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Hypertension in light of Ayurveda - A Review Article

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ABSTRACT

Hypertension is most prevalent lifestyle disease in the world today, hypertension poses a challenge to the medical community because it is incurable yet manageable with continuous medication. India is known as the hypertension capital of the world. Due to its chronic nature and associated elevated risk of cardiovascular illnesses, hypertension presents an important issue for the public. It can be said that hypertension is a silent killer because many of its patients go undetected for a long time or are only discovered by accident. A better understanding of the applied physiology and etiopathogenesis of hypertension in the light of Ayurvedic principles is being attempted to fill this gap. In the mild and moderate levels, hypertension cannot be classified as a disease in Ayurveda if there are no specific symptoms. It seems to be an early stage of pathogenesis and a risk factor for the onset of conditions affecting the kidneys, eyes, heart, brain, and other organs. Although essential hypertension is not directly mentioned in Ayurvedic scriptures, disease can be explained using Ayurvedic principles. The cause of hypertension is *Raktadushti*, which also involves the *Tridosha*, with a strong *vata* and *pittadosha* influence. Here, a real attempt is undertaken to determine the Ayurvedic etiopathogenesis of essential hypertension. 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, Raktadushti, Tridosha.

INTRODUCTION

The 21st century has been called the stress-and anxiety-filled era. Individuals are too busy to reflect on themselves, thus they are growing more stressed and strained and less concerned about their well-being. Therefore, a number of medical and mental problems, including hypertension, are brought on by these anomalies in health and mental stress. India is known

as the world's center for hypertension. Because it is a chronic illness that increases the risk of cardiovascular illnesses, hypertension poses a significant public health concern due to its high prevalence. A 2008 World Health Organization survey states that over 40% of those over 25 have hypertension.^[1] In India, hypertension is directly to blame for 24% of deaths from coronary heart disease (CHD) and 57% of deaths from stroke.^[2] It is the strongest risk factor for conditions affecting the heart, brain, kidneys, and peripheral arteries, which can be fatal if left untreated.^[3] Because the majority of patients (85%) have no symptoms, hypertension is a silent killer.^[4] The precise underlying causes of 95% of cases of hypertension remain unknown,^[5] while environmental and genetic variables are thought to be responsible.^[6] The disease known as hypertension, or high or rising blood pressure, is characterized by a persistently elevated pressure in the blood arteries. Clinically, hypertension is defined as a diastolic pressure that is higher than 90 mmHg and a systolic pressure that is

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maintained at 150 mmHg or higher. Both primary (critical) and secondary hypertension are recognized subtypes. Primary or essential hypertension, which describes blood pressure for which no scientific explanation can be found, is the term applied to 90 - 95% of cases. The remaining 5 - 10% of cases referred to as secondary hypertension, are caused by various illnesses affecting the kidneys, heart, arteries, or endocrine system. Hypertension has been described in detail in modern medical science with its etiology, pathogenesis, signs, symptoms and treatment. There may be no such clearcut description of hypertension seen in our classics however *Acharya Charaka* said that each disorder is not to be named each time

विकारनामाकुशलो न जिह्नीयात् कदाचन। न हि सर्वविकाराणां नामतोऽस्ति ध्रुवा स्थितिः॥

स एव कुपितो दोषः समुत्थानविशेषतः। स्थानान्तरगतश्चैव जनयत्यामयान् बहून् ॥

तस्माद्विकारप्रकृतीरधिष्ठानान्तराणि च। समुत्थानविशेषांश्च बुद्ध्वा कर्म समाचरेत्॥ (Ch.Su 18/44-46)

Disease and its symptoms alter periodically because of the way that man, his surroundings, his meals, and his ailments have all been evolving. As a result, certain diseases go away and others develop. *Acharya Charaka* stated that as the appearance of a disease varies according to its etiology, a *Vaidya* should not feel guilty if he is unable to cure the disease, especially if it is something new. He told his followers that the basic ideas of Ayurveda could be used to explain any illness.^[7] After the Sphygmomanometer was discovered, hypertension was officially recognized, but its existence was first noted in the list of symptoms. Thus by understanding the *Dosha* state, site of appearance and its signs and symptoms, here is the conceptual study to understand etiopathogenesis of essential hypertension in terms of Ayurveda principle of *Vikalpa* i.e., combinations and permutations of *Doshas*.

AIM AND OBJECTIVES

To find out the factors involved in hypertension as per Ayurvedic perspective and to explain hypertension in

terms of Ayurveda. Also find out etiopathogenesis of essential hypertension in terms of Ayurveda. This research paper is a sincere effort to understand hypertension in terms of Ayurveda, which will be beneficial for treatment as well as preventive purpose.

MATERIALS 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.

LITERATURE REVIEW

Nomenclature

In this modern era there are several references available for the disease hypertension with worldwide acceptance but in Ayurveda experts have suggested different names to demonstrate the phenomenon like *Raktagata Vata*, *Siragata Vata*, *Avrita Vata*, *Dhamani Prapurana*, *Rakta Vikshepa*, *Vyana Prakopa*, *Raktamada*, *Uchharaktachapa*, *Vyana Atibala* etc.^[8]

विकारनामाकुशलो न जिह्नीयात् कदाचन।

न हि सर्वविकाराणां नामतोऽस्ति ध्रुवा स्थितिः॥ (Ch.Su 18/44)

According to *Acharya Charaka*, sometimes it is neither possible nor it is necessary to identify a disease by a name. An Ayurvedic physician should attempt to construct the *Samprapti* of a given clinical condition based on the signs-symptoms and investigative findings in each case and should plan the management accordingly. The disease hypertension is abnormality of *Rakta Dhatu* popularly known as *Shonita Dushti* because *Lakshanas* are similar to that of hypertension are - *Shiroruk*, *Klama*, *Anidra*, *Bhrama*, *Buddhi Sammoha*, *Kampa* which akin to the manifestation of hypertension. *Mada*, *Murcha*, *Sanyasa* equally true in relation to malignant hypertension (*Charaka Samhita*, *Sutrasthana 24/11-17*)

Concept of Blood Pressure in Ayurveda

There isn't a thorough explanation of the heart in Ayurvedic texts. The ancient *Acharyas* have provided a simple definition of the passage of *Rasa Rakta* through

the body with the help of *Vyanvayu*. *Raktadhatu* is *Drava* (liquid) *Dhatu*. It therefore naturally has the ability to flow. In order to keep the flow of blood up to the end tissue, more force (*Nodana*, *Abhighata*, *Dhamana*, *Sarana*) is needed in addition to its inherent flowing characteristic, which is supplied by the heart's contractions and relaxations as well as the artery's pulsations. The specific force generated by blood circulation is referred to as blood pressure.

Three *Doshas* in Ayurveda, *Vata*, *Pitta*, and *Kapha*; seven *Dhatus* (*Rasa*, *Rakta*, etc.); and *Malas* (*Mutra*, *Purisha*, etc.) are said to be the fundamental causes of all bodily activities. So, to understand the blood pressure in terms of Ayurveda, consideration of *Srotasa* by which it travels, *Hridaya*, *Oja* and functions of *Mana* are necessary. The circulatory system indicates *Rasa Rakta Samvahana* is multidirectional, and its dynamics change depending on the bodily part and *Saptadhatu's* requirements. *Rasadhatu*, which is a product of digestion and is extremely micro in nature, circulates throughout the body in three directions as a result of *Acharya Sushruta's* attempt to develop the idea of circulation based on direction.

Circulation takes place from *Hridaya* in 3 directional ways which are *Shabda* (*Tiryagamitva*), *Archi* (*Urdhwagamitwa*), *Jala* (*Adhogamitwa*) *Santanavat*.^[9] Which are mainly related to intensity of kinetic force (cardiac output). The subject of these *Gati* (directional ways) is *Vatadosha*. Blood pressure might become high or low if there is any variation in the direction and kinetic force of *Vatadosha*. These circumstances could be changed by obstruction of their natural directions and kinetics leading to hypertension.

Hridaya

It is believed that *Hridya* is the source of *Rasavaha* and *Raktavaha Srotasa*, which contracts and relaxes and makes sure *Rasa-Rakta* circulates with the aid of *Vyana Vayu*.^[10] Since *Hridya* is a seat of *Prana* as well, its self-originating power, or *Chetana*, is carried out by *Vyanavayu* at some point in the body and provides the arteries with the ability to pulse. The heart's *Vyutpatti* provides an explanation of its physiology. The three letters *Hri*, *Da*, and *Ya* which together make up the

phrase *Hridaya* represent three fundamental characteristics: *Aharana* (gets), *Dana* (gives), and *Ayana* (moving).^[11]

Aharana: The body's *Rasa-Rakta* is transported to the right atrium by the superior and inferior vena cava.

Dana: Through the Arch of Aorta and its branches, *Rasa-Rakta* is expelled from the left ventricle and into the body.

Ayana/Gati: both *Aharana* and *Dana* use the heart's continuous contraction-relaxation mechanism.

Blood pressure is directly affected when pathology in the *Rasadhatu* or *Hridaya* arises because it affects the *Rasa-Vikshepana Kriya* (circulation of the *Rasa-Rakta Dhatus*) at the whole body level. Further, *Atichinta* is stated as the direct cause of *Rasavaha Srotodushti* in Ayurvedic scriptures.^[12] The *Vishaya* of *Mana* is *Chintya*. One could refer to *Atichinta* as a vitiated mental condition. Since *Rasavaha Srotasa* and *Mana* are derived from *Hridaya*.

The previously mentioned factors impair *Hridaya's* *Rasa-Samvahana* function. *Oja* maintains the heart and the channel that connects to it healthy by avoiding things that could make you unpleasant (worries). Stable condition *Mana* plays an important role in the regulation of blood pressure. *Dhamanis* because they pulsate, as *Srotamsi* because they permit oozing and *Siras* because they maintain a continuous flow of blood (*Rasa - Rakta*).^[13] The *Dhamanis* are stated to have their origin in the heart and end in the *Srotamsi* (capillaries) which in turn unite to form *Siras* (veins). As a result, *Hridaya*, *Dhamanis*, *Srotamsi*, and *Siras* form a single circulatory unit that controls the body's appropriate blood flow and nutrient delivery. *Spandana* of *Hridaya* is controlled by *Mastishkagata Pranavayu* and *Avalambakakapha*.

Vyanavayu

Location: *Hridaya*, Entire body

Features: *Gati* (movements), *Prasarna* (extension), *Akunchana* (flexion), *Unmesha-Nimesha* (blinking)^[14]

Rasasamavahna, *Sveda-Asrik*, *Sravana*, *Dhatu Tarpana*^[15]

Here, phrase *Gati* can be taken as the motion of the heart, which is concerned inside the context of Blood pressure. The contraction and dilatation of the vessels also governed by way of *Vyanavayu* via *Hridaya*. So, it shows the involvement of *Vyanavayu* on the regulation of blood pressure.

Sadhaka Pitta

Location: Hridaya

Features: Responsible for *Buddhi*, *Medha*, *Utsaha*, *Abhimana*.^[16-18] *Shaurya*, *Bhaya*, *Krodha*, *Harsha*, *Moha*.^[19] *Sadhaka Pitta* allows to preserve away *Kapha* and *Tama*, which hampers *Chetana* to do its ordinary capabilities and makes *Mana* free from such *Avarana* of *Tama*. So, *Mana* becomes efficient, in turn and enhances *Buddhi*, *Medha*, *Abhimana*.^[20] and so on., sooner or later helps *Aatma* to achieve its goal. It is difficult to give an explanation for *Sadhaka Pitta* in phrases of present-day physiology, but features of adrenaline do possess a few similarities in addition to that of *Sadhaka Pitta*. In cases of fear, anger, and such different emotions, the adrenal gland is stimulated and increases the secretion of adrenaline. Functions like fear, gallantry etc. of *Sadhaka Pitta* referred by *Acharya Chakrapani*, may be correlated with that of adrenaline. Worry, fear, anger, happiness etc. affects heart rate and cardiac output. Which in turn impacts blood pressure. Hence, *Sadhaka Pitta* may be taken into consideration as an essential factor in the regular physiology of blood pressure.

Avalambaka Kapha

Location: Uraha Pradesha (with Hridaya)^[21]

The contribution of *Avalambaka kapha* is to make *Avalambana* of *Hridaya* with *Ahara Rasa* and *Rasa Dhatu* together, with its personal efficiency. The regular rhythmicity, conductivity, excitability, contractility, tone, and refractory duration of cardiac muscle tissue can be correlated with *Avalambana Karma* of *Hridaya* by using *Avalambaka Kapha*. Therefore, it keeps the heart in healthy state and ceases to complement its operating capacity of non-stop pumping motion. Consequently, it is able to be stated that *Avalambaka Kapha* has a few positions on regulation of Blood pressure.

Impact of Oja on blood pressure

Hridya is the main site of *Oja*, from wherein it is circulated in all around the body^[22] and as mentioned earlier, *Oja* remains as *Bala* of *Hridya* to make use of *Rasa-Rakta Samhanana*. In the pathogenesis of hypertension, heart is the foremost affected organ. So, on the premise of *Ashraya-Ashrayibhava*: *Oja* gets affected in hypertension. Furthermore, symptoms of *Oja-Kshaya* and *Vyapad* defined in Ayurvedic texts like *Shrama*, *Moha*, *Murcha* etc., are also observed in HTN. This indicates role of *Oja* on the regulation of blood pressure and its pathogenesis.

Rasadhatu

The *Nirukti* of *Rasadhatu* itself shows its property of continuously flowing.^[23] Though, *Rasadhatu* is circulated at some stage in the whole body, its primary site is thought to be *Hridaya*.^[24] For this reason, *Vikshepana* and *Aakshepan Karma* (i.e., contraction and relaxation) of the *Hridaya* also affects the circulation of *Rasa Dhatu*. In Ayurvedic texts, over much worrying has been mentioned as direct cause of *Rasavaha Srotodushti*.^[25] As *Hridaya* is root of *Rasavaha Srotasa* that influences *Hridaya* also and hampers its *Rasa-Samvahana* functions. Thus, fluctuation within the blood takes place, which causes HTN.

Raktadhatu^[26]

Primary characteristic of *Rakta* is *Jeevan*. So, it's been cited as a *Jiva* (life). While *Rasa-Rakta* continues to be of their normalcy, the depending organs i.e., *Sira*, *Dhamani*, *Hridaya* and so on, stay normal and perform their functions normally. Any abnormality of *Rasa-Rakta Dhatu* impacts the normal circulation of *Rasa-Rakta*, which ultimately results in the abnormality of blood pressure by making additional pressure or less pressure on the *Vahinies* (arteries). Consequently, it can be believed that *Rasa-Rakta Dhatu* are also accountable for maintaining normal blood pressure.

Impact of Manasika Bhava on hypertension^[27]

Hypertension also taken into consideration as a psychosomatic sickness. The *Manasa Bhavas* plays a critical role in causing of high blood pressure. In

Ayurveda, *Prajnaparadha* and *Asatmyaindriyartha Sanyoga* are considered as root causes for every disorder, which indicate involvement of psyche. The two *Mano Doshas* like *Raja* and *Tama* are concerned in high blood pressure. *Raja* is considered *Pravarttaka* and *Tama* as *Avartaka*, when they gets vitiated they induces signs and symptoms like *Bhrama*, *Tandra*, *Tamodarshana* etc. Those signs are typically determined within the patients of EHT. In modern science additionally stress, anxiety, worrying, anger, fear etc. are said as the favourable factors for HTN.

Chinta, *Bhaya*, *Shoka* and *Krodha*; these factors can be included in stress. Each and every factor has the property to vitiate different Doshas.

- *Chinta* : *Vata Prakopa*
- *Shoka* : *Vata Prakopa*
- *Bhaya* : *Vata Prakopa*
- *Krodha* : *Pitta Prakopa*^[28]

By means of above descriptions it can be concluded that specially *Hridaya* and its depending components i.e., *Prana* & *Vyanavayu*, *Sadhaka Pitta*, *Avalambakakapha*, *Oja*, *Rasa-Rakta Dhatus* and regular function of *Mana* collectively assist to hold the physiology of the blood pressure.

Nidan Panchaka

Nidan (Aetiology)

As mentioned earlier essential hypertension is the name given to the type where in no specific cause may be found. The precise aetiology of the increase in Blood pressure isn't always yet clear. Although, strongly cautioned predisposing factors can be classified as:

1. Genetic factors
2. Environmental factors
3. Psychological factors^[29]

1. Genetic factors

The role of heredity in the aetiology of essential hypertension has long been suspected. The evidence in support are the familial aggregation, occurrence of hypertension in twins, epidemiologic data,

experimental animal studies and identification of hypertension susceptibility gene (angiotensinogen gene). This genetic factor of the development of high BP might not itself always cause hypertension. Instead, there can be a genetic predisposition to develop raised pressure in reaction to various environmental factors.^[30]

Sthaulya and *Prameha* have been clearly mentioned as having *Beeja Dosh* as etiological factor by *Acharya Charaka*.^[31] These two *Santarpanottha Vyadhis* are very much prone to hypertension. In *Raktapradosha Vikaras*, *Viruddha Ahara* is one of the etiological factors having individual etiological measure in the manifestation of *Santana Dosh*^[32] and it also can coincide with genetic predisposition (*Beeja Dosh*).

2. Environmental factors

Numerous environmental factors, including as age, race, sexual activity, salt intake, obesity, occupation, alcohol consumption, etc., can have an impact on the development of EHT. Currently, it is thought that a variety of variables contribute to essential hypertension. Here are a few of these:

a) Age

The earlier in life that hypertension is diagnosed and untreated, the shorter the life expectancy. Usually, it happens between the ages of 35 and 60. The age-related rate of rise in blood pressure is constantly high for systolic than diastolic.

Systolic tends to rise till 70 to 80 years, whereas diastolic has a tendency to stay constant or decline after 40 years of age, as an outcome, the risk of isolated systolic hypertension increases regularly with advancing age and is a common type of hypertension in elderly.^[33]

Vata Dosh increases in old age.^[34] Physiological aggravation of *Vata* with its *Ruksha*, *Khara*, *Daruna*, *Sheeta Guna* etc.^[35] are the reasons for *Sankocha* and *Kathinya* of the blood vessels. Also, *Chala Guna* of *Vyana Vayu* (in old age) causes forcible *Rasa-Rakta Samvahana* which leads to forcible cardiac output and ultimately results in increase in blood pressure. Thus, causes increase in blood pressure.^[36]

b) Family^[37]

According to studies, the probability of hypertension in a relative's family is three to eight times higher in families with a history of hypertensive patients than in the general population.

c) Race^[38]

Some racial groups - such as the Chinese, Eskimos, and Negroes in Africa - seem to be comparatively insensitive to hypertension, whereas others have a high frequency of it. The difference could not be racial in nature, but rather the result of lifestyle, nutrition, and environment. The environment is most likely a more significant factor.

d) Salt Consumption^[39]

A diet high in salt (sodium) is a major contributor to elevated blood pressure. The highest incidence of high blood pressure is found in those who consume more salt in their diet. For example, Japanese people who consume more salt (sodium glutamate in soy sauce) are more likely to suffer hypertension. Furthermore, blood pressure often decreases with a decrease in salt intake.

In *Charaka Samhita*, immoderate use of *Lavana* is defined as the root cause of *Shonitaja Roga*^[40] and this ultimately results inside the blood volume lead *Rakta* is also vitiated.^[41] Furthermore, *Acharya Charaka* has mentioned that *Lavana* should be consumed in limited quantity.^[42] If taken in excessive amount it causes fatigue lassitude and weakness^[43], which are the symptoms, usually found in essential hypertension. *Vagbhata* has described that *Atilavana* intake leads to increase in *Abhishandi*, *Sukshma*, *Ushna* and *Vyavayi Gunas* in body which results in *Pitta* and *Shonita* vitiation along with increase in quantity of *Rakta*.^[44] *Lavana Rasa* formed with *jala* and *Agni Mahabhoota* and one of function described as *Kledana* which can be compared with retention of sodium ions in tissue and increased quantity of *Rakta*. Salts more than 10gm /day leads to renal retention of salt and water which in turns increase the quantity of plasma and extra vascular fluid volume which keeps the circulatory volume higher than it should be excreting excess fluid

pressure on walls of blood vessels walls. Walls react to this stress by thickening and narrowing, leaving less space for fluid raising resistance and requiring higher pressure to move blood to the organs. Heart has to pump against high pressure system that leads to high blood pressure.

e) Habit

High blood pressure can also be caused by drinking alcohol and smoking cigarettes. Excessive alcohol use (more than six units per day) has been shown in studies to cause patients' blood pressure to increase. Both nicotine and carbon monoxide, which are released when tobacco is burned, are potent vasoconstrictors. In addition, nicotine increases catecholamine production, which is indicative of elevated blood stress.^[45] *Usana*, *Tikshna*, *Sukshma*, *Vishada*, *Ruksha*, *Ashukari*, *Vyavayi*, *Vikasi* are ten qualities of *Madya* which are exactly opposite to the qualities of *Oja*.^[46] *Ushana*, *Tikshna Guna* provoke *Pitta Dosh* and *Shonita Dushti*. *Laghu Guna* of *Madhya* aggravate *Vata Dosh*. Ultimately *Oja Kshaya* occur and *Hridaya* gets involved being the seat of *Oja*. *Hridayashrita Vyanavayu*, *Sadhaka Pitta*, *Avalambaka Kapha* are also get affected. *Avalambak Kapha* weakens the function of *Upachaya* of *Hridaya Mamsapeshi*, resulting weak pumping action of heart which results in increase end diastolic volume. Also vitiates the *Vyana Vayu Vriddhi* resulting aggravated contractility of heart to compensate the extra volume which ultimately leads into increased arterial blood pressure.

f) Vegetarian diet

Across all age groups, vegetarians have lower blood pressure than non-vegetarians, while the reason for this difference is unknown. This has given rise to the theory that a diet heavy in animal fats may cause hypertension in and of itself. Another possibility is that the high fiber content of a vegetarian diet controls weight, acting as a buffer against high blood pressure.^[47] It has been stated that *Mamsa* is the reason of *Shonitaja-Roga*.^[48] There are several similarities between the symptoms of Essential Hypertension and *Shonitaja-Roga*. Therefore, it is

possible to say that *Mamsa* (non-vegetarian) plays a part in the pathophysiology of EHT.

g) Obesity

Being overweight is linked to a higher risk of hypertension, particularly central obesity correlates with increased blood pressure than overall body mass.^[49] The excessive consumption of *Madhura Rasa* in the aetio-pathogenesis of *Sthaulya* leads to *Jatharagni-Vaishymaya* and *Medo-Dhatvagnimandya*, which in turn produces *Ama* and *Apakva-Medo-vridhhi* (*Snigdha-Guru Ahara*). This *Apakva Ama* when deposits in *Rasavaha-srotasa* may leads to *Dhamani-Praticharya* (Atherosclerosis).^[50,51] Which is a responsible component of EHT. Additionally, *srotorodha* is caused by *Snigdha*, *Pralepi*, *Picchil*, and *Guna* of *Ama*, and the outcome is *Prakopa* of *Vyana-vayu*. This *Apakva Medodhatu* itself also obstructs the pathway of *Vata*.^[52] This vitiated *Vata* (in particular *Vyana-Vayu*) and causes rise in BP.

h) *Ati Snigdhahojana* (fatty food)

Excessive consumption of *Snigdha* and *Guruahara* combined with daytime sleep is the explanation given for the etiopathogenesis of *Shonita Dusti*. When *Ati Snigdha*, *Guru Ahara* produces *Jatharagni Vaigunya* and *Medodhatvagnimandhya*, *Ama* (*Apakwa Rasadhatu*) and *Apakva Medoviddhi* are produced. When deposits of this *Apakva Meda* and *Rasa* occur in *Rasavaha Srotas*, it may cause *Dhamani Pratichaya* (atherosclerosis), which may be the cause of high blood pressure.

i) *Vega-Vidharana*

In Ayurveda, suppression of natural urges has unique importance in the manifestation of mainly *Vata Vyadhis*. As hypertension is the outcome of *Vata dosha* involvement, suppression of natural urges which aggravates *Vatadosha*. *Acharya Vagbhata* has also implied that all the diseases may manifest by the suppression of natural urges.^[53] *Hridroga* is inferred to be a complication of hypertension by modern science simultaneously. Thus, here substantial theory of *Udavarta* can be taken as an aetiological factor of hypertension by taking direct and indirect implications from different places.

j) *Raktapradoshaja Nidana*

Unwholesome, hot and sharp wine excessive food, *Kulattha*, *Masha*, *Nishpava* and *Til* oil. *Pindalu*, *Mulaka* and all green vegetables. Meat of aquatic, marshy, *Prasaha* and the animals living in holes, Curd, sour whey (*Mastu*), vinegar, *Sura* and *Sauviraka*. Rotten, putrefied food and which has mutually contradictory qualities (*Viruddha*). Sleeping during day time after taking liquid, unctuous and heavy food, excessive anger, excessive exposure to the sun and fire. Suppression of the urges, avoidance of bloodletting (in *Sharada*).^[54]

k) Neurogenic factors

In most cases, sympathectomy does not result in a permanent reduction in hypertension, but neurogenic factors may also be responsible for the vasoconstriction that raises blood pressure. Thus, this problem has not been seen as a significant contributor to high blood pressure. There is definitely evidence of widespread vasoconstriction in the kidneys and elsewhere in the EHT. This most likely causes hypertension. But sometimes, the reason behind this arteriolar constriction remains unknown.^[55]

Psychological factors

It is evident that psychological variables such as tension, anger, and stress may also be important in the genesis of hypertension. For example, acute mental stress produced by sporting out the excessive occurrence of EHT and rise in BP with age found in westernized societies has been attributed to psychological stress.^[56] In Ayurveda, from these *Manasika Bhavas*, vitiation of *Mana* through *Raja* and *Tama* Dosha takes place, which is located in *Hridaya*. Furthermore, *Acharya Dalhana* has implied that the functions of *Sadhaka Pitta* can be associated with *Mana* and *Hridaya*.^[57] Thus, an increase in blood pressure occurs when *Rasa-Rakta-Vikshepana* impairs the functioning of *Hridaya*. Stress and strain in the mind can raise blood pressure by stimulating the vasomotor center and hypothalamus. Extended or recurrent stress may lead to the development of chronically elevated blood pressure. It's likely that as stress, tension, and

strain have increased in the modern day, high blood pressure is becoming more common.^[58]

Purvarupa

अव्यक्तं लक्षणं तेषां पूर्वरूपमिति स्मृतम् || (Ch.chi.28/19)

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*. 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.^[59]

Rupa

प्रादुर्भूतलक्षणं पुनर्लिङ्गम् | (Ch.Ni. 1/9)

The science of Ayurveda investigates symptoms and signs based on *Panchagyanendriya pariksha*. The measurements of blood pressure primarily rely on the *Darshana, Sparshana, and Shravana parikshas*. 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's symptomatology (*sansthana*) is not found. However, 50% of patients have particular clinical characteristics.

- *Shrirah Shoola* (Headache)

Headache is popularly taken into consideration a symptom of hypertension which happens commonly within the morning hours after awakening.^[60] *Acharya Sushruta* told that *Shoola* can't occur without the vitiation of *Vata Dosha*.^[61] *Acharya Charaka* has covered *Shirah-shoola* in 80 types of *Nanatmaja-i*.^[62] Further, *Acharya Charaka* while explaining *Samanaya Samprapti* of *Shiroroga* mentioned that *Prakupita Vatadi Dosha* causes *Dusti* of *Rakta*, localizing in *Shira*, produce *Shiroroga*, which includes *Shirah Shoola* additionally.^[63] This way because of *Vata Dusti*, *Shirah Shoola* might also occur.

- *Nidra-Nasha* (Insomnia)

Insomnia is because of disturbed mental factors like mental stress, strain, anxiety and many others. They affect the body and thoughts by numerous psychosomatic mechanisms, which can be associated with regulation of sleep and immediately have an effect on the sleep centre. So, insomnia or disturbed sleep is usually found within the patient suffering from EHT.^[64] According to Ayurveda *Vitiated Vata and Pitta* and *Manah Santapa* are liable for *Nidranasha*.^[65] *Acharya Charaka* has mentioned it under *Nanatmaja Vikara* of *Pitta*.^[66] *Laghu Guna* of *Vayu* is usually reason for *Nidranasha*. Underneath the symptoms of *Vata-Pitta Vriddhi*, *Acharya Sushruta* has mentioned both *Nidra-Alpata* and *Nidranasha*.^[67]

- *Bhrama* (Giddiness)

Giddiness in hypertensive patients might be due to ischemia of labyrinth, malfunctioning of vasomotor system or transient ischemia of the cerebrum.^[68]

Acharya Sushruta has stated that *Bhrama* occurs as a result of vitiated *Raja, Pitta* and *Vata*.^[69] The *Chala Guna* of *Vayu* turns into dominant because of inflated *Raja Dosha* that makes affected person to sense him like revolving.^[70]

- *Tamo Darshana* (Flashes earlier than eyes)

Acharya Charaka has described *Tamodarshana* in *Rakta Pradoshaja Vyadhi*; hence *Tamodarshan* occurs because of *Srotorodha* in *Rakata Vahini* of *Shira*.^[71]

- *Daurbalya* (Generalized weakness)

General fatigability has been given under the subjective signs and symptoms related to essential hypertension.^[72] *Daurbalya* has been described in *Shonitaja Vyadhi*.^[73] Impairment of *Dhatu* formation due to *Rasa-Rakta Dusti* by using vitiated *Vata Dosha* also affects the formation of *Oja (Prakrita Bala)*, which produces *Ati-Daurbalya*.

- *Hridayavata* (Palpitation)

Palpitations have been described below symptoms related to Essential Hypertension.^[74] According to *Acharya Gangadhara*^[75], *Hridayavata* means elevated *Gati* of *Hridaya*. Furthermore, even as describing the symptoms of *Rasakshaya*, *Acharya Charaka* has noted

Hridayam-Tamyati.^[76] Acharya Gangadhra has commented on *Tamyati*. Right here, *Vyana Vayu* is aggravated with its *Chala Guna* resulting in *Hridadravata*.

- Swasa-Kastata (Breathlessness)

Swasa-Kastata is diseased state of *Pranavaha Srotasa*. Increased *Kapha* when obstructs the *Srotasa*, *Prana Vayu* gets vitiated, which ultimately results in *Swas-Kricchata*. Right here within the context, same *Rasa* produced via *Agni-Vaishmya*, which gives rise to *Mala-Rupa Kapha* and its *Sanga* in *Pranavaha Srotasa* can be the reason of *Swasa Kastata*.

- Akshiroga (Redness of eyes)

Akshiroga is defined among *Shonitajaroga* in *Vidhishoniteeya Adhyaya*. Also, Acharya Sushruta mentioned that redness of eyes is due to *Rakta Vriddhi*.^[77]

- Klama

The tiredness of body and mind without doing any physical and mental exertion is called as *Klama*. *Klama* is common symptom in the maximum number of EHT patients. Acharya Charaka listed the symptom under *Raktapradosha Vikaras*. *Vatadoshaprakopa* results in the vitiation of *Rasa* and *Raktadhatu*s which causes *Klama*.

Clinical Features of *Shonitajavyadhi* with their *Dosha* predominance^[78]

SN	Clinical Feature	Dosha Predominance
1.	<i>Akshiroga</i>	<i>Pitta</i>
2.	<i>Raktapitta</i>	<i>Pitta</i>
3.	<i>Raktameha</i>	<i>Pitta</i>
4.	<i>Vatashonita</i>	<i>Vata</i>
5.	<i>Pipasa</i>	<i>Vata, Pitta</i>
6.	<i>Gurugatrata</i>	<i>Kapha</i>
7.	<i>Santapa</i>	<i>Pitta</i>
8.	<i>Daurbalya</i>	<i>Vata</i>

9.	<i>Shirashoola</i>	<i>Vata, Pitta</i>
10.	<i>Klama</i>	<i>Pitta, Vata</i>
11.	<i>Arati</i>	<i>Pitta</i>
12.	<i>Krodha-prachurta</i>	<i>Pitta</i>
13.	<i>Buddhi-sanmoha</i>	<i>Vata, Kapha</i>
14.	<i>Sweda</i>	<i>Pitta</i>
15.	<i>Mada</i>	<i>Pitta</i>
16.	<i>Kampa</i>	<i>Vata</i>
17.	<i>Tandra</i>	<i>Kapha</i>
18.	<i>Tamodarshan</i>	<i>Vata, Pitta</i>
19.	<i>Bhram</i>	<i>Vata, Pitta</i>

Samprapti

Overuse of salt and alcohol vitiate *Sadhak Pitta* and *Shonita*. Sedentary life style vitiate *Avalambak Kapha* and psychological stress vitiate *Prana Vayu*, *Raja Tama Bhava*. *Prana Vayu* has influenced on *Hridaya* vitiates *Hridaya* and its components like *Sadhak Pitta*, *Avlambaka Kapha*, *Oja*. *Shonita* is also involved as it is located in *Hridaya*. *Prakupita Avalambakakapha* induces exaggerated contractility of the heart while aggravated *Vyana Vayu* leads increased *Gati*, the force of ejection of blood from *Hridaya*. These events result into forceful expulsion of blood through *Dhamanis*, ultimately leading into increased resistance in vessels ensuing High blood pressure. At same time because of *Aharaja*, *Viharaja* and *Manasa Hetu* there is *Jathargnimandhya* which produce *Ama* (*Apkvaannarasa*), as consequence of *Rasa Raktadi Dushti* with *Apkava Rasa Raktadivruddhi* can takes place leading to increase viscosity and fluidity of blood. This gives rise to hemodynamic changes where heart has to pump with more pressure. Obesity has been claimed for its role in manifestation of hypertension. *Siras* (which are *Adhithana* of hypertension) are originated from *Medodhatu*. Vitiated *Medo Dhatu* causes *Strotasavarodha*. *Ruksha Guna Vriddhi* causes hardening of blood vessels and reduction in elasticity

of vessels results in reduced lumen of blood vessels (Sira & Dhamani).

Nidana Sevana



Vata Pradhana Tridosha Prakopa



Since *Prana Vata* has influence on *Hridaya*



Vitiates *Hridaya* and its residing components like *Vyana Vata, Sadhaka Pitta, Avalambaka Kapha and Shonita*.



Prakupita Avalambaka Kapha induces exaggerated contractility of the Heart.



Aggravated *Vyana Vata* leads increased *Gati* (the force of ejection of blood from Heart)



These events lead into forceful expulsion of blood through *Dhamanis*



Ultimately leading to increased resistance in vessels



Hypertension

Samprapti Ghataka

- *Doshas - Vata* (All five types; mainly *Vyana Vayu*)
Pitta (Sadhaka & Pachaka) Kapha (Avalambaka)
- *Dushya - Rasa, Rakta, Meda*
- *Agni - Jatharagni, Dhatvagni*
- *Ama - Jatharagni, Dhatwagni-Mandya-Janya*
- *Srotasa - Rasavaha, Raktavaha, Manovaha, Medovaha*
- *Srotodushti - Ati-Pravritti, Sanga Type, Siragranthi*
- *Udbhava Sthana - Ama-pakwashaya*
- *Sanchara Sthana - Rasayani (Dhamanis)*
- *Adhithana - Manodaihika (Psychosomatic)*
Hridaya, Sira, Dhamani, Srotas.

- *Rogamarga - Bahya, Madhyama* (Including *Tri-Maha-Marma - Hridaya, Shira, Basti*)

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-Pitta Pradhan Raktapradoshaja 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. It's a disease which involves two *Roga-Marga* which are - *Madhayama-Rogamarga* which involves *Hridaya, Murdha* and *Bahya - Rogamarga* which involves *Shira, Dhamani* and *Rakta*. Hence, it's a *Yapya Vyadhi*. It also involves *Dhatu* i.e., *Rasa, Rakta, Meda* and many others. It Influences or associated with *Marma*, as like *Hridya* and *Shira*.

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