

HYPERTENSION – CLINICAL APPROACH AND MANAGEMENT THROUGH AYURVEDA

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ABSTRACT

Health is a state of complete physical, mental, spiritual & social wellbeing. Hypertension is one amongst the most alarming health problem of present era due to sedentary lifestyle and environmental factors. Hypertension is silent killer of mankind. It is an independent predisposing factor for heart failure, coronary artery disease, stroke, renal disease and peripheral arterial disease. Worldwide high blood pressure is estimated to cause 7.1 million deaths, about 13 percent of the global fatality total. Across WHO regions, research indicates that about 62 percent of strokes and 49 percent of heart attacks are caused by high blood pressure. The clear cut description of Hypertension is not available in *Ayurveda* Texts. *Acharya Charaka* has mentioned to treat such Diseases without Nomenclature by judging the involvement of *Dosha, Dushya, Srotas* etc. The present study was undertaken to

evaluate the factors responsible Essential hypertension along with its *Samprati*(pathogenesis). On the basis of previous literary and clinical work on this topic which point out a prime role of *Vyanavayu* in association with *Pitta* and *Kapha*. This suggests different opinions regarding

Ayurvedic nomenclature for Hypertension such as *Vyana-bala Vaishmaya*, *Raktagata Vata*, *Dhamani Purnata*, *Siragata vata*, *Dhamani pratichaya* etc. *Ayurvedic* treatment for Hypertension aims at balancing these *Doshas*. Proper diet habits, Regular exercise, Yoga, Meditation along with *Ayurvedic* herbs can prove beneficial to balance the mind and reduce stress and maintain the blood pressure.

KEYWORDS: *Dosha*, *Dushya*, *Srotas*, *Samprapti*, *Vyana-bala Vaishmaya*, *Chikitsa*.

INTRODUCTION

WHO has identified India as one of those countries that is going to have most of the lifestyle disorders in the near future. Hypertension is one amongst the most alarming health problems of present era. Hypertension results from a variety of reasons like stress, obesity, genetic factors, over use of the salts in the diet and ageing. Hypertension is called a silent killer because it rarely exhibits symptoms before it damages the heart, brain or kidney.^[1] HTN is a condition in which the blood vessels have persistently raised pressure. Blood is carried from the heart to other all parts of the body in the vessels. Blood pressure is generated by the force of blood pushing against the walls of blood vessels as it is pumped by the heart. Hypertension is an important worldwide public health challenge and remains a major cause of morbidity and mortality worldwide.^[2] About 26.4% of the world adult population in 2000 had hypertension and 29.2% were projected to have this condition by 2025.^[3]

In *Ayurvedic* classical texts no direct reference to Essential Hypertension mentioned. Relevant references to Essential Hypertension as indicated in those texts hence have been classified by *Acharyas*. The signs and symptoms of the disease can be understood in terms of *Doshas*, *Dushya*, *Srotasa* and probable *Samprapati* of hypertension. We can correlate with *Siragata Vata*^[4] *Raktagata Vata*^[5], *Avritta Vataroga*^[6], *Vyana bala Vaishmaya* etc. Looking at hypertension from this perspective, Description of *Hridaya* and processes of *Rasa Vikshepana* (circulation) by *Vyana Vayu* is helpful to understand the disease.

Ayurvedic Perspective of HTN

It is a *Vata Dosha* dominant *Tridoshas Vyadhi*. Vitiated *Vata* support the progress of the diseases with *Rasa*, *Rakta* being the main mediator of vitiation. It is greatly influenced by *Mana*. In *Ayurved* regulation of blood pressure is can be understood by functions of *Prana vayu*, *Vyan Vayu*, *Sadhaka Pitta*, *Avalambaka Kapha*, and *Rakta Dhatu* which are situated in *Hridaya*.

Prana Vayu – *Prana Vayu* situated in *Murdha*^[7] performs the functions like *Hridaya Dharana, Buddhi, Indriya Dharan*^[8] Function of *Prana Vayu* can be correlated with the heart rate controlling function of brain originated nerves. Vasomotor center controls the blood pressure through vasoconstrictor and vasodilator nerves. Similarly *Prana Vayu* controls the regulation of blood pressure by controlling *Vyana Vayu*.

Vyan Vayu- *Vyana Vayu* situated in *Hridaya*^[9] performs the functions like –*Rasadi Samvahana, Prasaran, Akunchana, Gati, Asrik sravana*^[10] *Vyan Vayu* is said to be responsible for various kinds of movements in the body with the help of *Vyan Vayu*, Heart contracts and circulates the blood (*Rasa Rakta Dhatu*) continuously all over the body. The contraction and dilatation of the vessels are also governed by *Vyana Vayu* through the heart. So it suggest the involvement of *Vyana Vayu* on regulation of blood pressure.

Samana vayu – Situated in *Sweda, Dosha* and *Ambuvahi Srotasa* responsible for transportation of *Rasa* in to the heart. After the digestion process, *Samanavayu* helps in the transportation of *Rasadhatu* into the heart and forms heart it circulates in the whole body^[11]

Apana Vayu- *Apana Vayu* also plays a role in regulation of normal blood pressure. *Apana Vayu* helps in excretion of *Mutra* on regulation of the body fluid. Vitiated *Apana Vayu* hampers the excretion of the *Mutra* which disturb the body fluid balance, which may affect the maintenance of normal blood pressure.

Udana Vayu – Situated in *Urasthana* perform functions like *Prayatna* (volition), *Urja* (Energy), *Bala*(strength), *Varna* (complexion) *Poshana*. All these *Karmas* are performed in whole body. All organs directly or indirectly do their functions with the help of energy and strength provided by *Udhanavayu*.

Sadhaka Pitta – Situated in *Hridaya* responsible for *Buddhi, Medha, Utasaha, Abhiman, Shaurya, Bhaya, Krodha, Harsha, Moha*.^[12] *Sadhaka Pitta* helps to keep away *Tama* and *Raja Guna* which hampers normal functions of *Manas*. As *Hridaya* is the seat of *Manas*, in good status of mental health the cardiac functions are optimum and blood pressure will be in normal limits.

Avalambaka Kapha- Located in *Uraha pradesha* (with *Hridaya*). The contribution of *Avalambaka Kapha* is to make *Avalambana* of *Hridaya* with *Ahararasa* and *Rasadhatu* together with its own potency.^[13] It gives strength to the cardiac muscle tissue for proper pumping its action which results in ejecting blood to body tissues through vessels.

Manas- Hypertension is considered as a psychosomatic disorder also. In *Ayurveda Prajnaparadha* and *Asatmyaindriyarthasamyoga* are consider as the root causes for every disease, which indicate the involvement of psyche. *Manas Bhavas* like *Chinta* (worry),

Krodha (anger), *Bhaya* (fear) etc. play an important role in the etiopathogenesis, progression and prognosis of disease as well as response to the treatment of the disease.^[14] This fact reveals that *Manas* is also involved in EHT and the disease should be considered as psychosomatic.

Epidemiology

An estimated 1.13 billion people worldwide have hypertension, most (two-thirds) living in low- and middle-income countries. In 2015, 1 in 4 men and 1 in 5 women had hypertension worldwide. Fewer than 1 in 5 people with hypertension have the problem under control. Hypertension is a major cause of premature death worldwide. One of the global targets for non communicable diseases is to reduce the prevalence of hypertension by 25% by 2025 (baseline 2010).

Etiological factors (*Nidana*)

Essential hypertension is idiopathic where exact etiology of the rise in blood pressure is not yet clear, although few predisposing factors have the strongest association with blood pressure. Excessive salt intake, excessive alcohol intake, fatty diet, psychological stress is elicited as the causative factors of Hypertension.^[15] In parallel *ati lavana sevana*, *madya*, *sura pana*, *ati snigdha bhojana* and *chinta*, *shok*, *bhaya* are *nidanas* of *shonith dusti*^[16] Which could be viewed w.r.t Hypertension.

Risk Factor^[17]

- Smoking
- Dyslipidemia
- Diabetes mellitus
- Age above 60 years
- Sex (men and postmenopausal women)
- Family history of cardiovascular disease

Type of Hypertension^[18]

- **Essential or primary hypertension**- The hypertension is of unknown origin.
- **Secondary hypertension** – Hypertension with an identifiable cause secondary to another disease such as renal disease, endocrine or miscellaneous
- **Isolated systolic hypertension** – Commonly seen in old age when systolic B.P>140 mm of Hg with diastolic pressure <90 mm of Hg.

- **Malignant hypertension-** A triad of blood pressure of >200/140 mmHg, grade retinopathy and renal dysfunction
- **White coat Hypertension-** A transient increase in blood pressure in normal individuals, when BP is recorded in a physician consulting room or in a hospital. Assure in normal individuals, when BP is recorded in a physician consulting room or in a hospital.

CLASSIFICATION OF HYPERTENSION

7 JNC Criteria for Diagnosis of Hypertension

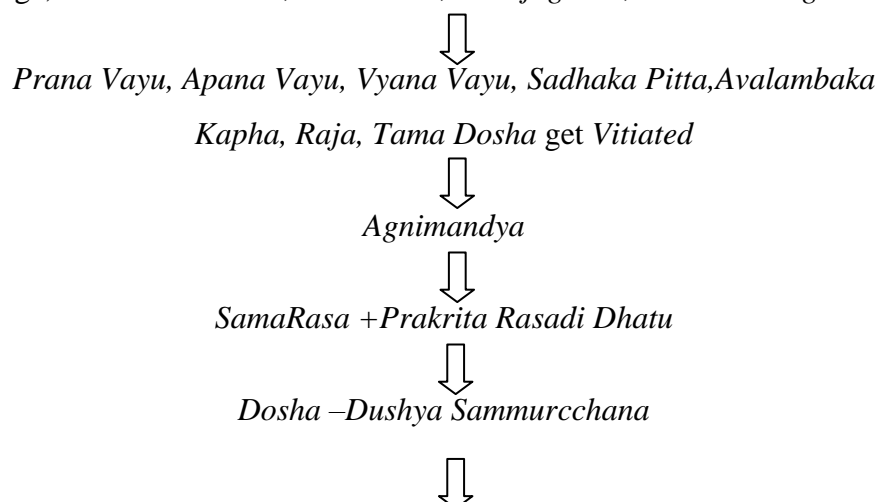
| Category of HTN | Systolic BP (mmHg) | Diastolic BP (mmHg) |
|------------------|--------------------|---------------------|
| Normal | </=120 | </=80 |
| Pre hypertensive | 120-139 | 80-89 |
| Hypertension | >/=140 | >/=90 |
| Stage 1 | 140 -159 | 90-99 |
| Stage 2 | >/=160 | >/=100 |

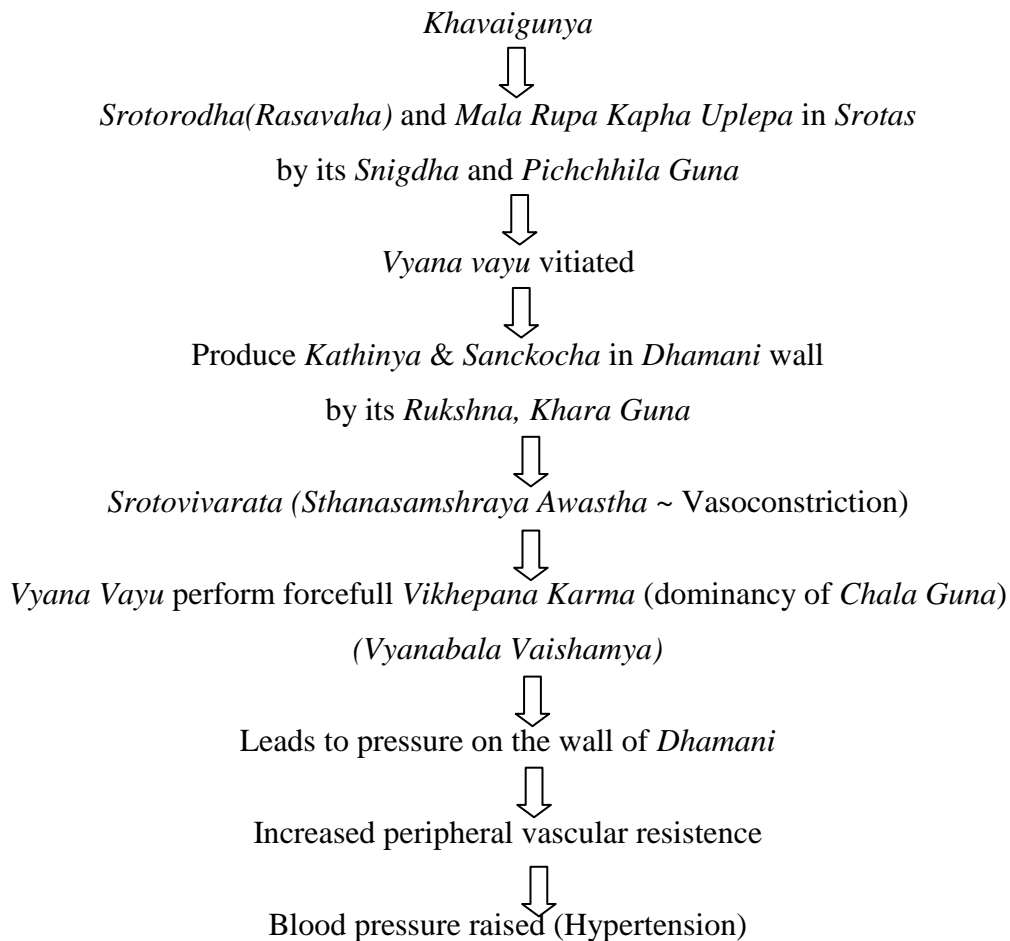
Samprapti (Pathogenesis of Hypertension)

Pathogenesis of secondary hypertension is clear and completely understood. However, those associated with essential hypertension are far less understood. The pathogenesis of HTN takes place at both physical and psychic level one at a time or simultaneously depending upon the *Dosha, Dushya Sammurchhana*. *Agnidushti* results in *Ama* formation and subsequent *Dhatudushti (Rasa and Rakta)*. This leads to *KhaVaigunya* i.e. obstructive pathology in channels. The *Ama* production results into *Strotorodha* (obstruction) and thus partially blocks the normal *Rasa- Rakta* circulation which further vitiates *Vyana Vayu*. Obstructed *Vyana Vayu* leads to forcible blood flow within blood vessels causing increased resistance, thereby increasing blood pressure.^[19]

Samprapti Chart

Heredit, Age, *Ati Lavan Sevena, Manovikar, Ratrijagaran, Ati Guru Snigdha Ahara* etc.





Samprapti Ghatakas

- Doshas** – *Vata* (All five types; mainly *Vyana Vayu*) *Pitta* (*Sadhaka pitta*) *Kapha* (*Avalambaka Kapha*)
- Dushyas-** *Rasa, Rakta*
- Agni-** *Jatharagani, Dhatwagni*
- Srotasa** - *Rasavaha, Raktavaha, Manovaha*
- Srotodusthi-** *Ati-Pravriti, Sanga Type*
- Udbhava Sthana-** *Pakwashaya & Amashaya Samudbhava*
- Sanchara Sthana** – *Rasayani (Dhamanis)*
- Adhistan** – *Manodaihika, Sira, Dhamani, Srotos.*
- Rogamarga-** *Madhayam*

Purvarupa (Prodromal symptoms)

The premonitory symptoms appearing before the appearances of the disease are known as *Purvarupa*. On the basis of observations of the patients of Essential Hypertension, it is said to be *Vata Pitta Pradhana Tridoshaja Vyadhi* and *Purvarupa* of the *Vata Vyadhi* is said to be

Avyakta.^[20] Most of the hypertensive patients are asymptomatic or present with subjective symptoms like headache, vertigo etc. Many patients are diagnosed at routine check-up or other health problem. So the premonitory symptoms of EHT are indistinct.

Rupa (Sign and symptoms)

On the completion of *Dosha –Dushya Sammurchhana* the feature of the manifested disease is *Rupa*. *Rupa* or *Vyakti Avastha* of *Vyadhi* is the fifth *Kriyakala*. This is the stage, where disease appears with its subjective and objective symptomatology. *Ayurveda* is the science which examines the signs and symptoms on the basis of *Panchagyanendriya Pariksha*. The blood pressure measuring is mainly depends upon *Darshana*, *Sparshana* and *Shravana Pariksha*. But when patient feels unhappiness or pain in mind or body it is called as *Vedana* and it is always the indicator of *Sansthana* (Symptoms) and in 50% of hypertensive patient symptomatology is not found. But 50% patients come with specific clinical features.

Shirahshoola (Headache)

Anidra (Insomnia)

Bhrama (Giddiness)

Klama(Fatigue)

Hritspandan (Palpitation)

Swedadhikyata (Excessive sweating)

Shotha (Oedema)

Laboratory investigation^[21]

Urine examination – for protein, glucose and microscopic (red blood cells/other sediments)

Haemoglobin

Fasting blood glucose

Serum creatinine, potassium

Electrocardiogram

Lipid profile

Chest radiography

Echocardiogram

COMPLICATIONS

Elevated blood pressure alone is not an illness, it often requires treatment due to the following short and long term effects like-

- Cerebrovascular accidents (CVA) or strokes

- Myocardial infarction
- Hypertensive cardiomyopathy (heart failure)
- Hypertensive retinopathy, nephropathy and encephalopathy
- Congestion in the lungs
- Left ventricular hypertrophy
- Epistaxis
- Blurring of vision owing to retinal changes
- Angina pectoris

Chikitsa Siddhanta (Line of treatment)

Maharshi Charaka mentioned that *Chikitsa* aims, not only at the radical removal of the causative factor of the diseases, but also at the restoration of the *Doshika* equilibrium.^[22] While treating the disease, one must follow the suggestion of *Acharya Vagbhata*, it is not rational treatment, where the medicine modifies one disease, on the other hand it provokes new complication.

1. Nidana parivarjana

Nidana parivarjana is the avoidance of causes. The first principal to treat any disease is the avoidance of the etiological factors which not only ensure the prevention of disease but also control.

2. Dosha Pratyhanika Chikitsa

Tridosha Shamaka drugs mainly *Vata* and *Kapha Shamaka* drugs to be used in *Visarga Kala*, *Vata – Kaphahara* drugs like *Bhallataka*, *Sarpagandha* etc. While *Vata* and *Pitta Shamaka* drugs should be used in *Adana Kala*. *Vata- Pittahara* drugs like *Gokshura*, *Jatamansi* etc.

3. Vyadhi pratyhanika chikitsa

To minimize *Dhamani Praticaya*, *Lekhana Dravya* likes *Guggulu*, *Madhu*, *Vasa*, and *Haridra* etc. To be used to combat excessive stress and strain *Medhya Rasayana* drugs (*Mandukaparni*, *Shankhapushpi*, *Guduchi* and *Yastimadhu*) along with *Jalanimba* and *Jatamansi* can be used. Some times *Kleda* (Hypervolemia) is also supposed to be an important factor, so its elimination is essential, which is performed by *Mutravirechaniya* drugs like *Punarnava*, *Gokshura* and *Trinapanchamula* etc. and by *Svedajanana* drugs like *Vatsanabha*, *Sobhanjana* etc.

4. *Samshamana and Samshodhana Chikitsa*

a) *Samshamana*- The *Shamana* remedy has been selected taking in view of aspect of the preventive, curative and also *Dosha-Pratyanik & Vyadhi- Pratyanik Chikitsa*.

When psychological condition leading to stress will be manage by *Achara Rasayan, Sadavritta* and *Sattvavajaya*.

b) *Shamshodhana* therapy- *Shamshodhana* is essential for prevention & treatment of EHT. *Shamshodhana* include *Panchkarma* therapy. In which *Virechana, Basti, Rakta Mokshana, Takra Dhara, Kshiradhara, Shirodhara, Shirolepana, and Shiropichu* are suitable in EHT.

5. *Pathya-apathya*

Pathya

Ahara- *Yava, Swastika, Sali, Godhum, Cowmilk*, leaf vegetables like *Upodika, Sunishhanka, Tandulkiya*, fruits like *Amalaki, Draksha, Kushmanda* etc.

Vihara- *Prasannata, Samayka Nidra, Vyasana Asevana, Yogasana, Yam-niyam Palana*

Yoga Measure- *Satvavajaya* is one of the recognized methods of treatment according to *Maharshi Charaka*. Thus the regulation of the *Satva* by *yoga* is highly beneficial in the treatment of hypertension.

Apathya

Ahara- *Atilavana Sevana, Madyapana, Bhayadi Sevana, Ksara Sevana, Guru, Abhishyandi, Katu Ruksha, Ushna Ahara, Dahi,*

Vihara- *Ratri jagarana, Chinta, Krodha, Diva Swapana, Agni Santap,*

Diet recommendations for hypertension

- Lowering sodium intake (especially from table salt) reduces excessive water retention, which helps maintain normal blood pressure.^[23]
- Practicing a high potassium diet helps rid the renal system of excess sodium and restore sodium/potassium balance.
- Practicing dietary changes beneficial for reducing blood pressure include adopting the diet which is rich in fruits, vegetables, whole grains.
- Avoid dairy, butter, eggs and high fat foods
- Reducing consumption of refined sugar and heavily processed food, reducing caffeine intake.^[24]

Compound drug^[25]

| Drug | Dosage (per dose) | Anupan | Duration |
|-------------------------------|-------------------|-----------------------|----------|
| <i>Mamsyadi Kwatha</i> | 10-20ml | Water | 15 days |
| <i>Sarpagandha Ghana Vati</i> | 125-250mg | Water | 15 days |
| <i>Brahmi Vati</i> | 125-250mg | Water | 15 days |
| <i>Prabhakara Vati</i> | 125-250mg | Water/milk | 15 days |
| <i>Arjunarishta</i> | 10-15ml | Water | 15 days |
| <i>Abhayarishta</i> | 10-15ml | Water | 15days |
| <i>Pravala Pishti</i> | 250-500mg | Water | 15 days |
| <i>Shveta Parpati</i> | 125-250mg | Water | 15 days |
| <i>Nagarjunbhrarasa</i> | 125-250mg | Water/Honey | 15 days |
| <i>Hridayarava rasa</i> | 125-250mg | Honey/Triphala Kawath | 15 days |

Common medicinal plants

| Plant name | Dosage (per dose) | Anupan | Duration |
|--------------------------------------------------------------------|-------------------|--------|----------|
| <i>Sarpagandha (Rauwolfia Serpentina Benth ex.Kurz.)</i> Powder | 1-3gm | Water | 15 days |
| <i>Ashvagandha(Withania Somnifera Dunal)</i> Powder | 3-6gm | Milk | 15 days |
| <i>Jatamansi (Nardostachys jatamansi DC.)</i> Powder | 1-3gm | Water | 15days |
| <i>Arjuna (Terminalia Arjuna W.and A.)</i> Bark Powder | 3-6gm | Water | 15 days |
| <i>Arjuna (Terminalia arjuna W.and A.)</i> Bark <i>Ksheerapaka</i> | 10-30 ml | | 15 days |
| <i>Rasona (Allium Stivum Linn.)</i> <i>Ksheerapaka</i> | 10-30ml | | 15 days |

CONCLUSION

In *Ayurvedic* classics, there is no direct description found regarding Essential hypertension. So the treatment should be based on the *Dosha-Dushya* involvement. *Acharya* has described *Hridaya* and process of *Rasa-Rakta Vikshepana* control mainly by *Prana* and *Vyana Vayu* which is very closely related to the circulatory system in modern science. It has been screened as *Essential Hypertension* is a '*Vata* dominant *Tridoshas Vyadhi*', being greatly influenced by morbid state of *Mana* i.e., a psychosomatic disorder, which originated by involving different factors like *Dosha*, *Dushya*, *Agni*, *Srotasa* etc. *Ayurveda* described appropriate lifestyle and diet management called as *Aahar*, *Vihar* for maintaining homeostasis and there by preventing hypertension. Proper medication as per *Ayurvedic* guidelines along with proper *Aahar*, *Vihar* and *Yoga* will definitely control blood pressure.

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