

REVIEW ARTICLE

# Understanding of Hypertension in Ayurveda- A Review Article

Author: Jyoti Kumari Jangir<sup>1</sup>

Co Authors: Shrinidhi Kumar K<sup>2</sup>

<sup>1,2</sup>P.G. Department of Kaumarbhritya, NIA, Deemed to be University (DE-Novo), Jaipur, Rajasthan, India

## ABSTRACT

Hypertension is most common life style disease in the world nowadays and becomes a challenge to medical field, as it cannot be cured although it can be controlled with continuous medications. Ayurveda, the richest and oldest Indian medical science mentioned certain principles of life style and food regimen which can effectively help to prevent this hazard, if followed promptly. However Hypertension has been not mentioned as a separate disease in Ayurveda, as it is a symptom seen due to multifactorial causative involvement. Still many efforts were made to understand the pathology of Hypertension in Ayurveda in relation to contemporary medical science understanding and certain terms like *Dhamani pratichaya*, *Dhamani Upalepa*, *Rakta gata vata*, *Siragatha vata*, *Prana vata*, *Vyan vata*, and *Aavrut vata* were explained. As Hypertension is not a disease, rather a sequel of underlying pathological entity or complication of certain disorders or outcome of lifestyle derangement, it is quite difficult to establish the exact clinical entity in Ayurveda, and hence it has to be understood on the basis of symptomatology of the patient. The present article is an attempt to throw some light on clinical understanding of Essential Hypertension (EHT) in terms of Ayurveda based clinical symptomatology of the patient along with insight on pathology as per Ayurveda.

**Key Words** Essential hypertension, Ayurveda, *Aavrut vata*, *Pran vata*, *Vyan vata*, *Lifestyle disorders*, *Raktachapa*

Received 15<sup>th</sup> August 21 Accepted 18<sup>th</sup> September 21 Published 10<sup>th</sup> November 2021

## INTRODUCTION

Hypertension is the most common and challenging chronic non-communicable disease worldwide. Hypertension is known as the "silent killer, because it rarely causes symptoms before causing damage to the heart, brain, or kidneys." In both economically developing and developed countries, it is a significant public health issue<sup>1</sup>. However, it causes damage to the target organ and is a substantial risk factor for coronary

vascular disorders such as stroke and myocardial infarction. Hypertension affects 600 million people worldwide, according to estimates. Hypertension will affect almost one-third of adults over the age of 20, or 1.56 billion people worldwide, by 2025<sup>2</sup>. Although Hypertension is not discussed in Ayurveda texts directly, we may understand the etiopathogenesis of Hypertension and treat the problem by identifying the clinical presentation explained in Ayurveda. As

## REVIEW ARTICLE

Ayurveda is mainly focused on prevention of the disease, Hypertension as per Ayurveda falls on the same category. When basic principles of Ayurveda are neglected especially related to food and life style, psychological health becomes the root cause of the same. One should understand that Essential Hypertension is not a disease of sudden onset, and pathology takes years together for development. Hence violation of basic principles of health plays a major role in development of pathology.

### AIMS AND OBJECTIVES

To determine and identify contributory factors of Hypertension from Ayurveda perspective, and to explain the Pathophysiology of Hypertension in Ayurveda. This paper also highlights identification of Hypertension in clinical practice by Ayurveda standards by observing the symptomatology which will be useful for both treatment and prevention.

### MATERIAL AND METHODS

Classic Ayurveda literature, contemporary literature, available research updates, and scientific information available on the internet, among other sources, were searched and evaluated to explore signs and symptoms similar to hypertension from an Ayurveda perspective.

### DISCUSSION

Hypertension ultimately leads to increase in systemic blood columns due to various

etiological factors. Systemic circulation is mainly influenced by the hydrostatic pressure inside vascular space, plasma oncotic pressure, elasticity of the arterial smooth muscles, peripheral vascular resistance, right arterial pressure, atherosclerotic changes in the vessel. Same principles can be understood in Ayurveda as follows.

#### **PRAN VAYU:**

*AstanagaSangraha* while explaining the functions of *Prana vayu* explains the word *DhamaniDharana* which means one which holds and maintains the *Dhamani*<sup>3</sup>. As we know the circulatory pressure has a vital role in the vessels' function. The negative pressure in the venous end and positive pressure in the arterial end makes the blood to move in the vessel and circulate throughout the body. This has been compared by *Shusrutha* with movement of water in channels of the garden from higher pressure to lower pressure which is a passive process. Similarly water from the different sources of river passively joins the ocean, there after again there will be rain which brings the water back in to river has been explained. These explanations suggests that flow of the blood across the heart and peripheral tissues. Hence maintaining this pressure balance and difference in the venous column and right heart, enabling return of blood back in to heart is the major function of *Prana vayu* which is explained as *Dhamani Dharna*.

#### **VYANA VAYU:**

The major function of *Vyanavayu* is *Akunchana-Prasarana vishesha* that is contraction and

## REVIEW ARTICLE

relaxation of the arterial muscles. This facilitates the movement of blood in the vessel. *Vyana vayu* has been contributed for special function like *Vikshepana upachita karmana*, that is it helps in maintaining the optimum pressure in the vessel by maintaining the peripheral vascular pressure. However it is explained that *Vyana vayu* helps for the movement of the *Rasadhatu* in the vessel and spreads the *Rasa Dhatu* (Fluid containing nutrients /RBC etc.) throughout the body just like *Shabda*, *Archi* and *jala* through the *Dasha dhamani*<sup>4</sup>. This explanation suggests that initial pressure during stroke volume is high at the Aorta (*shadha*), and as it travels downwards, pressure has been distributed in all three directions of the body through network of *dhamani* (*Archi*). This further leads to minimum pressure in the column at cellular level capillaries. This has been mentioned as movement of *Jala* in zero pressure area. Obstruction for *Rasadhatu* at various level leading to disturbances in pressure gradients along with subsequent vitiation of the *Vyanavayudue to Khavaiagunaya* leading to functional, structural, immunological changes in circulatory apparatus leads to symptomatology similar to Essential Hypertension.

Hence these two major *Vayus*, namely *Prana vayu* and *Vyana vayu*, are the key areas of concern while treating Hypertension since both maintain circulatory pressure, hydrostatic pressure, and peripheral vascular resistance of the blood column. So to maintain the blood pressure at optimal level functioning of these *Vayu* is

important. However it is mentioned that *Vayu* is responsible for *Spandana* (pulsation) of the blood<sup>5</sup>. *Prana vayu* moves in the *prana vaha Srotas* (*Hridaya* and *Mahasrotas*), from where pushing of the blood in the arterial column is enabled, while *Vyana vata* carries it throughout the body (*Krisna dehachari maha java*)<sup>6, 7</sup>. In other words the systolic pressure (stroke volume pressure) is the function of the *Vyana vayu* and diastolic pressure is the function of *Prana Vayu*, as it sustain the *Dhamani* by maintaining the resting pressure inside the vessel that is diastolic pressure.

### ANYONYA AVARANA:

Explanation of *Anyonya Avarana* helps to understand the real pathogenesis of Hypertension like topics in Ayurveda. It is obvious that *Prana* and *Vyana vayu* play a vital role in maintaining blood pressure, *Avarana* of these *vayus* with each other leads to pathology of hypertension which helps to understand the Ayurveda insight over the topic. Meanwhile *Asthanga Hridaya Nidana sthana* clearly explains the fatality of *Avrutha vata* which can be correlated with present daymortality rate of hypertension. Symptoms of *Avruthavata* are always hidden and will not be exhibited, and at times understood after year, which explains the silent nature of Essential hypertension. Further it is mentioned in the context of *Avrutha Vata* that treatment of such disorders are quite difficult even with all efforts and considered as *Dusadhya*<sup>8</sup>. *Acharya Charaka* also explains that *Hridroga* is the main complication of *Avrutha vata*, and there will be

## REVIEW ARTICLE

involvement of *Gulma*, *Atisara* etc<sup>9</sup>. Which depict wide range of complications associated with this disease. As we normally see in clinical practice most of the time Essential hypertension is an accidental diagnosis at a more advanced stage and quite difficult to treat compared to early symptomatic patients.

*UDANA AVRUTHA PRAN/ PRAN AVRUTHA UDANA:*

In the clinical practice one of the presentation in Hypertension, is dyspnea on exertion with certain degree of cardiac involvement with typical ECG changes. Such conditions can be considered as *Prana avrutha udana* in Ayurveda. The situation is appreciated by certain symptoms like *Nishwasa-Uchwasa Samrodha*, *Shirograha*, *Hridroga* as mentioned in classics<sup>10</sup>. In *Udana avrutha prana*, there will be emaciation or *bala kshaya* as associated symptom<sup>11</sup>. Ayurveda explains *Anulomana* is the first line of treatment in such conditions. In clinical practice it observed that *Anulomana* medications like *Avipathikara choorna* along with *Rasayana* treatment and *Mutrala chikitsa* yields the good results symptomatically. However a drug which is *Rasayana*, *medhohara* and also *Mutrala* like *chandraprabhavati* along with *Punarnava kwata* and *Anulomana* drug is quite beneficial in such situations.

*PITTA VRUTHA PRANA/UDANA VAYU:*

Certain patients with hypertension will be also presented as Giddiness as the predominant symptom. Certain factors like anxiety related to disease, familial problems, professional

workload, acidity, burning sensation, frustration, myalgia, tiredness, etc. can precipitate this symptom. Ayurveda explains the same in the context of *Pittavrutha prana or Udana laxana*. In case of *Pitta avrutha Prana* there will be *Bhrama*, *Moorcha* (Giddiness), *Ruja*, *vamana*. It is mentioned in *Pittavrutha Udana* that '*dahoantahrujabramshascha*'<sup>12</sup>. This condition very well responds for *pitta hara* treatment. Combination of a *Rasayana* drug, along with potent *Pittahara yoga* like *Kamadugha*, *Suthashekara*, *Bhoonimbadi kwatha* will significantly reduce the various causes of *Bhrama*. However if the patient is strong even a course of *virechna* can be employed.

*PITTA VRUTHA VYAN VAYU:*

One more set of Hypertensive patients visit the doctor with complaints of transient ischemic attacks, this has been explained in the context of *Pittavrutha Vyana vayu*. *Astang hridaya* mentioned *Daha*, *Klama*, *Anga chesta*, *Sanga vedana and santapa* as the symptoms of *Pittavrutha Vyana vayu*<sup>13</sup>. This symptomatology matches with symptomatology of transient ischemic attacks. These situations can be better treated by combination of *Rasayana* drug, with drugs acting on muscle and neurological system like *Ekanaga-veera rasa*, and *Ashwagandaristha*.

*KAPHA VRUTHA VYAN/UDANA/PRANA VAYU:*

Hypertensive patients also visit the doctors with obesity or dyslipidemia as the main symptom. *Kaphavrutha Vyana/Udana/Prana*. Mainly due to *Ama* and same is depicted by symptoms like *Gurugatrata*, *Aruchi*, *Vak swara graham*, along

## REVIEW ARTICLE

with *Bala varna pranasha*, *Skhalithacha gatra*. Suggesting inability of patient to walk and talk with heavy body and altered gait<sup>14</sup>. This condition can be well managed by treatment of obesity followed by *Kapha hara chikitsa*.

### MADA:

*Mada* is one of the condition mentioned in Ayurveda suggesting the complicated state of hypertension encephalopathy. This clinical situation is characterized by *ManoVikshobha*, behavioral problems, altered consciousness etc. Such cases should be treated like case specific and ensure stabilization of the patient with life support. The main treatment offered in this case is treatment of *Dhatukshya*, along with life saving measures

### MANAGEMENT OF EHT:

Maintaining the Target pressure is very key point in treatment of hypertension. Over-treating hypertension raises the risk of death because low blood pressure is always harmful. Target pressure should be 150/90 mmHg. Global standards of 2014 suggests that for age less than 60 mmHg without DM or chronic Kidney disorders diastolic pressure should be maintained at less than 90 mmHg. While in those who aged more than 60 mmHg without DM and Chronic kidney disorders less than 150/90 mmHg should be maintained. All adults with DM and Chronic kidney disorders less than 140/90 mmHg pressure should be maintained. API survey 2015 says that 19% of doctors starts anti-hypertensive when it is less than 140/90 mmHg while 60%

starts when it is 140/90 mmHg and 16% when it is more than 140/90 mmHg<sup>15</sup>. There is lot of confusion in the facts that whether the AHT drugs should be given lifelong or can be withdrawn. 50% of physicians and 50% cardiologist have the opinion that it should be continued life time. But both the opinions are not true as it depends on patient to patient. Always consider non-pharmacological therapy first, such as exercise, diet control, yoga, and lifestyle changes, before initiating AHT medications.

*Sarpagandha* is one of the most common drug which is prescribed in Ayurveda but it should be noted the drug crude drug *Sarpaganda* contains many other alkaloids like sarpangine, serpentine, Ajamalin etc. apart from Reserpine, which are hypertensive agents<sup>16</sup>. Hence prescribing the crude drug should be justified. Plain Reserpine is proved for its ganglion blocking activity to decrease the hypertension although it is banned by modern pharmacology. Further indication of *Sarpaganda* is not in *Avruthavyadhis*, rather in *Visha chikitsa*, *Bhuta abhishayanda* etc.<sup>17, 18</sup>. Further adverse effects like gastric disturbances, loss of appetite, depression, behavioral problems, bradycardia, and suicidal tendency etc. is quite common with this drug<sup>19</sup>.

Familial hypercholesterolemia is one more concern area in treatment of Hypertension. Patient with chest pain, xanthomas, xantholesma, corneal arcus are considered to have hypercholesterolemia. In familial case although they take less fat the cholesterol level increases.

Incidences are high in eastern countries. Death

## REVIEW ARTICLE

rate increases after the age of 60 while 17% cases of death is due to increased awareness of Cholesterol<sup>20</sup>. Previously clofibrate like medications were considered; however, statin formulations are now commonly used. Eenzocort, audicort like drugs are given by the cardiologist. One of the adverse effects of statin preparations, damage skeletal muscles causing a vague body muscle pain which is not arthritis. However satin induced myopathies can be treated as per the principles of *Amavata*.

Hypertension is also related with personality. Aggressive and short tempered people are more likely to suffer from Hypertension, and can be treated with *Medhya drugs*. Role of antioxidants has been much discussed on the issue of hypertension. One of the theory of Hypertension also explains the free radical injury theory, or disease of ageing<sup>22</sup>.

## CONCLUSION

Despite the availability of wide range of Antihypertensive medicines in the present era, percentage of hypertensive individuals is steadily increasing. In search of an optimal and safe treatment, the human race is turning to Ayurveda. Ayurveda offers curative and preventive cure for this challenging disorders by different medications and life style modifications. Practicing Ayurveda principles from the childhood period can effectively prevent the occurrence of this disease in new generation. Meanwhile Ayurveda classics very clearly

mentioned Essential Hypertension like clinical condition in the context of *Avritha vata* namely *Prana avrutha udana*, *Udana avrutha prana*, *Pittavrutha Pran/Udana*, *Kaphavurtha Prana/Udana/Vyana* etc.

## REVIEW ARTICLE

### REFERENCES

1. WHO report of Prevention and control for Cardio vascular diseases, 2001-2002, available from <http://www.sld.cu/.pdf/.international> 1 cardiovascular disease statistics.page 2. [Last cited on 2002 Aug 25].
2. Kearney, P. M., Whelton, M., Reynolds, K., Muntner, P., Whelton, P. K., & He, J. (2005). Global burden of hypertension: analysis of worldwide data. *Lancet* (London, England), 365(9455), 217–223. [https://doi.org/10.1016/S0140-6736\(05\)17741-1](https://doi.org/10.1016/S0140-6736(05)17741-1)
3. Kaviraj Atridev gupt, editor rajvaidya pandit shrinandkishore sharma bisagacharya Hindi commentator of Astanga Sangraha, Sutra Sthana doshabhedhiya adhyayam chapter 20 Verse 4 Reprint: 2016, p. 160.
4. Kaviraj Ambikadutta Shastri, Ayurveda Tattva Sandipika, Hindi commentary on Sushruta Samhita of Maharshi Sushruta, Sutra Sthana, Shonitvarniya, chapter 14 verse 16. Varanasi, Chaukhambha Sanskrit Sansthan, Reprinted 2014, p. 67.
5. Kaviraj Ambikadutta Shastri, Ayurveda Tattva Sandipika, Hindi commentary on Sushruta Samhita of Maharshi Sushruta, Sutra Sthana, Shonitvarniya, chapter 15 verse 4. Varanasi, Chaukhambha Sanskrit Sansthan, Reprinted 2014, p. 74.
6. Pandey Gangasahay, editor. Pt. Kashinath Sastri Vidhyotini Hindi commentary on Caraka Samhita of Agnivesa- 1<sup>st</sup> volume, viman Sthana, Srotovimaniya Adhayay chapter 5 verse 7. Varanasi: Chaukumba Bharti Academy; Reprint: 2016. p. 710.
7. Kaviraj Atridev Gupta, editor. Yadunandana Upadhaya Vidhyotini Hindi commentator of Astangahridaya, Sutra Sthana Doshabhedhiya Adhayay chapter 12 verse 6 Varanasi: Chaukumba Prakashana; Reprinted 2017, p. 121
8. Kaviraj Atridev Gupta, editor. Yadunandana Upadhaya Vidhyotini Hindi commentator of Astangahridaya, Nidan Sthana vatashonita nidanam Adhyay chapter 16 verse 57 Varanasi: Chaukumba Prakashana; Reprinted 2017, p. 387.
9. Pandey Gangasahay, editor. Pt. Kashinath Sastri Vidhyotini Hindi commentary on Caraka Samhita of Agnivesa- 2<sup>nd</sup> volume, Chikitsa Sthana, Vatavyadhi-chikitsa Adhayay chapter 28 verse 236 Varanasi: Chaukumba Bharti Academy; Reprint: 2016. p. 816.
10. Kaviraj Atridev Gupta, editor. Yadunandana Upadhaya Vidhyotini Hindi commentator of Astangahridaya, Nidan Sthana vatashonita nidanam Adhayay chapter 16 verse 51 Varanasi: Chaukumba Prakashana; Reprinted 2017, p. 386.
11. Kaviraj Atridev Gupta, editor. Yadunandana Upadhaya Vidhyotini Hindi commentator of Astangahridaya, Nidan Sthana Vatashonita nidanam Adhayay chapter 16 verse 52 Varanasi: Chaukumba Prakashana; Reprinted 2017, p. 386.
12. Kaviraj Atridev Gupta, editor. Yadunandana Upadhaya Vidhyotini Hindi commentator of Astangahridaya, Nidan Sthana Vatashonita nidanam Adhayay chapter 16 verse 42 Varanasi: Chaukumba Prakashana; Reprinted 2017, p. 385.

## REVIEW ARTICLE

13. Kaviraj Atridev Gupta, editor. Yadunandana Upadhaya Vidhyotini Hindi commentator of Astangahridaya, Nidan Sthana Vatashonita nidanam Adhayay chapter 16 verse 43 Varanasi: Chaukumba Prakashana; Reprinted 2017, p. 385.
14. Kaviraj Atridev Gupta, editor. Yadunandana Upadhaya Vidhyotini Hindi commentator of Astangahridaya, Nidan Sthana vatashonita nidanam Adhayay chapter 16 verse 47-48 Varanasi: Chaukumba Prakashana; Reprinted 2017, p. 386.
15. Malviya, A., & Sason, R. (2016). The phytochemical and pharmacological properties of Sarpagandha: Rauwolfia serpentina.
16. Lobay D. (2015). Rauwolfia in the Treatment of Hypertension. Integrative medicine (Encinitas, Calif.), 14(3), 40–46.
17. Kaviraj Ambikadutta Shastri, Ayurveda Tattva Sandipika, Hindi commentary on Sushruta Samhita of Maharshi Sushruta, Kalpa Sthana, Mooshik-kalp, chapter 7 verse 29. Varanasi, Chaukhambha Sanskrit Sansthan, Reprinted 2014, p. 73.
18. Kaviraj Ambikadutta Shastri, Ayurveda Tattva Sandipika, Hindi commentary on Sushruta Samhita of Maharshi Sushruta, Dvitiya bhaga Uttar tantram, Amanushupsarg-pratishedam, chapter 60 verse 47. Varanasi, Chaukhambha Sanskrit Sansthan, Reprinted 2014, p. 564.
19. Egan, B. M., Kjeldsen, S. E., Grassi, G., Esler, M., & Mancia, G. (2019). The global burden of hypertension exceeds 1.4 billion people: should a systolic blood pressure target below 130 become the universal standard? Journal of hypertension, 37(6), 1148–1153  
<https://doi.org/10.1097/HJH.0000000000002021>.
20. Youngblom, E., Pariani, M., & Knowles, J. W. (2014). Familial Hypercholesterolemia. In M. P. Adam (Eds.) et. al., GeneReviews®. University of Washington, Seattle.
21. Schalling, D., & Svensson, J. (1984). Blood pressure and personality. Personality and Individual Differences 5 (1), 41-51.
22. Pham-Huy, L. A., He, H., & Pham-Huy, C. (2008). Free radicals, antioxidants in disease and health. International journal of biomedical science: IJBS, 4(2), 89–96.