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Review Article

UNDERSTANDING OF ESSENTIAL HYPERTENSION IN AYURVEDA

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ABSTRACT

Hypertension (HTN) is a worldwide problem effecting 29% of adult population. 40-45 million Indians are believed to be suffering with the disease. Today, approximately one billion people worldwide are suffering from high blood pressure and its number is expected to increase to 2.5 billion by the year of 2025. Hypertension is identified as single most important risk factor for both coronary heart disease and cerebro-vascular accidents. It may also lead to congestive cardiac failure and renal failure. In medical parlance, this psychosomatic hemodynamic disease is known as the 'Silent' or 'Hidden Killer' because of target organ morbidity, having disastrous and menacing effects on human beings which ultimately leads to death of a person. Though direct references regarding Hypertension is not available in classical literature of Ayurveda, Many academicians have postulated their views regarding understanding of Hypertension and have given different Ayurvedic terms such as Uchcha Raktachapadhikyata, Dhamani pratichaya, Shonita dushti and others. However none of these names are universally accepted by the fraternity of Ayurveda. Classical literature of Ayurveda provides guidelines to understand an unnamed disease in terms of dosha dushyadivivechana. On the basis of this, an attempt has been made in this article to analyze the role of dosha-dushya in the pathogenesis of hypertension.

Keywords: Essential Hypertension, Uchcha Raktachapa dhikyata, Doshadushyavivechana

INTRODUCTION

Hypertension is one among the most alarming health problems of present era. It is estimated that approximately 1 billion people worldwide are suffering from high blood pressure. The increasing incidence of Hypertension is a cause for global concern as it mainly affects the adults and elderly population, effecting 29% of population and it is an independent predisposing factor for heart failure, coronary artery disease, stroke, renal disease, and peripheral arterial disease (PAD)¹. It is also a risk factor for all clinical manifestations of atherosclerosis. Incidence of hypertension is also high in Indian population. Around 40-45 million Indians are believed to be suffering from hypertension. Essential hypertension which is also called as primary hypertension represents a substantial portion of hypertension, accounting 90-95% of the cases. It is that variety of hypertension wherein no obvious underlying cause can be recognized.

Ayurvedic terminologies used to represent Hypertension

Based on the Dosha dushya vivechana many Ayurvedic scholars of modern era have considered hypertension under the heading of various diseases. Different names are recommended for the Hypertension or the hypertensive states², such as Dhamani pratichaya, Raktagatavata, Siragatavata, Rudhiramada, Bhrama, Avrutavata, Raktapradoshajavikara (Shonita dushti) and Raktachapadhikyata. An analysis of the hypertension based on these terminologies is as follows;

Dhamani pratichaya

The term Dhamani pratichaya has been used to represent Hypertension by Vaidya Gananathsen. According to Charaka samhita, Dhamani pratichaya is one of the kaphajananatmajavyadhi. The description of dhamani pratichaya as available in Nidana chikitsahastamalaka is atipoornata of dhamani (~fullness of arteries). This atipoornata of dhamani is because of excessive poshana. Due to excessive poshana especially by rasa and rakta dhatus, the dhamanis gets dilated. Because of this poorana there will be stretching of dhamani. Simultaneously the velocity of the rasa and rakta dhatu (i.e, the gati becomes manda and guru) is hampered.

Raktagata vata

Y.N Upadhyaya has equated the term Raktagata vata for Hypertension. The disease raktagata vata, is mentioned under the context of vatavyadhi. The symptoms of Raktagata vata are; Teevruja (severe pain), santapa, vaivarnya (discolouration), krishatha (emaciation), aruchi (anorexia), stambata (stiffness) soon after consuming food³. Some more symptoms have also been added by Ashtanga hridaya namely– Swapam (numbness), Raga (redness) and bhrama (giddiness).

Siragata vata

The term siragata vata has been mentioned by Acharya G N Chaturvedi for the disease Hypertension. Siragata vata is described under vatavyadhi. It is described in Brihatrayis. When there is vata prakopa in siras, it causes many diseases related cardiovascular system. Lakshanas mentioned under siragata vata are –Mandaraja (dullpain), shopha (oedema), kampa (tremor), aspandana (non

pulsatile) in siras but there will be akunchana (contraction) in them⁴.

Rudhiramada

Hypertension is also called as rudhiramada⁵ by Dr. Dwivedi V N. Mada is one among the 43 types of raktaja vyadhis described in Charaka samhita. It is characterized by, “*Mado harshaglanopanayan*”. Harsha and Glani of rakta dhatu which results in its increased gati (movement) and matra (quantity).

Bhrama

Bhrama (giddiness) has been mention as a term equivalent to Hypertension. As a disease, it has been explained as a feeling in which a person experiences the fast rotation in the shiras similar to that of fast rotating wheel⁶ Charaka samhita has considered bhrama as one among the vatajananatmaja vyadhi. The literal meaning of bhrama is rotation. Clinically it represents Giddiness and vertigo. Ayurveda deepika considers bhrama is a condition characterized by moha of smriti. Ashtanga hridaya mentions that, this is because of aggravation of vata dosha and diminished kapha, whereas in Charaka samhita it is considered as sanchaya (accumulation) of vata dosha blocked by vitiated pittadosha⁷.

Avrutavata

Acharya R K Sharma has used the term avrutavata for the Hypertension. Some of the avrutavata disorders are also considered under the heading of hypertension. They are raktavrutavata, pittavrutapranavata, pittavrutaudanavata and pittavrutavata.

6a) Raktavritavata⁸

The features of raktavritavata are daha (burning sensation) in between twak and mamsa, vedana (pain), saragayuktashotha (inflammatory swelling) and mandala (wheal).

6b) Pittavruthapranavata⁹: The features mentioned are –Murcha (fainting), daha, bhrama, shoola (pain), vidaha, chardi (vomiting) and sheetakamatva (desire of cold)

6c) Pittavrutaudanavata¹⁰ : The pittavrutaudanavatalakshanas are - Murcha, daha, shoola, daha in the nabhi (~umbilicus) and urah (~chest), ojobhramsha, shwasa (~dyspnoea) and klama (lethargy).

6d) Pittavrithavata¹¹: If vayu is covered by pitta the following symptoms arise; burning sensation, thirst, pain, giddiness, feeling of darkness, aggravation of burning sensation by the use of pungent, sour, salty and hot things and desire for cold.

Raktapradoshaja vikaras (Shonitadushti)

In Charaka samhita, totally 43 diseases are mentioned in vidhishonitaadhyaya, all these diseases are considered raktapradoshaja vikara. In this group mada, rakta pitta and other diseases are considered. Hypertension is considered under the raktapradoshaja vikara, due to the involvement of rakta dhatu.

Raktachapadhikyata

This is the most commonly used term to represent hypertension. However this is not a term mentioned in classical literature of Ayurveda, instead is coined by

recent Ayurvedic scholars Ravani & Mahaishkar U B for Hypertension.

The word Raktachapadhikyata is constituted by three words - rakta, chapa and adhikyata.

‘Rakta’ refers to – *Sharirasthasaptadhatvantaragata dhatuvishesha*¹²

‘chapa’ - refers to pressure or squeezing and ‘adhikyata’ - refers to, high or increased levels.

Nidana

As Hypertension is not described in any classical text books of Ayurveda, etiological factors considered for the causation of Essential Hypertension in western medicine can be analyzed according to Ayurveda.

1. Genetic Factors (Beejadoshaja)

It is suspected that there is a role of heredity in the aetiology of Essential Hypertension. The concept of hereditary influence of lifestyle disorders is also highlighted in Ayurveda by the theory of beeja (shukra or shonita), beejabhagha (~chromosome), beejabhaghaavayava (~gene) which is likely to be carried on to the subsequent generations¹³. The same concept is applicable to Hypertension also.

2. Environmental Factors

Some of the important environmental factors implicated in the development of Essential Hypertension, include age, food, race, habits etc.

A) Age

Older people tend to have higher Blood pressure than young people. Most of the survey reports have shown that Blood pressure rises with age in both men and women¹⁴. The reason is due to the thickening of vessel wall, an increase in sub-endothelial layer and the media, which increase collagen content, elastic fragmentation and calcification.

As the age advances vata is the most predominant dosha¹⁵, there is high predisposition to develop vataja vikara in the old age. Aggravation of vata with ruksha (dry), khara (rough), daruna, sheeta (cold) gunas, may cause sankocha (contraction) and kathinyata (hardness) of the vessels.

B) Salt Intake

Excess consumption of salt raises Blood pressure. In Sushruta samhita while describing the qualities of lavana it has been mentioned that lavana rasa is kledakara (dampness), which means that it is a substance which causes retention of water. Ultimately volume of blood is increased, which leads to increased blood pressure. Excessive use of lavana are described in Charaka samhita as the cause of rakta dushti leading to shonitaja roga. Since rakta dhatu is one of the important dushya in the etio-pathogenesis of Hypertension, it is given an importance. In Charaka samhita excessive and long term usage of lavana is contraindicated. When excessively used it produces fatigue, lassitude, weakness of the body which are usually observed in hypertensive patients.

C) Obesity

There is strong link between excessive body fat and prevalence of Hypertension. In etio-pathogenesis of sthoulya, excessive use of madhura (sweet), snigdha (unctuous), guru (heavy) ahara (food items) causes jatharagni vaigunya (reduced digestive capacity) and decreased agni of medo dhatu leading to production of ama and apakwa medo vriddhi. This apakwa ama when deposits in rasavaha srotas. It may lead to dhamani pratichaya (~atherosclerosis), which may be responsible for Essential Hypertension. Moreover, snigdha (unctuous), pralepi, picchila (sticky) guna of ama causes srotorodha (obstruction), resulting in the aggravation of vyana vayu. The apakwa medo dhatu itself obstructs the pathway of vata. This vitiated vata (mainly vyana) may rise the Blood Pressure.

D) Alcohol Intake

Several studies have shown a strong and independent positive relationship between alcohol intake and Blood pressure. In Madatyaya chapter of Charaka samhita it is explained that, when alcohol is taken in large quantity, it will affect channels of rasa (rasavaha srotas) and by entering hridaya it affects the dhatus situated in hridaya. The gunas of alcohol such as ushna (hot), teekshna (sharp), sukshma (minute), vyavayi (fastacting), etc., are exactly opposite to the qualities of oja, which also provoke vata pitta dosha. Destruction of Oja would disrupt the normalcy of prana and vyana vayu, sadhaka pitta, avalambaka kapha, which take their shelter in hridaya. In Charaka samhita, pradusta (impure), bahu (excessive) ushna (hot), teekshna (sharp), madyapana and surapana (alcohol intake) are described as causative factors of shonita dusti.

E) Ahara

It has been found that BP is as slightly lower in vegetarian population as non-vegetarians¹⁶. Anoopamamsa is considered as one among the causes of "shonita dusti". It contains excess of fat and also excess of lavana and spices are added for the recipe. So it is said that mamsa might be having some role in the pathogenesis of Essential Hypertension.

F) Physical Activity

Several population studies suggested that individuals who perform physical exercise regularly have lower Blood pressure than the individuals with sedentary life style. Ayurveda considers lack of activity as one of the ashta maha doshakara bhava¹⁷. Hence lack of exercise for prolonged period may result in agnimandya (reduced digestive capacity) producing apakwa (undigested) ama rasa, which deposits in dhamani (arteries) and produces dhamaniupalepa or pratichaya (~atherosclerosis).

3) Psychological Factors (Manasika)

An acutely stressful stimulus certainly raises Blood pressure. The relation between manas, hridaya, prana, vyana vata and the role in rasaraktaparibramana (~circulation) explains that the rise of Blood pressure by manasika karanas such as stress¹⁸. In Charaka samhita while describing about srotas (channels), it is mentioned that rasavaha srotas gets deranged due to chinta (worries)

which is responsible for rasaraktaparibramana (~circulation). This abnormal state of manas (mind) produces mano vikara with involvement of samjnavaha or manovaha srotas. Further, Chakrapani adds that hridaya and dashadhamani are the manovaha srotomulas. Hence it can be opined that all the psychological factors directly provoke vyana vata, vitiate hridaya (heart) and dhamanis (arteries) which can produce hypertensive state.

Pathogenesis

In Ayurveda, pathophysiology of any disease is explained in terms of dosha, dushya and mala in terms of their vriddhi, kshaya, and prakopa. In addition to these factors, avarana, ashayapakarsha, anubandha, gatatva of doshas are also taken into account while considering the pathogenesis of this disease. A hypothetical pathogenesis has been mentioned in many of the textbooks of western medicine.

By the constant and prolonged indulgence in the nidana, tridosha get vitiated and as a result of this agnidusti occurs. Because of this, the consumed food will not get digested and results in the production of ama. The gunataha and karmataha vriddhi of vata, dravataha vriddhi of pitta and gunataha vriddhi of kapha takes places. These doshas combine with ama and produce sama dosha. The sama dosha thus produced, travel through rasayana (channels) and reaches hridaya, then traverse taking tiryakgati and reaches shakha. Doshadushya sammurchana takes place at the site of khavaigunya. This khavaigunya can be there either at hridaya, which is rasavahasroto moola, or at the level of peripheral vessels or dhamanis. Khavaigunya can also coexist in both the above sites.

Because of vitiation of vata which is lodged in the blood vessels, the khara (rough) and laghu (light) guna causes kathinya (hardness), leading to reduction in elasticity, as a result of this margavarodha (obstruction) is resulted. This can be substantiated by the fact that arteriosclerosis and the resultant hypertension is more prevalent in elderly age group which is predominant of vata dosha. Because of the vitiation of vata which is lodged in hridaya, the chalana or praspandana karma of vyana vayu, prayatna karma of udana vayu and dharana karma of prana vayu will be impaired. Because of this there will be impairment in the initiation of contraction and relaxation, conduction of impulses. As a result of which the increased dosha alter the functions of hridaya and increase the heart rate and contraction and relaxation, thereby increasing the cardiac output.

When dosha gets lodged in dhamanis of vrikka (kidney), kledasamvahana is hampered, thus it adds to the blood volume resulting in increased cardiac output. By the dravaguna vriddhi of pitta, the rakta vriddhi takes place due to ashrayaashrayee concomitance, thus increased volume of rakta dhatu in turn increases blood pressure by the peripheral resistance and cardiac output.

Kapha associated with meda which have similar qualities and ashrayaashrayee sambandha result in increased snigdha (unctuous) & picchila (sticky) guna which can be taken as Hyperlipidemia or dhamaniupalepa. Accumulation of ama which contains snigdha, picchila & guru guna and the increase of bahuabaddha (excessive undigested) medas, which has similar gunas lead to

margavarodha (obstruction) at the level of peripheral blood vessels. This can be taken as Atherosclerotic condition of the arterioles. The increased medas can also cause mechanical compression over the blood vessels from outside, which is also one of the factors for increased peripheral resistance. Ultimately hypertension, in course of time produces thickening of the walls of heart to cope up with the increased function of it, leading cardiac hypertrophy which is the preliminary symptom of mamsavaha srotodusti. Thus a combined effect of all these pathological events contribute to increased peripheral resistance and increased cardiac output leading to Essential Hypertension.

Roopa/lakshanas

Essential hypertension is majorly an asymptomatic disease. However a sizable number of patients exhibit varied symptomology such as headache, giddiness, palpitation, insomnia and fatigue.

Headache which can be called as shiroruk, is the most common symptom in essential hypertension. Aggravation

of vata plays important role in manifestation of this symptom. Even though vyana vata is considered as prime variety of vata responsible for hypertension, the role of prana vata dushti has to be considered in the manifestation of the headache, giddiness is the other common symptom present in patients of Hypertension. Bhrama as symptom effectively represents giddiness. It is caused by the vitiation of rajas along with vata and pitta dosha. Palpitation is also one among the most common presenting complaints in Essential hypertension. Palpitation or hridrava is caused by vyana vata vikruti, can also be precipitated by the involvement of rajo dosha in the psychological level. Patients of essential hypertension also commonly exhibit the symptom, anidra or Insomnia. This is an impact of provoked vata and pitta dosha along with psychological factors (manas santapa) caused by rajo vriddhi. Fatigue which is termed as klama is defined as 'Vinayasashrama klama' i.e, a tiredness without any physical exhaustion. It can be inferred that this symptom manifests due to depletion of ojus.

Table 1: Symptoms of shonitadushti similar to HTN

Shonita Dushti	HTN	Complications of HTN
Shirasah cha ruk	headache	
Tandra	Drowsiness, vertigo	
Gurugatrata, atidourbalya, klama	Fatigue complex	
Krodhaprachurata, Buddhisammoha, Mada, Santapa	Irritability and anxiety complex	
Agnisada, tiktamlodgara, Aruchi, annapanavidaha	Anorexia complex	
Rakta pitta		Epistaxis, cerebral bleeding
Mada		delirium
Kampa		Tremors ,seizures
Sammoha , tamasah		Altered consciousness
Pramilaka		Visual disturbances
Akshi raga		Sub-conjunctival and retinal hemorrhage
Ardita, Shirasahkampa, Gala Many, Hanu graham, Vatadiroga		Focal neurological signs

DISCUSSION

Dhamani pratichaya is one of the commonest term that is used suggest hypertension by many authors. The dhamani pratichaya by its definition represents atherosclerosis rather than hypertension. Atherosclerosis is no doubt an important contributory factor of hypertension but as a term it does not represent hypertension as such. Rakta gata vata, siragata vata, raktavritavata & raktajamada are the other terminologies that are used by different authors to represent hypertension. None of these terminologies match with the definition of hypertension, as the clinical feature of the above said diseases do not match with that of hypertension.

Bhrama (giddiness) is the other term used to represent hypertension, one would definitely agree bhrama or giddiness, is one of the salient features of the hypertension, but using it as a synonym of hypertension is not justifiable, because vast number of patients do not possess this symptom. In fact hypertension is predominantly an asymptomatic disease. Hence it is not justifiable to consider bhrama as hypertension. Hypertension has also been considered as a rakta pradoshaja vikara. No doubt if the description of rakta pradoshaja vikara as described in vidhishoniteeya adhyaya and kiyantasirasiya adhyaya of Charakas amhita

is considered, there is lot of relevance of considering shonita dushti in hypertension.

The most commonly used term by Ayurvedic clinicians, scholars and researchers to represent hypertension is raktachapadhikyata. One does not come across this terminology in classical literature of Ayurveda. This is coined term used to denote hypertension by literally translating the term 'increased blood pressure'. This term does not specify the type of hypertension. None of the terminologies exactly correlate with that of hypertension. Based on some similarities in etiology and clinical features it can be opined that shonita dushti and hypertension have lot of things common. Shonita dushti can nearly represent hypertension, but it also includes group of disorders ranging from bleeding disorders like rakta pitta to skin disorders like kushta.

By detailed analysis of the etio-pathogenesis of the Essential Hypertension, it can be speculated that it is a tridoshaja vyadhi with vata as pradhana (predominant) dosha, particularly vyana vata playing a key role. Pitta and kapha play a complimentary role in the form of anubandha (associated) doshas. The pradhana dushya involved are rasa and rakta. Though there is no direct involvement of mamsa and meda dhatu in pathogenesis of Essential hypertension but when HTN coexists with

obesity and atherosclerosis of arteries, mamsa and meda dhatus can also be considered as anubandhya dushyas.

On reviewing the symptoms of Hypertension it can be noted that most of symptoms exhibited are due to aggravation of vatadosha like shirah shula (headache), hridrava (palpitation) etc. Certain symptoms like bhrama (giddiness) and anidra (insomnia) manifest by aggravation of both vata and pitta doshas.

CONCLUSION

The disease Essential hypertension manifests by the aggravation of all the sharirika doshas with predominance of vata dosha. Rajas and tamas are the manasika doshas whereas dushyas involved are rasa, rakta, mamsa and medas. Rasavaha, raktavaha, mamsavaha, medovaha and manovaha srotas are the srotas involved in the pathogenesis of Essential HTN. Thus it can be concluded that Essential Hypertension is a vatapradhanatridoshaja vyadhi with rakta as pradhana dushya.

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