

A LITERARY REVIEW ON PRIMARY HYPERTENSION: AN AYURVEDIC PERSPECTIVE

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ABSTRACT

Background: Primary hypertension is a hazardous disease occurring as a result of hereditary, psychosomatic involvement and poor lifestyle habits including restricted physical activity, alcohol consumption, poor dietary and increase mental stress such as anxiety, stress etc. In contemporary science over a period of time, medicines create adverse drug reactions that will lead to resistance hypertension and complications. **Intervention:** According to Ayurveda, though direct reference of primary hypertension are not available and the disease can be understood with ayurvedic principles such as dosha, dushya, shrotas etc. The present study is undertaken to evaluate the factors involved in primary hypertension along with its Ayurveda understanding and to

explain the disease in terms of Ayurveda.

KEYWORD: Ayurveda, Avarana, Circulation, Hypertension, Rakta, Rasa-Samvahana, Vayu.

INTRODUCTION

Hypertension also known as high blood pressure, is a condition in which the blood vessels have persistently raised pressure. Hypertension is present globally but its prevalence varies amongst countries and sub-populations. There are national surveys of the prevalence of

hypertension available which has reported a prevalence which varies from 6.15% to 36.36% in men, 2% to 39.4% in women in rural areas.^[1]

According to WHO, blood pressure is created by the force of blood pushing against the wall of blood vessel as it is pumped by the vessel. The higher the pressure the harder the heart has to pump.^[2]

Normal Blood Pressure

Normal blood pressure - <120-/<80mmhg

Pre-hypertension - 120-139/80-89mmhg

Stage 1 hypertension - 140-159/90-99mmhg

Stage 2 Hypertension - >160 or higher / >100 or higher.

Predisposing Factors for Hypertension

Hypertension has an endogenous and environmental determinants which include a strong familial and genetic predisposition, number of modifiable predisposing factors such as age, sex, weight gain, salt intake, alcohol intake and cigarette smoking, lack of sleep and physical inactivity.

Understanding the primary hypertension is important and its sign and symptoms is important and it has to be brought in the entity box of Ayurveda based on the nidana(cause), lakshana (symptoms). The pathophysiology and symptomatology of primary hypertension viewing the thoughts of various scholars have vata pradhana tridoshaja involvement with dhatus such as rasa(plasma) and rakta(blood), and their strotas(channels of circulation) in particular. These dhatu and their shrotas have their corresponding shroto mula(orgin of channels) in hrudaya(heart). Hrudaya(heart) the chetana sthana(site of movements) encompassing ojas(vitality), dhamani(arteries) and sira(veins) does specific action of rasa-rakta samvahana (process of circulation). Disturbances in the dosha, dhushya, of hrudaya(heart) due to ahara (food) and vihara(activities) gives raise to dosha-dushya sammuccharana and give raise to lakshanas (clinical features).

Historical Review^[3]

Ayurveda is a science which has specific doctrines on the basis of which it is flourished. Though hypertension is an instrumental disease, there are many ancient texts which explains

hemodynamic system including heart, blood vessels or other organs like sira(veins), hrudaya (heart), basti(excretory organ) which are commonly involved in Hypertension.

There are many reference present in rigveda which indicate the knowledge of hrudaya(heart).

Satapushpa Brahmana: hrudayam, pritata, setambhaga and Aditya terms have been used for describing heart.

Upanishad: Hridaya is the seat of atma, paramatma and atmagyana.

Pundaria and omkara are the terms used for hridaya, its circulation and is the connection to whole body with nadi is been explained.

Mandukopanishada describes the collection of rasa in hridaya and its circulation throughout the body.

Ayurveda samhitha's: Ayurveda Acharyas have described the circulation through vikshepana (circulation) of rasa dhathu which is the karma of vyana vayu and hrudaya. Further sushruta has described the circulation process in detail.

Chakrapani also opined that circulation is a continues process and during the circulation with rasa dhathu, rakta and other dhathu also circulate all over the body.

LITERATURE REVIEW

Primary Hypertension – In Ayurvedic Perspective

1. Nidana (etiological factors) of primary hypertension in ayurvedic aspects

Aahara nidana concerned with hypertension

Excessive intake of salt

Ati-lavana intake leads to increase the abhishyandhi, sukshma, ushna(hot) and vyavavi gunas in the sharira(body) and all lavana are vishyandhi, Sukshma(stable), in nature that alleviate vata, vitiate kapha and pitta due to its Tikshna(quick) and ushna(hot) guna.^[4]

This abhishyandhi guna increases the kapha by its guru(heavy) and picchila guna(slimy) to obstruct rasavahi sira.^[5] Sukshma guna and ushna guna(hotproperty) leads to rakta prakopa (increases vitiation of blood).

Excessive amla (sour) katu (pungent) rasa ahara leads to pitta and asra prakopa leading to contraction of blood vessels and increase in the blood pressure.

Kashaya rasa (astringent taste) leads to obstruction of channels and does dosha prakopa with its khara, ruksha and vishada gunas.

All kshara are tikshna, ushna and does prakopa of pitta rakta.^[6]

Virudha ahara is gharavisha.^[7]

Excess consumption of aharas such as Kulatha, nishpava vitiates vata, pitta, rakta dhosha.^[8]

Masha intake does kapha and pitta prakopa.^[9]

Curd consumption leads to sleshma(smooth), pitta, rakta, agni prakopa with shopha(edema).^[10]

Ati ahara (excessive eating) sevana leads to yugapata tridosha prakopa (simultaneous vitiation).^[11]

Madya pana(alcohol consumption) leads leads to pitta prakopa.

Hence these ahara nidanas (causative food) can manifest the primary hypertension as they directly impact the normalcy of tridosha.

Viharaja nidana

Physical indolence like avyayama(physical inactivity), ativyayama(excessive activity) and anidra (sleep apnea) brings about changes in the equilibrium state of tridosha and also manasika doshas, which cause dosha prakopa(vitiation) there causes disturbances in the physiological activity in body bringing out increase in blood. They may harm by affecting the cardio-respiratory fitness by bringing out changes in heart rate and thus increasing the pressure in walls of arteries.

Vega-Dharana Nidana Involved In Primary Hypertension

One of the dosha_which is involved in primary hypertension is vata. Vegha dharana aggravates vata dosha. According to vagbhata, all rogas (diseases) manifest due to vega dhara (holding urges).^[12] Hridhroga(heart diseases) is interfered as a complication of vega dharana

has an importance in pathogenesis of hypertension. Also the substantial theories of udhavartha (obstructive disease) due to vega dharana can be taken as an etiological factor for hypertension.

2. Purvaroopam (Premonitory Symptoms)

Purvaroopam (premonitory symptoms), the 4th stage of kriya kalas the stage where the dosha-dushya sammurchana takes place. Primary hypertension disease as per Ayurveda is a vata pradhanya tridoshaja vyadhi, and hence the purvarupam is avyakta.^[13]

3. Roopam (Clinical Features)

Most of the patients remain asymptomatic however hypertension occasionally causes symptoms such as headache, dizziness, breathlessness etc. And the diagnosis is usually made at routine examination or when complications arise.

Table 1: The Symptomatology of Primary Hypertension and Their Dosha Involvement Can Be Understood On The Basis Of This Table.

LAKSHANA	DOSHAS	REFERENCE
Dourbalya (fatigue)	Vata	Ch.chi.28/224-226
Brama (delirium)	Vata Pitta	Su.su.4/50
Klama (tiredness)	Vata kapha	Ch.chi.28/227-228
Shirashoolam (headache)	Vata	Su.su 17/17
Swasakruccha (breathlessness)	Vata	Ch.chi 28/223
Nidranasa (insomnia)	Vata Pitta	Su.su 15/14 Sh.pr.7/19
Hrdravata (palpitation)	Vata	Su.su 17/17 Ch.su 17/64

4. Samprapthi Of Primary Hypertension

Role of Tridosha in Samprathi of Primary Hypertension

According to modern science the essential hypertension has no specific cause. Many theories and pathology are hypotheses.

As per Ayurveda, hypertension and its physiology is the product of complex mechanisms involving hrudaya (heart), sira, rasa-rakta dhathu, mutra (urine), sweda (sweat), mala (feces) (as they maintain the normal blood volume and viscosity), and tridosha has action over these components.

Among tridosha, vata plays an important role in controlling the blood pressure maintaining the agni(digestive fire) and rasa-rakta samvahana kriya(circulatory mechanism) in the body. Function of vata dosha corresponds to the function of two regulatory systems namely.

The Neuro and endocrine system. The subtype of vata mainly involves in maintaining the blood pressure are prana, vyana, samana, apana vayu as these vata chiefly responsible for the physiological activity involving hearts intrinsic pace makers, activity of Vagus nerves, brain bridge reflex in the connection. It also considered to facilitate the function of cardiac activity by involving hormones such as adrenaline, noradrenaline, anti-natriuretic peptide (ANP) which are concerned with regulation of cardiovascular system activity.^[14]

Samana vayu located near jataragni, travels all over the koshta, uniformly maintains agni and other digestive activity. Physiological aspects of samana vayu can be connected with the sympathetic and parasympathetic nerve activity through interstitial cells of cajal which are GI pacemakers cells that governs gut motility, gastric bile and pancreatic secretions, while the myentric plexus governs intestinal endocrine cells and blood vessels also.^[15]

According to sharangadhara, venous-return depends on the normo-functioning of samana vayu. So vitiated samana vayu may impair the cardiac output mechanism leading to raised arterial pressure. Thus vata dosha is mainly responsible for primary hypertension.

Rasa rakta samvaha in whole body with yugapat gati.^[16] action of vyana vayu is disturbed due to ahara vihara etc, which produces sankocha of dhamanies(contraction of the vessels). Sushrutha also implies that vyana vayu karma is praspandana.^[17] thus alteration in physiological activity of vyana vayu can lead to the manifestation of primary hypertension.

Renal control of extracellular volume and renal perfusion pressure are closely involved in maintaining the arterial circulation and blood pressure through a process known as pressure-natriuresis and it influences the activity of Renin-Angiotensin- Aldosterone System. Apana vayu located in apana desha is concerned with activity of vasti(bladder), mutra pravarthana (micturition) etc. As it is physiologically concerned with celiac plexus, lumbar splanchnic nerve, inter-mesenteric plexus of kidney it governs the activity of secretions of hormones such as Renin Angiotensin Aldosterone.^[18]

Pitta dosha including sadhaka pitta, situated in hrudaya involves in achieving the intended objects of buddhi (intellect), medha. According to chakrapani, it is for sourya (courage),

bhaya (fear-complex), krodha (rage) etc. which are the components of emotion including the cerebral hemisphere nuclei known as Rhinencephalon and with physiological lobe called limbic system of the brain and are concerned with emotional aspects, in turn is the host of physiological changes in the heart and blood pressure such as tachycardia due to emotions.^[19]

Kapha dosha including avalambaka kapha located in the uras (hrudaya pradesha) are directly responsible for the bodily fluids maintenance the hemostasis factors such as sodium, potassium and osmolality.

Role of Rasa-Rakta Dhathu and Shrotas in Primary Hypertension

In the pathogenesis of primary hypertension circulatory system plays an important role which include the entities such as rasa, rakta dhathu and shrotas which circulate all over the body and due the particular nidana sevana they vitiate the dhathu and their respective shrotas.

In primary hypertension, rasa samvahana, the circulation of rasa dhathu as a poshaka rasa circulates within the rasavaha shrotas for the preerana kriya (nutritive processes). Poshaka rasa(nutritive plasma) goes to yakrit(liver) and then to hrudaya(heart), from there taken throughout the body for circulation by the vikshepana karma (deflection action) of vayu, and the prasadana part of rasa dhathu under dhathwagi are converted into rakta dhathu. The motion of entity of rasa samvahanaa can be compared with the rate flow of blood in different parts of the body.^[20] Sushrutha mentions the panchabhoutikatwa of rakta dhathu in which the spandana guna of rakta dhathu is the karma of vayu mahabhoota. This karma denotes the function of chala guna and dalhana has also comments that spandana means kinchit chalana(mild movement)^[21] If the chala guna of rakta increases (increase in cardiac output) its manifest increased pulsative movements due to its shigrama property (rapid movement) of rakta (blood) through arteries which implies the high blood pressure.

Role of Manas and Sanjyavaha Shrotas

Manas plays an important role in the prone-city of hypertension and simultaneously, it may also hint the incurability of the condition, as hypertensive patient are more prone to channels of emotional carousals like krodha(agitation), shoka(sadness), bhaya(fear), chinta (overthinking) which increases the chala guna of vata and rajo dosha (pitta pradhana) guna in the body. And hence the pathogenesis and symptoms of primary hypertension due to dosha dushya sammurchanaa produces lakshanas such as murcha(fainting), dourbalya(weakness), klama (tiredness), krodha(agitation) involving rasa, rakta dhathu, sanjyavaha shrotas as the

important factor. Thus abnormal functioning brings about sanga(obstruction) and vimargagamana type of shroto dusti which will make the vyana vayu vikshepana kriya more forceful and hence the pressure on the dhamani's(arteries) increases. This is the vyakthasthana(site) of primary hypertension.

Samprapthi Ghataka

Dosha- Vayu (Prana Vayu, Samana Vayu, Vyana Vayu, Apana Vayu)

Pitta (Sadhaka Pitta)

Kapha (Avalambaka Kapha)

Dushyas- Rasa, Raktha

Agni – Jatargni, Rasa Dhathwagni

Srotas- Rasavaha, Raktavaha, Manovaha

Sroto dushti- Sanga, Vimarga Gamanam.

Udhhavasthana- Pakwashaya And Amashaya Samudhbhava

Adhishtana- Sharira And Manas

Sanchar sthana- Dhamani, Sira, Srotas

Rogamarga- Madhyama (Including Tri-Marma)

Swabhava – Ashukari/Chirakari

Avarana Concept in Hypertension

Rasa rakta under the effect of vayu are circulating all over body continuously and the blood pressure is applied by rasa- rakta dhathu on walls of sira(veins) and dhamani(arteries). But any obstruction in the way of vayu give rise to a form of kinetic energy in circulation of rasa and rakta dhathu, which will cause karma kashaya of these dhathus and it impairs the chala guna(moving property) of vyana vayu, udana vayu and prana vayu. In most of the patients with hypertension lakshanas of kapha, pitta rakta along with lakshana of vata prakopa are present. Hence vata dosha disturbs other doshas and dushyas leading to various Avarana(occlusion) such as raatavrita vata, pittavrita vata etc.

Table 2: Previous Theories And Comparison Of Essential Hypertension In Ayurveda.^[22]

The based on involvement of rakta	Based of avarana of vayu	Based on the sira- dhamani
Raktagata vata	Rakta avruta vyana	Siragata vata
Rakta avruta vata	Sleshma avruta vyana	Dhamani gata vata
Rakta asruta vyadhi	Pitta avruta vata	Dhamani praticharya (chakrapani)
	vyana avruta udana	Dhamani pustata (by gangadara)
	Anyonya avarana such as vyana avruta prana Prana avruta udana Samana avrita vyana	Dhamani pravicharya atipuranam (by yogendrabath sen)

Since there is no direct reference of any specific disease which can correlated with hypertension in Ayurveda, many terms have been used to understand hypertension in Ayurveda which can be categorized.

Out of these, few concepts can explain the symptomatology which are similar to hypertension can be seen such as.

1.Pitta avrita vata

When chala(movement) guna of vyana vayu is obstructed by drava guna(liquid property) and sara guna of pitta, ushna – tikshna guna of pitta dosha will manifest symptoms such as daha(excessive thirst), sarvanga klama (tiredness) gatra vikshepana (stiffness), santapa (burning sensation), savedana(pain) etc.^[23]

2.Rakta avruta vata

When rakta obstructs vata, it causes many symptoms which particularly coincide with primary hypertension are daha(excess thirst), arti (restlessness), saraga (burning sensation), swayathu(edema) mandala (red discolouration)^[24] Murcha (fainting), daha (thirst), sparsasweda (excess sweating), nistoda (pain)^[25]

3.Anyonya varana

Symptom of primary hypertension found in following types of anyonya avarana are

1. **Vyana avrita prana** – atisweda(excessive seating), lomaharsha (horripilation), suptagatrata (numbness).^[26]
2. **Pranavrita udana** – atisweda(excessive sweating), shirograha(heaviness of head), pratishyaya(rhinitis), nihishwasasochhaswasa(breathlessness), sangraha, hridroga(heart disease), mukhashosha (puffiness of face).^[27]

3. **Samana avrita vyana** – murcha(fainting), tandra, pralapa. Angasada(body ache), agi-oja-bala kshya(decreased strength and vitality).^[28]

CONCLUSION

Hypertension though tend to be a consequence of interaction between lifestyle and genetic factors, it has a high prevalence and risk at younger age groups.

Through various predisposing factors the coined dosha-dushya samurcchana shows that hypertension according to Ayurveda is more likely a vata pitta pradhana tridoshaja vyadhi involving rasa, rakta and manovaha shrotas. Though symptomatic understanding to primary hypertension are made, adopting a healthy lifestyle plays an indispensable part of managing hypertension.

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