.P.D. department of Kayachikitsa, Rishikul Campus, Haridwar.

**Ethical clearance-** The research has been approved by the Institutional Ethical Committee. Written consent was taken from all the subjects before the trial and study was in accordance with ICH GCP Guidelines with letter number 271/P.G./U.A.U/2017-18 dated 05-05-17.

### STUDY DESIGN:

- Selection of Drug:** Self formulated *Ayurvedic* formulation in the form of *Vati*
- Dose of Drug:** 2 tablet each of 250mg twice daily.
- Type of Study:** Single Blind
- Duration of Study:** 90 days

- Assessment:** Done at interval of 15 days.

### PREPARATION OF DRUG:

All the raw drugs were obtained, from a renowned crude drug supplier from (Hans Pharmacy, Prem Nagar Ashram) Haridwar, were identified & authenticated by the department of *Dravyaguna*, Rishikul campus, Uttarakhand Ayurved University, Haridwar. The drugs *Jatamansi, Arjuna, Gokshura, Mandukaparni* were taken in equal amount while *Sarpagandha* is taken one-fourth and *Tagara* is taken one-half. All the raw drugs were cleaned thoroughly with water and dried under sun to remove the moisture and later grinded to fine powder. After that drugs were grinded to *Yavkut* (coarse) *Churna*, and mixed with 8 part of water. The mixture was boiled till the proportion is reduced to one fourth of the principle quantity. This decoction was taken and *Bhawana* (by *Swarasa* of each *Dravya* taken) was given for 3 times to the above prepared fine powder. The whole mixture was modified into tablet weighing 250mg each by using Gum acacia as binding material. The tablets were packed in sterile polythene covers containing 60 tablets approximately each.

### INCLUSION CRITERIA:

Patients of age 30 to 60 years and having Systolic Blood Pressure >140 mmHg and Diastolic Blood Pressure >90 mmHg were taken for the study.

### INVESTIGATIONS:

The following investigations were conducted to exclude other pathologies as well as to assess the condition of the patient.

Hb%, TLC, DLC, ESR, Fasting Blood Sugar, Lipid profile, S. Creatinine, Blood urea, S. Uric Acid, SGOT, SGPT, Urine – Routine & Microscopic

These investigations were done in all the patients before and after completion of treatment.

### PATHYA APATHYA:

All the patients in the trial were advised to reduce salt intake in their diet, to avoid fatty and fried foods and to include more vegetables and fruits in their diet. They were also advised to stop addictions like smoking, alcohol if any and to do meditation for 30 minutes daily. The patients were given Diet Chart and also advised to follow DASH Diet i.e. Dietary Approach to Stop HTN. If patient was under any drug therapy then he/she was advised to slowly taper off the dose and finally stop the drug 1 week before starting the trial.

**ASSESSMENT OF RESULT:**

Effects of the therapies were compared before and after the treatment on the basis of self-formulated scoring scales based on subjective and objective parameters associated with the disease.

**PARAMETERS OF ASSESSMENT**

**Subjective Parameters:**

1. *Shiroruja* (Headache)
2. *Hridhrava* (Palpitation)
3. *Klama* (Fatigue)
4. *Bhrama* (Vertigo)
5. *Akshiraga* (Redness of eyes)
6. *Krodhprachuryta* (Irritability/anger)
7. *Alpanidra / Anidra* (Reduced sleep)

**Objective Parameters:**

1. **Systolic Blood Pressure**
2. **Diastolic Blood pressure**
3. **Pulse rate**
4. **Pulse Pressure**
5. **Mean Arterial Pressure**

**STATISTICAL ANALYSIS**

**Wilcoxon Signed Rank Test** was applied on the subjective parameter and **Paired t-test** was applied on Objective parameters.

Thus the obtained results were interpreted as:

P > 0.05 Not Significant

P < 0.01 & < 0.05

P < 0.001 highly significant

**OBSERVATIONS AND RESULT**

**Table 1: Effect Of Treatment On Subjective Parameters**

Subjective parameter	Median		Wilcoxon Signed Rank W	P- Value	% Effect	Result
	BT	AT				
1. Shiroruja (Headache)	3	1	231	<0.001	76.78%	HS
2. Hridadrava (Palpitation)	2	1	91	<0.001	60.71%	HS
3. Klama (Fatigue)	2	1	45	<0.01	42.8%	Sig.
4. Bhrama (Giddiness)	2	0.5	105	<0.001	74.07%	HS
5. Akshiraga (Redness of eyes)	1.5	0	10	>0.05	66.66%	NS
6. Krodha Prachuryta (Irritability)	2	1	92	<0.001	60.71%	HS
7. Alpanidra / Anidra (Reduced sleep)	2	0	105	<0.001	81.25%	HS

**TABLE 2: EFFECT OF TREATMENT ON OBJECTIVE PARAMETERS**

Objective parameters		Mean	N	SD	SE	t- value	p- value	% Relief	Result
1. SBP	BT	159.07	28	14.57	2.75	10.1	<0.001	20.97%	HS
	AT	125.71	28	11.68	2.20				
2. DBP	BT	105.71	28	12.301	2.325	9.625	<0.001	23.65%	HS
	AT	80.714	28	8.133	1.537				
3. Pulse Rate	BT	78.893	28	4.565	0.8627	2.029	>0.05	3.48%	NS
	AT	76.143	28	5.784	1.093				
4. Pulse pressure	BT	53.357	28	10.612	2.005	3.070	<0.01	15.66%	Sig.
	AT	45	28	8.819	1.667				
5. Mean Arterial Pressure	BT	122.91	28	11.572	2.187	9.518	<0.001	22.45%	HS
	AT	95.307	28	9.945	1.879				

**EFFECT OF TREATMENT ON BIOCHEMICAL VALUES:**

In biochemical parameters, statistically Non Significant result was found in Hb%, TLC, Polymorphs, Lymphocyte, Eosinophills, Monocytes, Basophills, ESR and BSF. Among LFT & KFT, statistically Non significant result was found in SGOT, SGPT, B. Urea, S. Creatinine and Uric acid with p > 0.05. Among Lipid Profile, statistically significant result was found in Total Cholesterol, while Non-significant result was found in TGL, HDL, LDL and VLDL.

**TABLE 3: ESTIMATION OF OVERALL RESPONSE OF TREATMENT:**

Improvement	No. of Patients	% Relief
Excellent (75-100%)	8	28.57%
Marked Improvement (50-74%)	16	57.14%
Mild Improvement (25-49%)	1	3.57%
No Improvement (<24%)	3	10.7%

**RESULT:**

While observing subjective and objective assessment following results are found:

In subjective assessment, the result was statistically highly significant in *Shiroruja*, *Hridadrava*, *Bhrama*, *Krodhprachuryta* and *Alpnidra/Anidra* with p value < 0.001 in each and significant in *Klama* with p value < 0.01 while Non Significant result was found in *Akshiraga* with p value < 0.05. In objective assessment, statistically highly significant result was found in SBP, DBP and Mean Arterial Pressure. Significant result was obtained in Pulse pressure. Non significant result was obtained in Pulse Rate. On biochemical parameters insignificant changes (p > 0.05) in all the parameters like Hb%, TLC, DLC, ESR, BSF, SGOT, SGPT, B.UREA, S. CREATININE, Uric acid and Lipid Profile was obtained.

**OVERALLEFFECT OF THERAPY:**

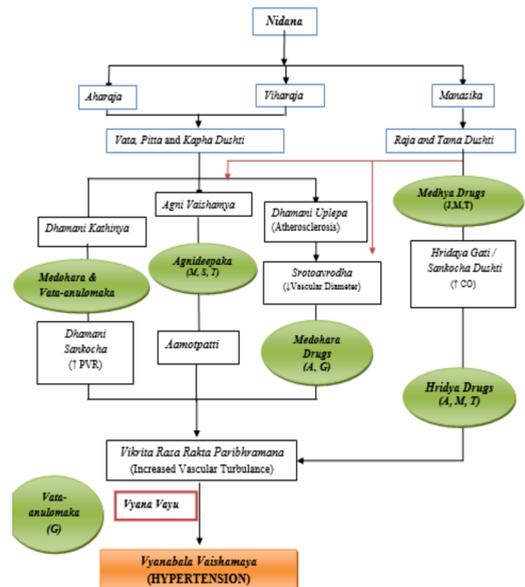
Overall response was **Excellent** improvement in **28.57%** patients, **Marked** improvement in **57.14%** patients and **Mild** improvement in **3.57%** patients whereas 10.7% patients showed no improvement.

**DISCUSSION**

**Probable Mode of Action of Ayurvedic formulation:**

The constituents of the formulation used for trial are *Jatamansi*,

*Arjuna*, *Gokshura*, *Mandukparni*, *Sarpagandha* and *Tagara*. Maximum drugs of combination are having *Tikta Kashaya Pradhana Rasa*; *Laghu*, *Snighda Guna*; *Sheeta Virya*; *Katu Vipaka*. The effect of *Jatamansi* is *Medhya*, *Nidrajanana* and *Hridaya Niyamaka*. *Arjuna* is *Hridaya*, *Rakta Prasadaka*, *Shothahara* and *Medohara*. *Gokshura* is *Mutrala*, *Vata Anulomka* and *Shothahara*. *Mandukaparni* is *Medhya*, *Hridaya* and *Ama Pachaka*. *Sarpagandha* is *Raktadaba Shamaka*, *Nidrajanana* and *Ama Pachaka* and *Tagara* is *Nidrajanana*, *Medhya*, *Hridaya*, *Mutrala* and *Deepana Pachana*. The various properties of combination like *Medhya*, *Hridaya*, *Vata Anulomaka*, *Ama Pachaka* and *Nidrajanana* etc. helps in controlling the factors responsible for the Blood Pressure to rise. Therefore the combination helps in the management of Essential Hypertension by working on the possible *Samprapti* involved in its pathogenesis which is described below.



**CONCLUSION**

Essential hypertension can be correlated as *Vata Pradhana Tridoshaja Vyadhi*. Stress is most powerful factor for causing Essential Hypertension. Overall effect of *Ayurvedic* formulation can be summarized as *Tridosha Shamaka* (mainly *Vata*), *Manasa Doshahara*, *Hridya*, *Medhya and Mutrala*. Due to wider range of action, the *Ayurvedic* formulation (JAGMST) thus prepared has shown better results in relieving the symptoms of Hypertension. In lowering the Blood Pressure, satisfactory result was obtained from the self formulated preparation. Other than this, no side effect was observed in patients so, it can be concluded that High blood Pressure and its associated symptoms can be managed effectively by *Ayurveda* without fear of side effects.

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