



## Review Article

www.ijrap.net



### CONCEPTUAL STUDY OF EFFICACY OF RAKTADABASHAMAK GHANA VATI IN THE MANAGEMENT OF ESSENTIAL HYPERTENSION: A REVIEW

Chamoli Anjali \*<sup>1</sup>, Singh Om Prakash <sup>2</sup>, Goyal Dinesh Kumar <sup>3</sup>

<sup>1</sup>M.D. Scholar, Kayachikitsa, Rishikul campus, Uttarakhand Ayurved University, Dehradun, Uttarakhand, India

<sup>2</sup>Professor and Head of Department, Kayachikitsa, Rishikul campus, Uttarakhand Ayurved University, Dehradun, Uttarakhand, India

<sup>3</sup>Reader, Kayachikitsa, Rishikul campus, Uttarakhand Ayurved University, Dehradun, Uttarakhand, India

Received on: 01/09/15 Revised on: 05/10/15 Accepted on: 02/11/15

#### \*Corresponding author

E-mail: anjalichamoli89@gmail.com

DOI: 10.7897/2277-4343.07122

#### ABSTRACT

Hypertension is one of the most challenging diseases in current era. The prevalence rate in whole world is increasing day by day. The standard drug therapy used in modern science has its own adverse effects on long term usage, which makes other treatment systems an important alternative to the conventional treatment. In Ayurvedic literature various drugs are described which have the properties that can control blood pressure effectively. Keeping this view in mind a hypothetical compound has been made containing jatamansi, gokshur mula, Arjunatwak, Brahmi, Vacha and Tagara as all these drugs have been studied with effects that directly or indirectly have influence on hypertension so in this study all these drugs have been taken collectively and study being done whether it will be able to reduce essential hypertension effectively. This work is just based on finding facts through fundamental studies to provide a basis for application of Raktadabashamak Ghana vati in the management of essential hypertension.

**Keywords:** Arjuna, Brahmi, Essential hypertension, Gokshur, Hypertension, Jatamansi, Raktadabashamak Ghana vati, Tagara, Vacha

#### INTRODUCTION

The current era has been described as the age of anxiety and stress. This stress and strain of day to day life and sedentary lifestyle plus unhealthy food habits has given rise to various lifestyle related disorders of which hypertension is of utmost significance.

Hypertension or high blood pressure, sometimes called arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. Blood pressure above 140/90 mmHg is mainly considered as hypertension<sup>1</sup>. It is common, asymptomatic, readily detectable, usually easily treatable, and it often leads to common complications as cardiovascular disorders, cerebrovascular accidents, etc. In India overall prevalence have been found 29.8% [27.6% in rural parts & 33.8% in urban parts]<sup>2</sup>. ICMR & AIIMS study had declared India as Nation of hypertension<sup>3</sup>. This increasing prevalence of hypertension is attributed to population growth, ageing and behavioral risk factors such as unhealthy diet, increased intake of salt, excessive use of alcohol, smoking, physical inactivity, excess weight & exposure to persistent stress. Although there has been widespread dissemination of knowledge of HTN then also it is poorly treated in most of the population including India due to lack of awareness which leads to no or late diagnosis and if diagnosed most patients are on irregular treatment. Along with these factors the lifelong treatment of HTN in modern medical science has its own side effects. Thus, to attain and maintain good health, here comes the role of Ayurveda.

On the basis of etiology, hypertension is classified into 2 types<sup>4</sup>

1) Primary hypertension- it is also called as essential hypertension. There is no specific underlying cause of this type. It is present in more than 95% of cases. Various systems attributable in these type of patients are peripheral and/central

adrenergic, renal, hormonal, and vascular. Genetic predisposition, increased salt sensitivity (60% of hypertensives), environmental factors, heavy consumption of alcohol, smoking, lack of exercise and stress play an important role in this type.

2) Secondary hypertension – it is mainly due to consequence of a specific disease or any sort of abnormality such as renal disease, endocrine diseases, due to intake of certain drugs, etc.

#### Regulation of normal Blood pressure

The magnitude of the arterial pressure depends on two fundamental hemodynamic variables: cardiac output and total peripheral resistance. Two mechanisms which are considered in essential hypertension are: Renal retention of excess sodium (resetting of pressure natriuresis) and Vasoconstriction and vascular hypertrophy (due to increased release of vasoconstrictor agents e.g., rennin, catecholamines, endothelin; or increased sensitivity of vascular smooth muscle to constricting agents)<sup>5</sup>.

Hormones like epinephrine, nor epinephrine, vasopressin, ADH also increase blood pressure by either heart rate or vasoconstriction or by increasing the blood volume<sup>6</sup>.

#### Ayurvedic view

Hypertension being an instrumental based disease, Ayurvedic texts provides no straight reference. Acharya Charaka has given a guideline to understand a new clinical entity he said - naming of disease is not essential, importance lies in the removal of disease, thus the physician should not be ashamed of this fact and try to comprehend responsible doshas and treat them accordingly<sup>7</sup>.

Understanding EHT from the perspective of tridoshas principle of Ayurveda it is found that it is a vata pradhan tridoshaja vyadhi. Vitiated Vata Dosha is considered as the main reason because dhatu (rasa) gati or vikshepana is done by vayu itself<sup>8</sup>.

Pitta and kapha compliment the effect of vitiated vata and add to progression of disease. Considering the psychosomatic aspect of hypertension<sup>9</sup> it can be said that manas Dosha Raja and Tama are also important factors in EHT. since chinta, bhaya, krodha etc manas bhavas are etiological factors in EHT. Dushyas Rasa, Rakta (whole blood) dhatus play important role in pathogenesis of the hypertension. The symptomatology quoted under Raktapradoshaja Rogas by Acharya Charaka almost coincides with signs and symptoms of essential hypertension among those Anidra, Shirahashoola, Bhrama, Buddhisamoha, Klama, Arati, Krodhaprachurata, and Akshiraga are the common symptoms.<sup>10</sup> Thus Rakta dushti is the common factor which always gets involved in EHT.

The vitiated doshas lead to vitiation of rasavaha, raktavaha and manovaha Srotasas. Involvement of “trimahamarmas” (tripods of life), i.e., shira, hridaya and basti is also evident of disease.

#### Raktadabashamak Ghana vati (self-formulated)

It constitutes of:

- Jatamansi – 1 part
- Gokshur mula – 1 part
- Arjunatwak churna – ½ part
- Brahmi – 1 part
- Vacha - ¼ part
- Tagara – ½ part

**Table 1: pharmacological properties and actions of proposed drugs According to Ayurvedic literatures<sup>11</sup>**

Drug	Rasa (taste)	Guna (property)	Virya (potency)	Vipaak (metabolism)	Specific action	Action on Doshas
Jatamansi ( <i>Nordostachys jatamansi</i> )	Tikta, Kashaya	Laghu & Snigdha	Shita	Katu	Manasdosha-har	Tridoshshamak
Gokshur ( <i>Tribulus terrestris</i> )	Madhur	Guru & Snigdha	Shita	Madhur	Mutral	Vaatpittashamak
Arjuna ( <i>Terminalia arjuna</i> )	Kashaya	Laghu	Shita	Katu	Hridya	Kaphapittashamak
Brahmi ( <i>Bacopa monnieri</i> )	Tikta	Laghu	Ushna	Katu	Medhya	Kaphavaatshamak
Vacha ( <i>Acorus calamus</i> )	Tikta, Katu	Laghu, Tikshna	Ushna	Katu	Medhya	Kaphavaatshamak
Tagara ( <i>Valeriana wallichii</i> )	Tikta, Katu, Kashaya	Laghu & Snigdha	Ushna	Katu		Kaphavaatshamak

Jatamansi is medhya (brain tonic) and vaatnadishamak (sympatholytic) due to these actions it relaxes brain and nervous system and causes vasodilation. its chemical constituent Jatamansone is useful in cardiac arrhythmias<sup>12</sup>. Various clinical studies have shown its anti hypertensive effect.<sup>13</sup>

Gokshur is well known for its mutral (diuretic effect) apart from this it also used in Hridrogas (cardiovascular disorders) in Ayurveda<sup>14</sup>. Clinical studies have shown its anti-hypertensive, anti-depressant and anxiolytic activities<sup>15</sup>.

Arjuna has been said as Hridya (cardio tonic) in Ayurvedic texts. It provides strength to cardiac muscles and stroke volume which in turn decreases heart rate<sup>16</sup>. the flavonoids components present in the bark of Arjuna tree have anti-oxidant properties<sup>17</sup>, so Arjuna bark powder is beneficial in ischemic heart diseases associated with oxidative stress. Studies have proven its cardio protective effects. It also shows anti-coagulant property which can be used in coronary artery diseases and thus can reduce hypertension of cardiac origin<sup>18</sup>

Brahmi in Ayurvedic medicine system is used as a powerful medhya (brain tonic) drug as well as a memory enhancer. It is *balya* (provides strength) to vaatnadansthan (nervine tonic)<sup>19</sup>. *Brahmi* extract bacosides have shown anxiolytic, anti-depressant, anti-stress and anti-oxidant activity<sup>20</sup>.

Vacha is also used as medhya drug in Ayurvedic medicine moreover, due to its tikshna guna (sharp) it has a lekhaneya action which is beneficial in high lipid profile. Studies have shown its blood pressure lowering and vascular modulator effects<sup>21</sup>.

Tagara is mainly used in Ayurvedic medicine to treat nervousness, insomnia and heart palpitations, shiro rogas (headaches) and rakta vikaras (blood disorders). valerenic acid present in the herb has been shown to inhibit the breakdown of neurotransmitter GABA which results in sedation. Studies have also shown its anti-hypertensive, anxiolytic effect.<sup>22</sup>

#### CONCLUSION

The formulation of drugs selected above for Raktadabashamak Ghana Vati is very effective in treating hypertension as this vati manages all the systems which are pathologically involved in essential hypertension. On reviewing Table 1. It can be seen that this formulation has vaat pradhan tridoshshamak action hence it is useful in essential hypertension which is a vaat pradhan tridoshaja vyadhi. Jatamansi relaxes brain and nervous system therefore can be very useful in stress induced hypertension and insomnia, which is a common symptom in hypertension. Gokshura due to its diuretic action thus; it is beneficial in hypertension associated with salt and water retention. Arjuna is very beneficial as a cardio protective and increases stroke volume which decreases heart rate and decreases blood pressure. Brahmi is a medhya (brain tonic) drug and due to its anxiolytic and anti-depressant action has an anti-hypertensive effect as anxiety and depression are significant contributory factors in essential hypertension. Vacha due to its tikshna guna has hypolipidemic action reduces blood pressure as high cholesterol significantly increases blood pressure by increasing peripheral resistance. Tagara also has anxiolytic and anti-hypertensive effects. Also it manages a headache which is associated symptom with hypertension. Thus, all the drugs used in this hypothetical compound have antihypertensive effects due to different mechanisms which can effectively reduce essential hypertension.

Considering all the physiological and pathological factors of essential hypertension in both Ayurvedic and modern perspective, a combination drug named as Raktadabashamak Ghana vati which has vaat shamak (neural regulation of blood pressure), ekhaniya (regulates high cholesterol), medhya (stress reliever), hridya (cardio tonic) and mutral (diuretic) properties is very effective in treating hypertension. Currently the drug is under clinical trial in Rishikul Ayurvedic College, Haridwar, Uttarakhand. It has been tried in 20 patients and showed very good results in cases of mild to moderate hypertension.

REFERENCES

1. Longo & Fauci et al, Harrison's principles of Internal Medicine, volume 2, 17<sup>th</sup> ed, McGraw hills Medical publication New York, 2004, ch 230, p.1553 – 1554.
2. Raghupathy Anchala, Nanda Kannuri, Hira pant et.al. Hypertension in India: a systematic review & metanalysis of prevalence, awareness & control of hypertension, Journal of hypertension.2014. 32(6): 1170-1171. <http://dx.doi.org/10.1097/HJH.0000000000000146>
3. A Bhansali et al. Prevalence and risk factors for HTN in urban and rural India : The ICMR- INDIAB study, Journal of human hypertension.2015. 29:204-209 <http://dx.doi.org/10.1038/jhh.2014.57>
4. Longo & Fauci et al, Harrison's principles of Internal Medicine, volume 2, 17<sup>th</sup> ed, McGraw hills Medical publication New York, 2004, ch 230, p.1553 – 1554.
5. Robbins, Cotran Ramzi S, Kumar Vinay, Collins Tucker (ed), Pathologic Basis of disease, 6<sup>th</sup> ed, Elsevier Publications New Delhi, 2002, ch 12, p.510-512.
6. Kundu.C., Role of maansik bhavas in etiopathogenesis of essential hypertension and its management by shirodhara and Sarpagandha vati, M.D. Thesis submitted to IPGT&RA GAU Jamnagar, Gujarat, India.2002.p.74
7. Agnivesha, Charaka, Dridhabala, Gorakhnath, Kashinath, Charak samhita, vidyotini comm., sutra sthana, 18/44, chaukhamba bharti academy, Varanasi reprint 2008 p.383.
8. Agnivesha, Charaka, Dridhabala, Gorakhnath, Kashinath, Charaka samhita, vidyotini comm., sutra sthana, 18/49, chaukhamba bharti academy, Varanasi reprint 2008 p.384.
9. Esler, Murray, Parati, Gianfranco. Is Essential hypertension sometimes a psychosomatic disorder, Journal of hypertension.2004. 22(5):873-876. <http://dx.doi.org/10.1097/00004872-200405000-00003>
10. Rajashekhar V Sanapeti et al. Etiopathogenesis of hypertension in Ayurveda. Int. J. Res. Ayurveda Pharm.2012;3(6):786-788 <http://dx.doi.org/10.7897/2277-4343.03618>
11. Sharma Priyavrat, Dravya guna vigyan Vol-2 Chaukhamba bharti publications, Varanasi.2006, ch 1, 8, 32, p 6,28,64,31,195,632.
12. Sharma Priyavrat, Dravya guna vigyan Vol-2 Chaukhamba bharti publications, Varanasi.2006, ch 1, p, 33.
13. Purnima, Bhatt Meenakshi and Kothiyal Preeti. A review article on phytochemistry and pharmacological profiles of *Nordostachys jatamansi* DC-medicinal herb, Journal of pharmacognosy and phytochemistry.2015.3(5):102-106.
14. Bhavmishra, commentary by Pandey Ganga Sahay, Chuneekar K.C. Bhavprakash Nighantu, Chaukhamba bharti publications, Varanasi.2006.p.292.
15. Murthy A.R., Dubey S.D, Tripathy K. Anti hypertensive effect of Gokshur (*Tribulus Terrestris* Linn.) A clinical study, Ancient science of life.2000. 11(4):139-145.
16. Sharma Priyavrat, Dravya guna vigyan Vol-2 Chaukhamba bharti publications, Varanasi.2006, ch 2, p196.
17. Shreya Mandala, Arpita patra, Animesh Samantha, et al. Analysis of phytochemical profile of *Terminalia arjuna* bark extract with anti oxidative and antimicrobial properties, asian pacific journal of tropical biomedicine. 2013.3(12):960-966.
18. Malik N, Dhawan V, Bahl A, Kaul D. Inhibitory effects of *Terminalia arjuna* on platelet activation in-vitro in healthy subjects and patients with coronary artery disease, 2009.20(3):183-90.
19. Sharma Priyavrat, Dravya guna vigyan Vol-2 Chaukhamba bharti publications, Varanasi.2006, ch 1, p 7.
20. G.M. Hussain, Deepa Mishra, P.N. Singh Ch.v Rao, Vikas Kumar. Ethnopharmacological review of native traditional medicinal plants for brain disorders of Pharmacognosy review.2007.1(1):19-29
21. Jabbar shah A, Gilani A. Blood pressure lowering and vascular modulator effects of *Acorus calamus* extracts are mediated through multiple pathways, Journal of cardiovascular pharmacology. 2009. 54(1):38-46 <http://dx.doi.org/10.1097/FJC.0b013e3181aa5781>
22. Kumar Gaurav, Mehra B.L, Johri Sharad, Sharma Meenakshi, A. Clinical study to assess the effect of uchha Raktachaphar yoga in essential hypertension. Journal of applied Pharmaceutical Science.2015 3(2):8-13

Cite this article as:

Chamoli Anjali, Singh Om Prakash, Goyal Dinesh Kumar. Conceptual study of efficacy of Raktadabashamak ghana vati in the management of essential hypertension: A review. Int. J. Res. Ayurveda Pharm. Jan – Feb 2016;7(Suppl 1):24-26 <http://dx.doi.org/10.7897/2277-4343.07122>

Source of support: Nil, Conflict of interest: None Declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of IJRAP editor or editorial board members.