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Critical study of ayurvedic concept of Dhamanigata Vata (hypertension)

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Abstract: Ayurveda is such a science which has specific doctrines on the basis of which it has flourished. As hypertension is an instrumental disease there is no direct reference of it in Ayurveda. But there are many references in ancient texts about hemodynamic system including heart, blood vessels and the organs like Shira, Hridaya and Basti which are commonly affected by the high blood pressure. According to Charka Hridaya is narrated as a root of Pranavaha srotasa and Rasavaha srotasa. Hridaya is said as the seat of Par Oja. Chakrapani opined that circulation is a continuous process and during the circulation with Rasa Dhatu, Rakta and other liquid Dhatus also circulates through all over the body. In pathogenesis of high blood pressure, heart is main affected organ. So, on the basis of Ashraya-ashrayi Bhava; Oja gets affected in high blood pressure. Moreover, symptoms of Oja Kshaya and Vyapada described in Ayurvedic texts like Shrama, Moha, and Murchha etc

Key Words:- Dhamanigata Vata, hridaya, Ojakshya, hypertension

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INTRODUCTION:

Rasa and Rakta is a Drava Dhatu^[1]Therefore, it has natural property of flowing. To maintain the circulation up to the end tissue, additional force is required along with its natural property of flowing, which is provided by the contractions – relaxations of the heart. This particular pressure, exerted by circulation is known as blood pressure. In other words, the lateral pressure exerted by the blood over the walls of arteries known as blood pressure. Blood pressure is the result of many physiological activities. Therefore, this process is considered to be done by some organs like heart and the energy, which controls the movements of the heart and other organs. Hypertension can be correlated as Dhamanigata vata. In Ayurveda, three humours – Vata, Pitta and Kapha; seven Dhatus (Rasa, Rakta etc.), Malas (Mutra, Purisha etc.) are considered as the root cause of all the functions of the body. So, understand the blood pressure in terms of Ayurveda, consideration of Vata (Prana, Vyana & Apana), Pitta (Sadhaka), Kapha (Avalambaka) Dhatus like Rasa and Rakta, the Srotasa by which it travels, Hridaya, Oja and functions of Mana are necessary.^[2] It is proposed that hypertension is to be understood as the Prasara-Avastha which means spread of vitiated Doshas from their specific sites, specifically of Vyana Vata, Prana Vata, Sadhaka Pitta and Avalambaka Kapha along with Rakta in their disturbed states. The Avarana (occlusion of normal functioning) of Vata Dosha by Pitta and

Kapha can be seen in the Rasa-Rakta Dhathus, which in turn hampers the functioning of the respective Srotas (micro-channels) of circulation.^[3]

Different views in the Nomination of Hypertension:

1. Many scholars have used the terminologies which are the literal translation of hypertension in Sanskrita or Hindi. In translation they have used Rakta as a common prefix and different suffix as to denote the pressure like 'Bhara, Daba, Chapa, Sampida' etc.
2. Some of have been mentioned the name of 'Vyana Vayu' in the nomenclature e.g. Vyana Bala Vriddhi, Vyana Prakopa etc.
3. Some scholars accepted Rakta as main Dushya in the pathogenesis of hypertension and on the same basis given the names like Dhamanigata Vata, Rakta Vata, Raktashrita Vyadhi etc.
4. Some scholars have been used the terminologies based on Avarana of Vata e.g. Raktavrita Vyana, Shleshmavrita Vyana and Vyana-Udanavrita Vata.
5. Some nomenclatures indicate the involvement of Sira and Dhamani in the pathogenesis of hypertension e.g. Siragata Vata, Dhamanigata Vata, Dhamani Praticaya etc.

Table no. 1 Nomenclatures of hypertension in Ayurveda

Terms which have correlation of "Hypertension"	Terms which indicate towards Avarana	Diseases of Dhamani	Particular conditions related to Rakta
Abhivridha Raktachapa	Avrita-vata	Dhamani Kathinya	Dhamanigata Vata
Deha Dhruk	Raktavrita Vyana	Dhamani Poornata	Raktashrita Vyadhi
Raktachapa	Vyana Prakopa	Dhamani Prapurnata	Rakta-vata
Rakta Vikshepa	Shleshmavrita-Vyana	Dhamani Pratichaya	Raktavridhi
Raktavega Vridhi	Avrita-Vyanodana Vayu	Dhamanigata Vata	Rudhira Mada
Rasa Bhara		Siragata Vata	
Rasoudvega	-	-	-
Uccharakta Bhara /Chapa/Daba	-	-	-
Vyana Bala	-	-	-
Vyanabala Vridhi	-	-	-
Rakta Sampeeda	-	-	-
Rakta Sammarda	-	-	-
RaktaChhapaAbhivridhi			

The diseases like Pakshaghata, Hridroga and Mutrarogas have existed at least since the existence of science of Ayurvedic medicine. These three diseases are described in Ayurveda in different chapters. These diseases exactly belong to Trimarmas. This is a fact from modern science that these three Marmas get more afflicted by the high blood pressure. Thus all these can be taken as indirect references concerned with hypertension.

➤ **HRIDAYA (Heart):**

According to Sushruta, formation of heart of foetus occurs by the Sara of Kapha and Ashruka⁶. Therefore, both Kapha and Ashruka should remain in its normal state to maintain normal

function of heart. Muscles of the heart nourished by the Sara of Rakta, Kapha resembles properties like Oja, retains the Bala of Heart which is utilized for Rasa – Rakta samvahana.

Hridaya is considered as "Chetana Sthana"^[4] This principle is also believed to be similar with modern one. In modern science the movement of heart is considered myogenic, where as other muscles only work after getting stimulation by nervous system.

Sara of Kapha gives the energy to the heart for working continuously.^[5] Kapha in normal state is believed to be Bala gives the energy for contraction – relaxation from 3rd month of the foetus to throughout the lifetime (Nadivijnanam),

hence it is always related with Rasa – Rakta Dhatu. Hridaya is the origin of Rasavaha srotasa,^[6] and the main seat of the Rasa also, hence is the root for all the physiological activity of the body. Detailed description of the physiology of the heart is not found in Ayurvedic literature but the 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 Raktavaha srotasa, which constricts and relaxes itself, makes clear that circulation of Rasa-Rakta takes place with the help of Vyana vayu.^[7] Hridaya is a seat of Prana also (Amarkosha Comm.), therefore its self-originating energy (i.e. Chetana) is conducted by Vyana vayu through out the body and gives pulsating capacity to the arteries.

Physiology of the heart can be explained by its Vyutpatti. The three Dhatus Hri, Da and Ya combinely form the word Hridaya which shows the three main functions of the Hridaya viz. Aharana (receives), Dana (gives), and Ayana (movement).

Aharana: Superior and inferior vena cava bring Rasa- Rakta from the body to the right Atrium.

Dana: Expulsion of Rasa-Rakta from left ventricle to the body through Aorta and its branches.

Gati: Both functions Aharana and Dana by the contraction – relaxation of the heart are continuous processes. Moreover, Prinana karma of Rasadhatu and Jivana karma of Raktadhatu

occurs due to the continuous functioning of the heart.

➤ **DHAMANI:**^[8]

In which, Dhamana, Spandana occurs is known as Dhamani.

Karma (Functions): By Dhamani, Rasa-Rakta are circulated with pumping of Hridaya and nourishes all the body tissues (Dhatus). Therefore, Dhamani is called as “Oja vaha” also. While circulating through Dhamanis a pressure is exerted by the Rakta in the walls of Dhamanis.

➤ **SIRA:**^[9]

The vessels in which “Sarana” take place known as Sira.

Karma (Functions): 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.

➤ **SROTASA:**^[10]

The structure in which “Sravana” occurs is known as srotasa. Chakrapani has described srotasa as that in which nutrients of Dhatus are transported from one place to other and nourish cells of the body.^[11] Waste products produced by them again are transported through the srotasa. In the context of blood pressure, Rasavaha and Raktavaha Srotasa are important, as they are related with Rasa- Rakta Samvahana.

Prana vayu, Vyana vayu, Apana vayu, Sadhaka pitta, Avalambaka kapha, Rasa dhatu, Rakta Dhatu and Oja have their impact on regulation of blood pressure.

➤ **PRANA VAYU:**

Location : Head, Chest, Throat, Tongue, Mouth and Nose.

Functions: Spitting, Sneezing, Belching, Respiration, Deglutition etc,¹⁶ Pranavalambanam. (Sushruta), Buddhi, Indriya, Hridaya, Mana drika.¹⁷ The seat of Prana vayu has been said to be 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 nervous system have been described similar to 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 Vyana vayu which has been believed to function like constriction – dilatation of the vessels. So any pathology of Prana vayu can cause abnormality of heart as well as Vahinies (Dhamanies).

➤ **VYANA VAYU:**

Location: Hridaya, Entire Body

Functions : Gati (movements), Prasarna (extension), Akunchana (flexion), UnmeshaNimesha (blinking)^[12] - Rasasamavahna, Svedasrik, 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 Vyana vayu through the heart. So, it suggests the involvement of Vyana vayu on regulation of blood pressure.

➤ **APANA VAYU:**

Location: Pakvadhana, Guda, Vrishana, Basti, Medhra, Nabhi, Uru, Vankshana and Shroni.²⁰

Functions: Expulsion of Mutra, Purisha, Shukra, Garbha, Artava at specific intervals.²¹ Mutra and Purisha have been considered as Mala, which can produce disease if not excreted at 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.

➤ **SADHAKA PITTA:**

Location : Hridaya

Functions: Responsible for Buddhi, Medha, Utsaha, Abhimana, Shaurya, Bhaya, Krodha, Harsha, Moha.²² 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. ^[14] 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.

➤ **AVALAMBAKA KAPHA:**

Location: Uraha Pradesha (with Hridaya) ^[15] The contribution of Avalambaka kapha is to make Avalambana of Hridaya with Ahararasa and Rasadhatu together with its own potency. The normal rhythmicity, conductivity, excitability, contractility, tone and refractory period of cardiac muscles can be correlated with Avalambana karma of Hridaya by Avalambaka kapha. Thus, it keeps heart in a healthy state and enhances its working capacity of continuous pumping action. Therefore, it can be said that Avalambaka kapha has some role on regulation of blood pressure.

Effect of Oja on Blood Pressure:

Hridaya is main seat of Oja, from where it is circulated in all over the body²⁹, and as described earlier, Oja is Bala of Hridaya which is utilized for Rasa-Rakta Samhanana. In pathogenesis of high

blood pressure, heart is main affected organ. So, on the basis of Ashraya-ashrayi Bhava; Oja gets affected in high blood pressure. Moreover, symptoms of Oja Kshaya and Vyapada described in Ayurvedic texts like Shrama, Moha, and 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.

RUPA: ^{[16] [17] [18]}

Disease is known through interrogation, observation and inference. Rupa serves as an instrument in all these three. On the completion of Dosha-Dushya sammurchhana the feature of the manifested disease is Rupa. Rupa or Vyakti Avastha of Vyadhi is the fifth Kriyakala. This is the stage, where disease appears with its subjective and objective symptomatology.

1. **Shirahshoola (Headache):** Acharya Sushruta has stated Shoola can not occur without the vitiation of Vata³⁴ Charaka has included Shirahshoola in 80 types of Nanatmaja Vatavyadhi. Further, Charaka while explaining Samanya Samprapti of Shiroroga mentions that Prakupita Vatadi Dosha causes Dusti of Rakta, localizing in Shira, produce Shiroroga, which includes Shirahshoola also. This way due to Vata dusti, Shirahshoola may occur.
2. **Nidranasha (Insomnia):** Vitiating Vata and Pitta and Manasa Santapa are responsible for Nidranasha³⁵. Charaka has mentioned it

under Nanatmaja Vikara of Vita. Laghu Guna of Vayu generally causes Nidranasha. Under the symptoms of Vata-Pitta Vriddhi, Acharya Sushruta has mentioned both Nidra-alpata and Nidranasha.

3. **Bhrama (Giddiness):** Acharya Sushruta has mentioned Bhrama as a result of vitiated Raja, Pitta and Vata. The Chala Guna of Vayu becomes dominant due to inflated Raja Dosha, makes patient to feel him like revolving.

4. Tamodarshana (Flashes before eyes):

Acharya Charaka has described Tamodarshana in Rakta Pradoshaja Vyadhi; hence Tamodarshan occurs due to Srotorodha in Rakta Vahinis of Shira.

5. Daurbalya (Weakness):

Daurbalya has also been described in Shonitaja Vyadhi Impairment of Dhatu formation due to Rasa-Rakta Dusti by vitiated Vata Dosha also affects the formation of Oja (Prakrita Bala), which produces Ati Daurbalya.

6. Hridayavata (Palpitation):

Acharya Gangadhara, has clearly mentioned that Hridayavata means increased Gati of Hridaya. Moreover, while describing the symptoms of Rasakshaya, Acharya Charaka has mentioned “Hridayam Tamyati” Gangadhara has commented on “Tamyati”. Here, Vyana vayu is aggravated with its Chala Guna resulting in Hridayavata.

7. Swasakastata (Breathlessness):

Swasakastata is pathological state of Pranavaha Srotasa. Kapha when obstructs the Srotasa, Prana vayu gets vitiated, resulting in Swaskrichhata. Here in this context, Sama Rasa produced by Agnivaishamyā, which gives rise to Malarupakapha and its Sanga in Pranavaha Srotasa may be the reason of Swasakastata.

8. Akshiraga (Redness of Eyes):

Akshiraga is described among Shonitaja roga in Vidhishoniteeya Adhyaya. Sushruta has also mentioned that redness of eyes is due to Raktavridhi. Uchcha Raktadab is co-relating with many diseases like Dhamanigata Vata, Rakta avrta Vata, etc. So comparison of these diseases on the basis of symptomatology is given as below:

Discussion

Table no 2 Clinical Features of Hypertension are according to its co-relation with Modern and Predominant Dosha according to Ayurveda:

Clinical Feature	Predominant Dosha
Headache	Vata, Pitta
Dizziness	Vata
Palpitation	Vata
Easy fatiguability	Vata and Pitta
Tinnitus	Vata
Epistaxis	Pitta
Blurring of vision	Vata and Pitta
Angina	Vata

Fainting	Pitta and Vata
Nausea	Pitta and Kapha
Odema	Kapha and Vata
Anger	Pitta
Hot Flushing	Pitta and Vata
Burning sensation	Pitta and Vata
Tingling numbness	Vata
Insomnia	Pitta and Vata
Decrease memory power	Vata
Hardening of vessels	Vata and Kapha
Narrowing of vessels	Vata and Kapha

Table no. 3 Clinical Features of Uchcha Raktadab with their Dosha Predominance.^[19]

No.	Clinical feature	Dosha Predominance
1.	Akshiraga	Pitta
2.	Raktapitta	Pitta
3.	Raktameha	Pitta
4.	Vatashonita	Vata
No.	Clinical feature	Dosha Predominance
5.	Pipasa	Vata, Pitta
6.	Gurugatrata	Kapha
7.	Santapa	Pitta
8.	Daurbalya	Vata
9.	Shirahashoola	Vata, Pitta
10.	Klama	Pitta, Vata
11.	Arati	Pitta

12.	Krodhaprachurata	Pitta
13.	Buddhisamoha	Vata, Kapha
14.	Sweda	Pitta
15.	Mada	Pitta
16.	Kampa	Vata
17.	Tandra	Kapha
18.	Tamahadarshana	Vata, Pitta
19.	Bhrama	Vata, Pitta

The above tabular presentation shows the role of various factors as Samprapti Ghataka in pathogenesis of Essential Hypertension. As stated earlier that different Nidanas cause Vata - Pitta - Kapha prakopa at the sharira level and Raja-Tama prakopa at the Manashika level. It causes Agni Mandhya, Dhatu Dushti (Rasa-Rakta) and Srotodushti (Rasavaha-Raktavaha) due to the Dhatu & Sroto Vairodhika Hetu Simultaneously, they leads to Ama and Rasavaha - Raktavaha Srotosanga. As a result of this Vyana Prakopa takes place and Sthanasamsraya occurs in Dhamni, Shira and Sarwang Sharira due to the Vikshepa bala of Vyana Vayu. Ultimately, it increases the blood pressure.^[20]

Conclusion

Hypertension cannot be considered as a Vyadhi (disease) as per Ayurveda but it can be understood by assessing the involved Doshas, Dooshyas (entity which is affected by morbid Dosha), Srotas etc. hypertension can be taken as a symptomatic condition where the disease

process is still in progress making it a risk factor for more risky diseases. according to Ayurveda (probable pathogenesis of hypertension based on Shad Kriyakala and Prana vayu, Vyana vayu, Apana vayu, Sadhaka pitta, Avalambaka kapha, Rasa dhatu, Rakta Dhatu and Oja.

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