

## ASSESSMENT OF A HERBAL FORMULATION IN THE MANAGEMENT OF ESSENTIAL HYPERTENSION

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### ABSTRACT

Hypertension is one of the major causes of cardiovascular morbidity and mortality worldwide. It is a global health problem affecting the people of different ethnicity and ages around the world. An estimated 1.13 billion people worldwide have hypertension, most (two-thirds) living in low and middle income country<sup>1</sup>. According to WHO (2015) the overall prevalence of hypertension in India was 24.2% and 22% among the men and women respectively. Hypertension is called a silent killer, non-communicable chronic disease because it rarely exhibits symptoms before it damages vital organs like kidney, brain or heart. In *Ayurveda* there is not a single disease which resembles with hypertension but physician should understand the disease through *dosha*, *dushya*, *samprapti* and initiate the treatment. A lot of potent modern antihypertensive drugs are available but none of them are free from untoward side-effects. In this research paper a holistic approach is made and a herbal formulation in the form of *ghanvati* is prepared. Proper planning, preparation and medication using that *ghanvati* as per Ayurvedic guidelines will be observed with respect to its clinical effect on essential hypertension.

**Keywords:** Essential hypertension, *Ghanvati*

### INTRODUCTION

Hypertension is a major cause for the morbidity and mortality worldwide and is one of the major public health challenges. It is an asymptomatic medical condition in which systemic arterial blood pressure is elevated beyond the normal value. According to 2010 guidelines of 'European Society of Cardiology' and the 'European Society of Hypertension' hypertension is defined as office SBP values  $\geq 140$  mm of Hg and DBP values  $\geq 90$  mm of Hg<sup>2</sup>. Prevalence of hypertension is increasing globally and currently more than 1 billion people have hypertension. Non communicable

disease risk factor collaboration reported that number of adults with high blood pressure increased from 594 million in 1975 to 1.13 billion in 2015<sup>3</sup>. It is estimated that by 2025, the global targets for non communicable diseases is to reduce the prevalence of hypertension by 25%<sup>4</sup>.

As mentioned earlier hypertension is silent killer because it typically has no warning signs and symptoms and many people do not know they have it. A small amount of people may experience symptoms such as dullness, headache, vomiting, dizzy spells and more

frequently nose bleeds. These symptoms usually do not occur until blood pressure levels have reached a severe or life threatening stage.

#### *Etiology and types:*

In majority of patients with high hypertension, the cause is unknown and is classified as primary or essential hypertension. A small portion of patients have a specific cause of their high blood pressure, which is classified as secondary hypertension. Less than 10% of patients with high blood pressure have secondary hypertension and most common cause is associated with kidney impairment such as chronic kidney disease or renovascular disease.

The classification of hypertension in adults (18 years and older) is based on the average of two or more properly measured blood pressure readings from two or more clinical visits. Blood pressure is classified into one of the 4 categories; normal, prehypertension, stage 1 and stage 2 hypertension.

In *Ayurveda* there is no description of a single disease which can exactly resemble with hypertension. It can be assumed very close to the following entity:

1. *Raktgataavata*
2. *Pittavrittavata*

Hypertension is a *vata* dominant *tridoshaj vyadhi* and it's pathophysiology is explained in terms of *dosha*, *dushya* and *mala* with their *kshaya*, *vridhhi* and *prakopa* conditions. Therefore to alleviate the side effects of antihypertensive drugs an approach has been made in this paper.

#### **AIM AND OBJECTIVES**

- 1) To assess the efficacy of a herbal formulation in the management of essential hypertension.
- 2) To find out an effective, low cost and safe remedy to resist the essential hypertension.

#### **IMPORTANCE OF PRESENT STUDY**

- 1) Due to changing life style and food habits etc. there is increased incidence of hypertension in practice so an effort is made to find a solution for it through *Ayurveda*.
- 2) An attempt is made to clinically evaluate the efficacy of prepared *ghanvati* in the management of essential hypertension.

#### **MATERIAL AND METHODS**

##### • **Selection of sample:**

Patients were selected randomly irrespective of their sex, religion, occupation etc.

##### • **Source of patients:**

10 Clinically diagnosed patients of essential hypertension, registered in OPD/IPD of Pt. Khushilal Sharma Govt. hospital, Bhopal, who fulfill inclusion criteria, were selected.

##### • **Drug and dose:**

Drugs namely *Sarpagandha*, *Jatamansi*, *Sankhapushpi*, *Arjuna* and *Ashwagandha* were taken in ratio 1:1:2:2:2 by weight respectively and *ghanvati* is prepared by classical method.

##### • **Plan of study:**

Modern medication of patients taking allopathy medicine was stopped during the study period.

500 mg of *ghanvati* is given twice a day before meal.

##### • **Duration of study:** 30 days

#### **INCLUSION CRITERIA OF PATIENTS**

- 1) Patients of either sex between the age of 40 years to 65 years.
- 2) Patient having elevated blood pressure with or without clinical symptoms as described in ayurvedic and modern medicine.

Patients having elevated blood pressure either systolic or diastolic or both are included as mentioned below:

SBP  $\leq$  159 mmHg &  $\geq$  140 mmHg

DBP  $\leq$  99 mmHg &  $\geq$  90 mmHg

#### **EXCLUSION CRITERIA OF PATIENTS**

- 1) Patients having Renal or Hepatic disease.
- 2) Complicated hypertensive case e.g. cardiovascular disease.
- 3) Pregnant women should be excluded.
- 4) Diabetic patients with uncontrolled sugar condition.
- 5) Patients having chronic systemic illness.
- 6) Patients not willing for written consent

#### **CRITERIA FOR WITHDRAWAL**

- 1) During the course of trial if any serious condition or any serious disease is found in patient.
- 2) Patients herself/himself want to withdraw from the clinical trial.

**PARAMETERS FOR ASSESSMENT**

1. Systolic blood pressure
2. Diastolic blood pressure

The assessment was done on the basis of change in above mentioned objective parameters. The change in systolic and diastolic blood pressure was observed on every 7<sup>th</sup>, 15<sup>th</sup> and 30<sup>th</sup> day.

**PATIENT WISE OBSERVATIONS DURING THE STUDY**

Patient	Age	Sex	BT		AT	
			SBP	DBP	SBP	DBP
1.	40	M	142	96	120	82
2.	65	M	141	90	<b>130</b>	80
3.	55	F	140	100	110	80
4.	51	M	140	96	130	80
5.	61	M	142	98	120	72
6.	62	F	159	96	140	88
7.	65	M	158	100	140	90
8.	63	M	143	90	110	80
9.	50	M	150	90	120	70
10.	60	F	149	90	110	70

(Age taken in Year and Blood pressure in mmHg)

**RESULT**

Parameter	Mean		MD	%Relief	SD	SE	P Value
	BT	AT					
Systolic BP	146.40	123.00	23.400	15.98%	9.477	2.997	<0.0001
Dystolic BP	94.600	79.200	15.400	16.27%	5.967	1.887	<0.0001

**Interpretation:**

Effect of herbal formulation on blood pressure (stage 1) reveals that before treatment mean score on systolic BP was 146.40 with SD  $\pm$ 7.260 which was brought down to 123.00 with SD $\pm$ 11.595 after treatment, which showed significant result given at 95% CI and P-value <0.0001.

Effect of herbal formulation on dystolic BP reveals that before treatment mean score on BP was 94.600 with SD $\pm$ 4.222 which was brought down to 79.200 with SD $\pm$ 6.877 after treatment, which shows extremely significant result given at 95% CI and P-value<0.0001.

**DISCUSSION****DISCUSSION ON SAMPRAPTI**<sup>5</sup>

According to classical literature of *Ayurveda*, *Vata* is prominent *dosha* in this disease, circulating *rakta* (*rasa-rakta* complex) is main *dushya* and *rasavaha*, *raktavaha* *srotas* together with *manovaha* *srotas* are

involved. Its *samprapti* can be understood by the way that *vata* is prominent *dosha* in this disease and circulating *rakta* (*rasa-rakta* complex) is main *dushya*. *Pitta lakshans* are also seen because of association of *rakta* with *pitta* (*ashraya – ashriya bhava*). Ageing is one of the main factors for essential hypertension, *vata* is stated as dominant in old age and signs of premature ageing are mentioned under *pitta prakriti*. *Agnidushti* is principle source of every disease which results in *agnimandya* results in *ama* formation. *Agnimandya* gives *rasa raktadushti* as a result more and more *vikruta kapha* is produced as *kapha* is *mala* of *rasa dhatu*. Excessive production of *vikruta kapha* increases viscosity gives rise to atherosclerosis or *dhamni uplepa* which is factor for hypertension and comes under *kaphaja nanatmaja vikara*. Atherosclerosis and aggravated *vata* gives repeated spasm resulting in increased peripheral resistance to circulating fluid. Hence hypertension can be assigned as *tridhoshaj vyadhi* with predominance of *vata* and *pitta*.<sup>6</sup>

## DISCUSSION ON MODE OF ACTION OF COMBINATION

Prominent rasa of *Sarpagandha*, *Jatamansi* and *Ashwagandha* is *tikta* which will act on *rakta*, *rasa dhatu* and their *srotas*. It reduces the *ama* and thereby viscosity of *rasa* decreases which results in proper *rasa rakta vikshepana* process. Their *ushna veerya* property causes *amapachan* and *vata shamak karma*. Both (*Sarpagandha* and *Jatamansi*) have effect of *nidrajanan* and *raktabhar shamak*.

Whereas *Sankhpushpi* possess *tikta rasa* which has *aampachana* and *shrotoshodhana* property which decreases blood viscosity and check atherosclerotic changes. Prominent *snighda guna* in *Sankhpushpi* has *vatashamak* property and normal *rakt rasa samvahana*. Prominent *madhura vipaka* and *sheet veerya* possess *pittashamaka* property and check *raktadushti* due to *aashrayaashriya bhava*. *Sankhpushpi* has *rasayana*, *medhya*, *sangyasthpana*, *basti shodhaka* and *mridurechaka* property that helps in vasodilation and lowers the BP.

*Arjuna twak* has *kashaya rasa*, *rukshaguna*, *sheeta veerya* and *katu vipaka*. Due to *kashaya*, *ruksha* and *laghu guna*, *kaphanashan karma* is done.

*Rasayana*, *shleshma upshoshaka* and *lekhana* property of drugs are helpful to check the atherosclerotic changes. Hence *samprapti vighatana* by a combination of *rasayana*, *medhya*, *hridya*, *rakta shodhaka* and *shleshma upshoshaka* property may be helpful in finding management of the HTN without any hazard to body that rises in long duration of modern therapy.

## CONCLUSION

The present study shows that herbal formulations may work effectively in the management of essential hypertension. Though this study is a pilot study with limited number of patients in a fix stipulated time, it shows the significant results in managing systolic BP and in dystolic BP. In order to establish the antihypertensive effect of this drug a broad spectrum study is required to establish its effect as per modern view and with scientific approach.

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## ABBREVIATIONS

- HTN: Hypertension  
 SBP: Systolic blood pressure  
 DSP: Diastolic blood pressure  
 AT: After treatment  
 BT: Before treatment  
 SD: Standard deviation  
 MD: Mean difference  
 SE: Standard error  
 CI: Confidence interval

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