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## UNDERSTANDING HYPERTENSION IN TERMS OF AYURVEDA.

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### ABSTRACT

Hypertension is a significant health challenge due to its prevalence and associated risk of cardiovascular diseases and target organ damage. Due to the silent nature of not presenting early signs and symptoms it becomes very dangerous to the health. Though there is no condition described in Ayurveda that is comparable to hypertension, this study is conducted to find out probable pathogenesis of hypertension in terms of Dosha, Dushya, Nidan panhaka and Causitive factors according to ayurvedic literature. In the end we found that Hypertension is a psychosomatic Vatapradhan Tridohaj vyadhi of Raktavaha Srotas in which Rasa, Rakta and Manas are the Pradhan Dushyas.



## Introduction

Because of its prevalence and associated increase in the risk of cardiovascular diseases, hypertension (HTN) is a significant public health challenge. Out of the 17 million premature deaths (under the age of 70) due to noncommunicable diseases in 2019, 38% were caused by CVDs.(1) Approximately 63% of total deaths in India are due to noncommunicable diseases, of which 27% are attributed to cardiovascular diseases, which affects 45% of the 40–69 age group. Moreover, it remains poorly controlled due to low awareness about hypertension, lack of appropriate care through primary care, and poor follow-up (2) Hypertension is a serious medical condition and can increase the risk of heart, brain, kidney and other diseases.

The burden of hypertension is felt disproportionately in low- and middle-income countries, where two thirds of cases are found, largely due to increased risk factors in those populations in recent decades.(3) Many people with high blood pressure in developing countries are not aware of their disease, and do not have access to treatments that could control their blood pressure and significantly reduce their risk of death and disability from heart disease and stroke.(4)

There is no one condition described in Ayurveda that is comparable to hypertension. So, in the case of an unknown ailment, the physician should strive to grasp the nature of the disease using Ayurvedic principles like Dosha, the

site of manifestation, etiological factors and then should initiate the treatment. As a result, it is vital to investigate the factors that have a role in hypertension and find an appropriate treatment for it.

## Aims and objectives

To discover the elements involved in hypertension and explain hypertension in terms of Ayurveda.

## Material and methods

To explore signs and symptoms similar to hypertension from an Ayurvedic viewpoint, classical literature on Ayurveda, contemporary literature, accessible research updates, and scientific material available on the internet, among other sources, were searched and examined.

## Literature Review

The lateral pressure exerted by the column of blood on the wall of arteries. The pressure is exerted when blood flows through the arteries. Generally, the term 'blood pressure' refers to arterial blood pressure" Arterial blood pressure is expressed in four different terms: Systolic Blood Pressure, Diastolic Blood Pressure, Pulse Pressure, Mean Arterial Blood Pressure.(5)

When the blood pressure in adults is greater than 140 mm Hg systolic and 90 mm Hg diastolic on three independent occasions measured several weeks apart, the condition is called hypertension.

**Classification of Hypertension :(6)**

| Category                                 | Systolic (mm of hg) | Diastolic (mm of hg) |
|--|---------------------|----------------------|
| Normal                                   | < 120               | <80                  |
| Pre hypertensive/elevated blood pressure | 130 -139            | 85 -89               |
| <b>Hypertension</b>                      |                     |                      |
| Stage 1 HTN                              | 140 – 159           | 90 – 99              |
| Stage 2 HTN                              | 160 – 179           | 100 – 109            |

**Types of Hypertension :(7)**

In 95% patients, no cause is found, and such cases are referred to as having primary or 'essential hypertension'. Many factors influence blood pressure and cause it to be clinically high in some individuals. A wide variety of pathophysiological mechanisms are involved in the maintenance of blood pressure, and their derangement thus may result in the development of essential hypertension. A minority of patients (2–5%) have an underlying renal or adrenal disease as the cause for their increased blood pressure. They are classified as having secondary hypertension. Some of the causes for secondary hypertension are Renovascular, Renal Parenchymal Disease, Renoprival (Renal Failure, Loss of Kidney Tissue), Endocrine Disorders, Pregnancy-Induced Hypertension, Sleep Apnea, Increased Intracranial Pressure (Brain Tumors, Encephalitis), Exogenous Hormones and Drugs (Partial List), Coarctation of Aorta(8)

**Factors Affecting Blood Pressure:**

- **Hridaya (Heart):**

According to Sushruta, the formation of the heart is by the Sara of Kapha and Ashruka (9). Muscles of the heart nourished by the Sara of Rakta, Kapha resembles properties like Oja retains the Bala of Heart which is utilized for the Rasa - Raktasamvahana.

Sara of Kapha gives the energy to the heart for working continuously (10). Kapha in a normal state believed as Bala(11), gives the energy for contraction relaxation throughout the lifetime, hence it is always related with Rasa Rakta Dhatu. Circulation of Rasa - Rakta throughout the body with the help of Vyana Vayu has been described clearly by the ancient Acharyas. Hridaya has been considered the root of Rasa and Rakta Vaha srotasa, which constricts and relaxes itself, makes clear that circulation of Rasa-Rakta takes place with the help of Vyana vayu.(12) Hridaya is a seat of Prana also; therefore, it is self-originated energy (i.e., Chetana) is conducted by Vyana vayu throughout the body and gives pulsating capacity to the arteries.

**Dhamani:(13)**

धमनात् धमन्यः |

In which, Dhamana, Spandana occurs is known as Dhamani. By Dhamani, Rasa-Rakta is circulated with pumping of Hridaya and nourishes all the body tissues (Dhatu). Therefore, Dhamani is also called as "Ojavaha" also. While circulating through Dhamanis a pressure has been exerted by the Rakta at the walls of Dhamanis, which depends on the elasticity of the Dhamani. If any pathology occurs in

that, the adverse effect is seen on the blood pressure.

### Sira(13)

सरणात् सिराः |

The vessels in which "Sarana" takes place are known as Sira. These are the pulsationless vessels. It carries impure blood from the body to the heart. If any pathology occurs in Sira like Sira granthi, it may affect the blood pressure.

### Hridaya and Mastishka:

Mana is considered to be seated in Hridaya with its Vishayas and by this Ubhayatmaka Mana, Hridaya and Shira are related with each other. Though the seat of Mana is Hridaya, its sight of function can be believed as Shira. So, when Mana makes contact with Shira via Manovaha Srotas, all the Indriyas start functioning(14) and when it gets separate from Shira and makes contact with Hridaya, the functions of Indriyas cease.

### Factors involved in hypertension:

#### Dosha –

#### • Vata

##### . Prana vayu:

Functions of prana vayu are Spitting, Sneezing, Belching, Respiration, Deglutition etc (15), Pranavalambanam, Buddhi, Indriya, Hridaya, Mana drika.(16,17)

The seat of Prana vayu has been said as Shira. It is considered to be superior among five types of Vata, as it is the controller of them.

In modern science, the functions of the nervous system have been described similar to the description of the Prakrita Prana vayu. Hridayadrika function of Prana vayu can be correlated with the heart rate controlling function of brain originated nerves. Furthermore, inspite of situated in brain (medulla), vasomotor center controls the blood pressure by the vasoconstrictor and vasodilator nerves; similarly, Prana vayu also controls the regulation of blood pressure by controlling Vyanavayu which

has been believed to function. like constriction - dilatation of the vessels. So, any pathology of Prana vayu can cause abnormalities of the heart as well as Vahinies (Dhamanies).

#### b. Vyanavayu:

Functions of vyana vayu are, Gati (movements), Prasarna (extension), Akunchana (flexion), Unmesha- Nimesha (blinking)(18), Rasasamavahna, Sveda- asrik, Sravana, Dhatu tarpana(19).Here, the meaning of the word "Gati" can be taken as the movement of the heart, which is involved in the context of blood pressure. The contraction and dilatation of the vessels are also governed by Vyanavayu through the heart.

So, it suggests the involvement of Vyana Vayu on regulation of blood pressure. Vyan Vayu is very important and responsible for Rasa rakta samvahana and Acharya Sushruta comprehended that Vyana Vayu is responsible for Asrik and Swedasamvahana. Thus, Vyanvata circulates Rasa by its normal viscosity, Gati (velocity) and peripheral resistance, which is governed by the pressure on the wall of Dhamni. Thus, Vyan Vayu can be considered as an important factor in the normal physiology of blood pressure.

Acharya charka and Vagbhatta mentioned that Vyanvayuyugpatagati is responsible for Rasa rakta samvahan all over the body.

This exchange can take place when particular pressure is maintained here by Vyanvayu. Thus, Vyanvata circulates Rasa by its normal viscosity, Gati (velocity) and peripheral resistance, which is governed by the pressure on the wall of Dhamni. Thus, Vyan Vayu can be considered as an important factor in the normal physiology of blood pressure.

#### c. Apana vayu:

Functions of Apana vayu are, Expulsion of Mutra, Purisha, Shukra, Artava at specific intervals.(20,21) Mutra and Purisha have been considered as Mala(22), which are able to produce diseases if not excreted at their regular intervals. It is clear that there is. Some effect of excretion of Mutra on regulation of the body fluid. Vitiating of Apana vayu hampers the excretion of the Mutra, so the body fluid level becomes imbalanced, which may affect the maintenance of normal blood pressure. Similarly in modern science, Na<sup>+</sup>, K<sup>+</sup>, urea, and uric acid like waste substances are constituents of the urine, which have to be excreted at regular intervals. Retention of these substances cause toxic effects on the body and also alter the fluid balance. From the above fact it can be concluded that Apana vayu also plays a role in regulation of normal blood pressure.

#### d. Samanavayu:

Functions of Samanavayu are Annamgruhanti, pachan, vivechan, munchan(23), Gives strength to Agni.(24) Transport rasa to the heart. It's Aprakrit state results in Agnimandya and subsequent production of Ama. This vitiated Shleshma by its Singdha, Picchila etc. properties will produce Srotorodha or Srotouplepa. Thus Rasa-Raktasamvahan kriya will disturb and it is vitiated Vyanvata, by increasing Chalaguna of Vayu and it can cause elevated blood pressure. Aacharya Vagbhatta emphasized that Saman vayu helps in formation and separation of Malas and their transportation to their respective place (25). According to Aacharya Sharngadhara samana vayu helps taking Rasa towards Hridaya (26), which may be co-related with mechanism of venous return towards heart. Venous return is directly proportional to cardiac output and as we know that, blood pressure depends upon cardiac output. We assume that

Saman vayu helps in flow of venous blood (Rasa) towards Hridaya. Disturbed Samanavayu results in disturbance of this flow. Thus, indirectly effect of Saman vayu on Raktachapa.

#### • Pitta –

##### a. Pachaka Pitta:

Functions are Pachaka Pitta are, to digest the food, separate the essence and wastes from it (27). Prakrita Pachacka Pitta aids the normal of Dhatwagni & Bhutagni. As per "Rasasyakaphaeti rase pachyamanekittamkaphobhavati, prasadaschraktam"(28) Agnimandya of Pachak Agni Samarasa produce Mala rupa vitiated Kapha and Sara rupa produces Rakta dhatu. When these vitiated Malarupa kapha mixed with blood. It also gives rise to the viscosity of blood, and due to this total peripheral resistance increases. Not only these but Sama rasa will produce Srotouplep, and create narrowing of the Srotas (Wall of Dhamani). Thus, Pachaka pitta aids in the functioning of Vyanvata aided by Samanavata.

##### b. Sadhaka Pitta:

It is Responsible for Buddhi, Medha, Utsaha, Abhimana (29,30,31), Shaurya, Bhaya, Krodha, Harsha, Moha(32).Sadhaka pitta helps to keep away Kapha and Tama, which hampers Chetana to do its normal functions and makes Mana free from such Avarana of Tama. So, Mana becomes more efficient, in turn, enhances Buddhi, Medha, Abhimana etc.(33), eventually helps "Atma" to achieve its goal.

It is difficult to explain Sadhaka pitta in terms of modern physiology, however functions of adrenaline do possess some similarity with that of Sadhaka pitta. In cases of fear, anger and such other feelings, the adrenal gland is stimulated and increases the secretion of adrenaline, which is related with fright, fear, flight and such actions. Functions like fear, gallantry



etc of Sadhaka pitta mentioned by Chakrapani, may be correlated with that of adrenaline. Fear, anger, happiness etc. affect the heart rate and cardiac output, which in turn affects the blood pressure. Thus, Sadhaka pitta can be considered as an important factor in the normal physiology of blood pressure.

- **Kapha:**

- **Avalambaka Kapha:**

The contribution of Avalambakakapha is to make Avalambana of Hridaya with Ahararasa and Rasadhatu together with its own potency (34). The normal rhythmicity, conductivity, excitability, contractility, tone and refractory period of cardiac muscles can be correlated with Avalambana. Karma of Hridaya by Avalambakakapha. Thus, it keeps the heart in a healthy state and enhances its working capacity of continuous pumping action. Therefore, it can be said that Avalambakakapha has some role in the regulation of blood pressure.

- **Dushya:**

- **Rasa Dhatu:**

The Nirukti of Rasadhatu itself indicates its property of continuous moving (35). Though Rasadhatu is circulated throughout the body, its main seat is believed to be Hridaya.(36) Thus, Vikshepana Karma (contraction & relaxation) of the Hridaya also affect the circulation of Rasadhatu. So, when the pathology arises in the Rasadhatu or Hridaya, it directly affects Rasa-Vikshepana kriya (circulation of Rasa – Rakta) at the level of the entire body, resulting in change of blood pressure. Moreover, in Ayurvedic texts, overmuch worrying has been mentioned as the direct cause of Rasa Vaha Srotas Dushti (37). As Hridaya is a root of Rasa Vaha Srotas that affects Hridaya also and hampers its Rasa-samvahana function. As a result, fluctuation in the blood pressure takes place.

- **Rakta Dhatu:**

The main function of Rakta is 'Jivana' (38). So, it has been mentioned as a "Jiva" (life). When Rasa-Rakta dhatu remain in their normalcy, the dependent organs i.e., Sira, Dhamani, Hridaya etc. remain normal and perform their functions normally. Any abnormality of Rasa-Rakta dhatu affects the Normal circulation of Rasa-Rakta, ultimately resulting in the abnormality of the blood pressure by making additional pressure or less pressure on the Vahinies (arteries). Therefore, it can be believed that Rasa-Rakta dhatu also responsible for maintaining normal blood pressure.

Rasa-Raktasamvahana occurs simultaneously in the body. Therefore, the effect of Rakta Dhatu on the blood pressure is the same as of Rasadhatu. For the maintenance of normal blood pressure, normality of Rakta Dhatu in quantity as well as in function is necessary. By aforesaid descriptions it can be concluded that mainly Hridaya and its depending components i.e., Prana & Vyana Vayu, Sadhaka pitta, Avalambakakapha, Oja, Rasa Rakta Dhatus and normal function of Mana collectively help to maintain the of the blood pressure

- **Srotasa:**

स्त्रवणात् स्रोतान्सि | (13)

In the context of blood pressure, Rasavaha and Raktavaha Srotasa are important, as they related with Rasa- Rakta Samvahana.

Including Manovaha srotasa, Rasavaha and Raktavaha srotasa are main affected srotasa in the etiopathogenesis of Essential Hypertension. In Ayurvedic scriptures, Manovaha srotasa is mentioned in the description of Manasa Roga. Chinta, Kama, Bhaya, Krodha, Shoka, Udvega etc. make direct effects on Mana (39). These obnoxious states of Mana produce Manovikara with affecting Manovaha

srotasa, on the basis of Ashraya-ashrayi Bhava.

Manasabhava affect Rasavaha and Raktavahasrotasa also as excessive worry is a cause of Rasavaha Srotodushti i.e.

रसवाहीनीदुष्यन्तिचिंत्यानां चातीचिन्तनात्।(40)

and Krodha is a cause of Raktadusti leads to Raktavaha Srotodushti on basis of Ashraya-ashrayi Bhava i.e.

क्रोधं भजतां.....शोणितं संप्रदुष्यति।(41)

Due to Srotodushti, Rasa-Rakta Parivahana may get obstructed (Avarodhita), which may lead to Uccharaktachapa.

### Oja:

Hridaya is the main seat of Oja, from where it is circulated all over the body.

हृदयं परस्योजसः स्थानः .....

|| (42)

Oja remains Bala of Hridaya to utilize for Rasa-Rakta Samhanana.

In pathogenesis of high blood pressure, the heart is the main affected organ. So, on the basis of Ashraya-ashrayi bhava: Oja gets affected by high blood pressure. Moreover, symptoms of Oja Kshaya and Vyapada described in Ayurvedic texts like Shrama, Moha, Murchha etc. are also found in high blood pressure.

The above light shows the role of Oja on regulation of blood pressure and its pathogenesis.

### Mana:

In our classics Mana considered as a Atinidriya.(43) It is defined as the entity, Mind is Ubhayatamaka. It is contact with self, sense organs and sense objects.

Guna: Mana is a controller of all Indriyas and also responsible for production of knowledge by its attending or non-attending respectively, subtleness and ownness are known as two qualities of mind.(44)

Raja is Pravartaka and Tama is Apravartaka. Its entity in the body can be

recognised by observing a variety of emotional and mental states Like anxiety, fear, grief rage, ability to concentrate, cognition or otherwise etc. Self-consciousness and awareness of the external world are due to the elements of Mana. The presence of Mana is characteristic of life. Mana is stated to be under the control of Vata (45). It has been stated that Mana and Vata work in synergism.

Because of Astamentriyarthasanyoga and Pragnapradha, Raja and Tamadosha vitiated and produced Chinta, Bhrama, Tandra, Tamodarshan etc. These symptoms are found in hypertension. And modern science also describes stress, anxiety etc. as a favourable factor for Hypertension. Hypertension is a psychosomatic disease. Main those of overall description explain the pathophysiology of Hypertension. This description reveals that Hridaya is the seat of Vyanavata, sadhaka pitta, avlambakapha, mana, oja, sense faculties, satava, raja, tama, rasavaha strotas moola. Circulation of Rasa-Rakta in all over body by Yugapatagati- Vikshepan karma of Vyanavata.

### Agni:

Agni is an important factor in the pathogenesis of all the diseases.

Agni Dushti occurs at two levels Jatharagni Mandya and Dhatwagni Mandya.

Atimatrashana (excessive diet), Viruddhashana (intake of food having opposite properties), and Adhyashana (intake before the digestion of previous food) are the factors which cause Jatharagni Mandya. It will affect all other Agni viz. Sapta Dhatvagni and Panchamahabhutagni.

Jatharagni Mandya will cause Ama formation which results in Strotorodha and vitiation of all Doshas. It will ultimately increase peripheral resistance and can lead to hypertension. Atherosclerotic

changes in vessels can be an outcome of chronic Agnimandya and Ama. Acharya Charaka has already described Dhamani Praticaya as one of Nanatmyaja disease of Kaphadosha.

in spite of taking Mitahara, Agnivaishmya occurs due to Udvegata of Manasa

कामक्रोधलोभमोहेर्ष्याहिशोकमानोद्वेगभयोपतप्तमन

सा:.....आममेवप्रदुषयति |

(46).

So, in Uccharaktachapa, due to Agni Vaishmya, its related manifestations occur.

#### **Udbhava Sthana:**

*Hridaya* is the origin of *Uccharaktachapa* (EHT), because it is seat of *Mana*, *Oja*, affected *Doshas-Pata* (Prana, Vyana), *Pitta* (*Sadhaka*), *Kapha* (*Avalambaka*), part of *Manovaha Srotasa*, root of *Rasavaha Srotasa* and main organ of *Rasa-Rakta Vikshepana Karma*. So, considering these points, *Hridaya* can be taken as its *Udbhava Sthana* of *Uccharaktachapa*.

#### **Vyakti Sthana:**

*Uccharaktachapa* (EHT) is considered under the group of psychosomatic disorders, by which *Psyche* (*Manasa*) and *Soma* (*Sharira*) both are affected. That's why *Vyaktisthana* of *Uccharaktachapa* may be considered *sarva Sharira* with *Mana*.

### **NIDANPANCHKA OF HYPERTENSION**

#### **Nidana (Etiology):**

As mentioned earlier Essential Hypertension is the name given to the type in which no definite cause can be found. The exact etiology of the rise in blood pressure is not yet clear. Although, strongly suggested predisposing factors can be classified in group as follow:

#### **Genetic Influences in Essential Hypertension:**

The importance of genetic factors in the pathogenesis of Essential Hypertension is indicated by the similarity of blood pressure

values between close (first degree) relatives, such as between siblings and between parents and children.

Although the correlations found between the blood pressure of close relatives are statistically highly significant, the coefficients are low and several interpreters have taken this to indicate a rather modest, albeit distinct, genetic influence on human Essential Hypertension. The genetic component of the development of high BP may not itself necessarily cause Hypertension.

Rather there may be a genetic predisposition to develop raised pressure response to various environmental factors. Acharya Charaka has also described the genetic influences in production of disease. (47)

Acharya Sushruta has mentioned *Adibala Pravrita Vyadhi* and is said to have originated due to deformity of *Shukra Shonita* of the parents at the time of conception. (48) From the above discussion, it can be concluded that *Shukradusti* because of vitiated *Vyana* and *Apana vayu* (49), may be considered to give rise to the inherited disease and *Uccharaktachapa* may be one of them.

#### **Environmental Factors:**

Older people tend to have higher blood pressure than young people. Pressure rises with advancing age, because of characteristic changes of aorta and large arteries arise from the advanced age. Due to the thickening of vessel wall, arteriosclerosis, an increase in sub-endothelial layer and the media, which show increased collagen content, elastic fragmentation and calcification leads to decrease elasticity and lumen of vessels, as a result blood pressure is raised. Old age is *Vata dosha pradhana* age (50). Physiological aggravation of *Vata* with its *Ruksha*, *Khara*, *Daruna*, *Shita Gunas* etc. may causes *Sankocha* and *Kathinya* of the



vessels. In the senile people, perfusion of nutrition to the Dhatus also hampers (51). This results in cessation of normal functioning of Dhatus, Indriyas, etc.(52) leads to provocation of Vata Dosha aiding in the process of reduction in the lumen of the arteries – raising the blood pressure. Chalaguna of Vyanavayu, increases in old age may make Rasa-Rakta Samvahana. (Forcible cardiac output) results in Uccharaktachapa.

#### **Race:**

Clues into the etiology of Hypertension may also be obtained from comparison of different racial groups. Most studies of blood pressure in black and white people have reported a higher average blood pressure in blacks, and consequently, higher prevalence of Hypertension. By contrast, however, blacks living in rural areas have low blood pressure and no rise with advancing age.

#### **Gender:**

Below the age of about 45 women tend to have slightly lower blood pressure than men. They also have less coronary heart diseases and strokes. These differences in early life may be due to endocrinological events associated with the child bearing years.

After the age of about Fifty years, blood pressure rises in women to become similar to those seen in men. At the same time the relative absence of Hypertension in cardiovascular disease in women before the menopause raised the possibility that endogenous estrogens are in some way protective.

#### **Obesity:**

There is no question that a positive correlation exists between obesity and arterial pressure. In etiopathogenesis of Sthaulya, excessive use of Madhura, Snigdha, Guru Ahara causes Jatharagni Vaigunya and Medodhatvagnimandya leads to production of Ama and Apakva

Medovridhi. This Apakva Ama when deposits in Rasavaha Srotasa may lead to Dhamani Praticaya. (Atherosclerosis)(53,54) which may be a responsible factor of Essential hypertension. Moreover, Snigdha, Pralepi, Pichhila, Guna of Ama, cause of Srotorodha, results as Prakopa of Vyanavayu. The Apakva Medodhatu itself also obstructs the pathway of Vata(55). This vitiated Vata (mainly Vyana) may raise the Blood Pressure.

#### **Salt:**

In Charaka Samhita, excessive use of Lavana is described as the cause of Shonitaja Roga (56) and it causes increase in blood(57). Same in Uccharaktachapa, Rakta is also vitiated. Moreover, Acharya Charaka has also mentioned that Lavana should not be consumed in excess and for longer duration(58). When excessively used, it produces fatigue, lassitude and weakness of the body(59) which are the symptoms, usually found in the patients of Uccharaktachapa.

#### **Alcohol:**

The Gunas of alcohol like Ushna, Tikshna, Sukshma, Vyavayi etc. are exactly opposite to the Gunas of Oja (60), which also provoke Vata-Pitta dosha. Being the seat of Oja, Hridaya also gets involved. Destruction of Oja would disrupt the normalcy of Prana & Vyanavayu, Sadhaka pitta and Avalambakakapha, which are situated in Hridaya.

Acharya Charaka has also described Pradusta, Bahu (excessive) Ushna-Tikshna (hot and sharp) Madyapana and Surapana as a causative factor of Shonitadusti. In brief, Raktadusti along with Vata & Pitta Prakopa takes place due to Madyapana, a conductive factor for Uccharaktachapa.

#### **Non-Vegetarian Diet:**

Mamsa has been mentioned among the causes of "Shonitaja Roga"(61). Some of

the symptoms of Shonitaja Roga are similar to those of Essential Hypertension. So, it can be said that Mamsa (non-veg. Diet) might have some role in the pathogenesis of Essential Hypertension.

#### **Smoking:**

Tobacco is derived from the leaves of its plants (Nicotinatobacum), which have Madaka and Pitta Vardhaka effects. It also creates Mada and Bhrama. It affects both the central and peripheral nervous systems, which may contribute as a risk factor of Essential Hypertension. Moreover, it contains nicotine and is a potent vasoconstrictor causing elevated BP.

#### **Manasika Bhavas (Psychological Factors):**

It is clear that psychological factors like stress, anger, anxiety etc. may play a major role in the etiology of Uccharaktachapa. As per Ayurveda, by these Manasika Bhavas, Vitiation of Mana via Raja and Tama takes place, which is located in Hridaya. Moreover, Dalhana has clearly mentioned that Mana and Hridaya correlate with the function of Sadhaka pitta(62). So, hampered the function of Rasa Rakta Vikshepana of Hridaya, causing a rise in BP.

#### **PURVARUPA:**

पूर्वरूपंप्रागुत्पत्तिलक्षणव्याधेः ।(63)

Though, Uccharaktachapa is said to be Vatapradhana Tridoshaja Vyadhi, it can be considered under the broad heading of Vata Vyadhi and Purvarupa of the Vatavyadhi is said to be Aavyakta. In this way the Purvarupa of Uccharaktachapa are also Aavyakta (obscure).

In modern science also, there isn't description of premonitory symptoms of Essential Hypertension and most of the hypertensive patients remain asymptomatic or present with subjective symptoms like headache, vertigo, palpitation etc. Many of the patients of Hypertension are diagnosed at the visit to a physician with one or other health

problems and are being checked for BP. Though, generally the symptoms of Essential Hypertension are not seen in such patients and premonitory symptoms are also indistinct.

#### **SAMPRAPTI AND LAKSHANAS HYPERTENSION (PATHOGENESIS & SYMPTOMATOLOGY OF HYPERTENSION IN AYURVEDA):**

Depending upon the type of Hetusevana (etiological factors) two types of Sampraptis are seen as hypertension. One is of **Vatapradhan Kaphanubandhi** type and another of **Vatapradhan Pittanubandhi** type.

If Kaphapradhan Prakriti, a person of Mandagni indulges in Guru, Abhishyandi Bhojana, Adhyashana, Ajirnashana, Avyayama, Divaswapa; it causes production of Aama. Its Sthanasamshraya occurs in Rasavaha and Raktavaha Strotasa causing Margavarodha in Vayugati and causes hypertension. This Kaphanubandhi type of hypertension may present with deranged lipids, Shotha, Sthaulya, Tandra, Shwas, Shirogaurava and Gatra. (64,65)

If Pittapradhan Prakriti person indulges in excessive use of Katu, Amla, and Lavana rasa, smoking and alcohol; he is short tempered by nature and working late nights (Prajagarana), it causes Pittaprapkopa further causing Raktadushti. This causes Avarana of Vata causing Avarodha in Vayugati thus resulting in Pittanubandhi hypertension. This type of Pittanubandhi hypertension may present with normal body weight and lipids, Hridrava (palpitation) and Shiroruja (throbbing headache), Hrilasa, Bhrama and Santapa. (66,67)

#### **Samprapti of hypertension**

**Samprapti Ghataka (Factors in pathogenesis): -**

- **Dosha** -Vata (Prana, Vyana), Pitta (Sadhaka), Kapha (Avalambaka)

- **Dushya** -Rasa, Rakta, Manas
- **Agni**–Jatharagni Mandya Janita Aama, Rasa, Rakta Dhatvagni Janita Aama
- **Strotasa** -Rasavaha, Raktavaha, Manovaha
- **Strotodusti**-Sanga
- **Udbhavasthana**-Aamashaya
- **Roga Marga** -Kostha, Shakhaand Marmagata
- **Sancharisthana** -Sarwang Sharira
- **Vyaktasthana**- Sarwang Sharira
- **Adhisthana** -Dhamani, Sira, Sarwang Sharira

• **Vyadhi Swabhava**- Aashukari /Chirakari

**UPASHAYA ANUPASHAYA:**

It can be defined as an observation on the patient on administering *Aushadha* (Medicine), *Ahara* (Diet), *Vihara* (Regimine), and obtaining positive results is *Upashaya*. On the other hand, negative results are considered as *Anupshaya*. These are diagnostic tools for diagnosing certain diseases which are considered to be difficult to be dignose. *Charaka* says that, "*Ghudalingamvyadhimupshaya Anupashayaabhyampareeksheta* " I.e an unmanifested or obscure disease may be investigated by *Upashaya* and *Anupashaya*. The *Upashaya* are of two types *Viparita* [Opposite to *hetu*, *Vyadhi* or both] *Viparitarthakari* [similar to *hetu*, *Vyadhi* or both].

**Conclusion**

Hypertension is a *Vatapradhan Tridohaj vyadhi* of *Raktavaha Srotas* in which *Rasa*, *Rakta* and *Manas* are the *Pradhan Dushyas*. Depending upon the type of *Hetusevana* (etiological factors) two types of *Sampraptis* are seen as hypertension. One is of ***Vatapradhan Kaphanubandhi*** type and another of ***Vatapradhan Pittanubandhi*** type.

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