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Critical Review of Vyana Bala Vaishamya: Ayurvedic Nomenclature of Hypertension

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ABSTRACT

Ayurveda is a healing science that originated in the Indian peninsula thousands of years ago. It has its origin in the Vedic culture and literature. The Charakasamhita, Sushrutasamhita, and Ashatangahridaya are the basic texts of Ayurveda and they are collectively known as Greater-troika. Other basic texts are Madhavnidana, Bhavaprakasha, and Sarngadharasamhita. They are known as Minor-troika. Ashatangasamgraha, Haritasamhita, Kashyapasamhita, and Bhelasamhita are some of the old and popular texts of Ayurveda. A vast body of knowledge is available in the above-mentioned texts and a number of other works. Though, according to an estimate, around 3000 morbidity terms are available in Ayurvedic literature, there is no mention of hypertension. But many references are available in the Ayurvedic literature that supports the premise that the condition hypertension was present in ancestral society but in reposing form. Hypertension has been referred to by the terms Raktagata vata, Siragata Vata, Avrita Vata, Rakta Sampida, Vyana Bala, Dhamani

Pratichaya, Rakta Vriddhi, Rakta-Vata, and Vyana-bala-vaishamya by different experts. The term Vyana-bala-vaishamya was coined by The National Health Portal of India without giving any rationale behind this correlation. This article has tried to give an expository perspective to highlight the term Vyana-bala-vaishamya to refer to hypertension..

Keywords: Hypertension Pakshaghata, Stroke, Vaishamya, Vyana-bala,.

INTRODUCTION

Hypertension is an epidemic that affects around 1 billion people across the world and is the commonest risk factor for mortality. As per the world health statistics, the prevalence of hypertension is 29.2% and 24.8% in males and females respectively and out of total mortalities that occurred in 2004, 12.8% were because of hypertension. (1) Although there is no direct reference of hypertension to a single unanimously accepted disease entity in Ayurveda, this illness is often seen along the lines of several diseases described in Ayurvedic texts such as Raktagata vata, Siragata vata, and Dhamani pratichaya, etc. The National Health Portal of India, hosted by Govt. of India has used the term Vyana-bala-vaishamya to refer to hypertension (2). Vyana Vayu is seated in the heart and circulates all over the body (3). Vyana Bala can be inferred as the normal function of Vyana Vayu. Vaishamya can be seen as a state of functional abnormality. Therefore, Vyana-bala vaishamya can be defined as the abnormal function of Vyana Vayu that manifests in the form of a disease that shares the pathophysiology of hypertension.

LITERATURE REVIEW:

Any discussion on hypertension is incomplete without mentioning Frederick Mahomed (1849-1884). He was a medical resident at Guy's Hospital in London and discovered primary (“essential”) hypertension by measuring the tension of the radial pulse. (4) Despite Mahomed's discovery, the measurement of blood pressure (BP) was not commonly performed until the 1890s, when Sciopione Riva-Rocci (1863–1937) invented the BP cuff and mercury manometer. (5) After this, the role of blood pressure is being studied in etiopathogenesis and it became part of the routine physical examination in hospitals and clinics.

In Ayurveda texts, there is no direct description of hypertension but there are many references available in the classics that support the hypothesis that this condition was present in ancestral society but in reposing form; for example, Pakshaghata which is comparable to Stroke in contemporary science is mentioned by Acharya Charak in Vata Nanatmaj Vyadhi [6] and Acharya Sushruta has described this in Mahavata Vyadhi.[7] And, hypertension is the single most important risk factor for all types of stroke.[8] Many Ayurvedic scholars of the 20th century have referred to hypertension with different disease conditions and proposed several terminologies. We could find thirteen terms given by different scholars of Ayurveda to describe hypertension. (Table 1)

Table 1: Terminologies and their definition as per classics given by Eminent Scholars of Ayurveda for Hypertension

S. No.	Scholar Of Ayurveda	Given Terminology	Definition of the terminology as per classics
1.	Yadunandan Upadhyaya	*Raktagata Vata*	The *Raktagata Vata* is caused by vitiated *Vata* seated in *Rakta Dhatu* and leads to acute pain, burning sensation, discoloration, emaciation, anorexia, rashes, and stiffness after taking food. [9] [10] [11]
2.	Gorakhnath Chaturvedi	*Siragata Vata*	The *Siragata Vata* is caused by vitiation of *Vata* in blood vessels (*sira)* and causes mild pain, edema, emaciation, throbbing pain, feeble pulsation, either thinness or thickness of vessels bleakness and distension in veins. [12]
3.	R.K. Sharma	*Avrita Vata*.	*Avarana* means occlusion of the normal movement of *Vayu*. [13]
4.	Brihaspati Dev Triguna	*Vyana Bala Vriddhi*	Increased arterial pressure is the result of increased *Vyana Bala*[14] and compared high blood pressure with *Vyana Bala Vriddhi*
5.	G.N. Chaturvedi	*Rakta Vriddhi*	*Rakta Vriddhi* refers to an alteration in the normal physiological characteristics of *Rakta Dhatu* which causes *Visarpa,* (erysipelas*)*, integumentary disorders, disorders of the spleen, abscess, gout, bleeding disorders, unconsciousness, *Gulma*, *Upkush*, jaundice, melasma, loss of digestive power, red discoloration of eyes, skin and urine [15].
6.	A.D. Athawale	*Dhamani Pratichaya*	*Dhamani pratichaya* means *Dhamani Upalepa* i.e. coating in *Dhamanis* (arteries).[16]
7.	P.V. Sharma	*Raktavata*	*Raktavata* can be understood under the clinical features of *Raktagata Vata*
8.	J.P. Shukla	*Rakta Vikshepa*	No description in Ayurvedic Compendia

9.	Ravani & Mahaishkar	*Rakta Chapa*	No description in Ayurvedic Compendia
10.	S.B. Pandey	*Rakta Sampida*	No description in Ayurvedic Compendia
11.	A.D. Athawale	*Dhamani Prapurnata*,	No description in Ayurvedic Compendia
12.	T.S. Athawale	*Rasa Bhara*	No description in Ayurvedic Compendia
13.	V.N Dwivedi	*Rudhir Mada*	No description in Ayurvedic Compendia

DISCUSSION

By reviewing the literature, we found that the scholars were not unanimous in giving Ayurvedic nomenclature for hypertension. We could find thirteen terms that were used to denote hypertension; out of which only six terms are available in Ayurveda classics and the remaining seven are introduced terms or mere Sanskrit translations of the word hypertension.

The terms *Rakta Vriddhhi*[15], *Rakta Gata Vata*[10][11][12] and *Siragata Vata*[12] have their mention in various ayurvedic compendia but symptoms of these conditions have no similarity to that of hypertension. One of the symptoms of *Siragata Vata* is emaciation but the presence of emaciation in the hypertensive patient is questionable because excess weight gain accounts for 65-75% of the risk for essential hypertension. [17]

The term *Avrita Vata* is also being used to refer to hypertension. This is a vague umbrella term that comprehends 42 types of morbid conditions specific to *Vayu-dosha* called *Avarana* [18]. The twenty-two kinds of *Avarana* are caused by the obstruction of *Vayu* by *Dosha*, *Dhatu*, feces, urine, or food. There are another twenty kinds of *Avarana* where one sub-type of *Vayu* is being obstructed by another subtype of *Vayu.* [19] Each type of *Avarana* has its symptomatology and none of them can be comparable to symptoms of hypertension.

The term *Dhamani-pratichaya* is also used to refer to hypertension, which means *Dhamani-upalepa* (Chakrapani), *Dhamani-atipurana* (Yogindranath Sen) or *Dhamani-pusthta*[16] i.e. coating of *Dhamani* (arteries)by vitiated *doshas*. This term cannot be taken to refer to hypertension but may be correlated to atherosclerosis [20], an etiological factor of hypertension.

In Ayurveda, an extensive description of the term *Rakta-vata/ Vata-rakta*[21] is available and it refers to various kinds of connective tissue and joints disorders including some immunological disorders, like Rheumatoid arthritis, Gout, SLE, etc. Therefore, this term can't be used to refer to hypertension.

Rakta Vikshepa (Shukla J.P.- 1954), *Rakta Chapa* (Ravani. & Mahaishkar U.B. 1967), *Rakta Sampida* (Pandey S.B. 1972), *Rasa Bhara* (Athawale T.S. 1979), and *Rudhir Mada* (Dwivedi V.N. 1991) are the terms being used to denote hypertension. [22] But none of these terms are mentioned in the classical Ayurvedic Texts. It seems that these terms are literal-translation of the word 'hypertension' and were introduced by various authors; without giving any rationale behind their usage.

B.D.Triguna used the term *Vyana Bala Vriddhi to* refer to high blood pressure. Though *Vyana Vayu* is primarily responsible for hypertension, this term is not available in the classic Ayurvedic literature and it is not sufficient enough to denote hypertension.

National Health Portal of India. [2] used the term *Vyana-bala-vaishamya* to refer to Hypertension and seems that it is the most appropriate one.

Among the three *Doshas, Vayu* is responsible for all kinds of movements in/of the body like locomotion, circulation of blood, excretion, perspiration, cellular transportation, etc.[23] There are five types of *Vayu* based on their physiological function. The *Pranavayu* is seated in the head it is its main functional area and it moves in the throat and chest. It is responsible for respiration, sneezing, spitting, belching, and deglutition [24]. The *Udanavayu* is located in the chest [3] and moves in the nose, neck, and umbilical region, and its primary function is related to the process of phonation.[25] The *Samanavayu* is responsible for digestion and metabolism including deglutition, therefore it functions along with *Pachakagni* in the *grahani.* [26] The *Vayu* responsible for micturition, defecation, parturition, menstruation, and ejaculation is *Apanavayu*. Its functional areas are the pelvis and anorectal region. [26]The *Vyana Vayu* is located in the thorax, especially the heart and it helps in the circulation of *Rasa Dhatu* all over the body. [27] The circulation of *Rasa Dhatu (Rasasamvahana)*[25] may refer to closed blood circulation. Since the seat of *Vyana Vayu* is the thorax and heart and its function is to regulate circulation, any abnormal function of *Vyana Vayu* may lead to disturbance in the normal circulatory system.

The force exerted against the walls of the arteries by circulating blood is defined as blood pressure. When this pressure increases it is called hypertension [28]. The *Vayu* responsible for this force is *Vyana Vayu* because its functional area is the thorax and heart and it regulates the circulation of *Rasa Dhatu*. [3]

Vyana Vayu is responsible for flexion, extension, rotation and locomotory movements of the body. It is responsible for yawning, and blinking of eyes, and assists in sperm motility required for fertilization. [26]. Therefore, all the voluntary and involuntary movements of the body are under the control of this *Vayu.* It is also responsible for perspiration and metabolism. All the functions of *Vyana Vayu* show close similarity to functions of the sympathetic and parasympathetic nervous system and it is indicative of all the functional entities involved in sympathetic and parasympathetic stimulation. [29] Autonomic abnormality is found in the early phases of hypertension. Multiple mechanisms have been documented that show that sympathetic overactivity could cause hypertension [30]

Vitiation of *Vyana Vayu* causes various signs and symptoms which are comparable to hypertension. Vitiation of *Vyana Vayu* can lead to loss of sensation, diminution of physical strength, and paralysis [31] which are also the clinical features of stroke. Hypertension is the most prevalent risk factor for stroke accounting for 64% of the patients. [32] Vitiated *Vyana Vayu* also causes disorders of the mind and loss of enthusiasm [31] and it is found that depression is present more commonly in hypertensive women than in men. [33] Altered physiology of *Vyana Vayu* reduces *Punsatwa* (~ oligozoospermia). [31] Males diagnosed with hypertension have a lower semen volume, sperm motility, total sperm count, and motile sperm count relative to males who did not carry a diagnosis of hypertension [34]. Edema is another symptom of deranged *Vyana Vayu* and there is an established association between bilateral pedal edema and pulmonary hypertension [35] When *Vyana Vayu* is vitiated, it causes *Kushtha* (~integumentary disorders) and *Visarpa.* There exists a correlation between hypertension and the severity of psoriasis, a subtype of *Kushtha.* [36] These findings make the similarities between manifestations of *Vyana Bala Vaishmya* and hypertension apparent.

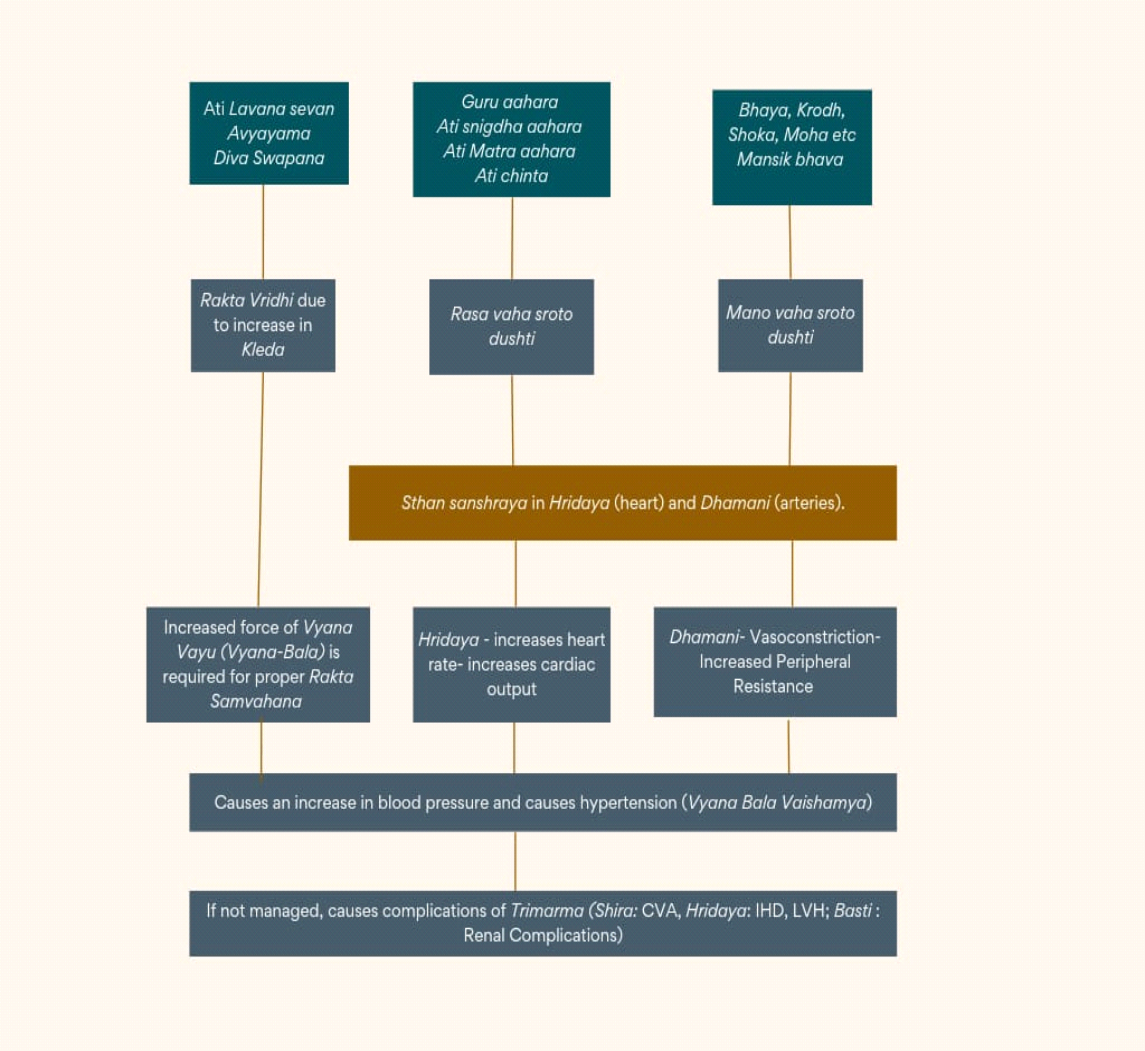
ETIOPATHOGENESIS OF *VYANA BALA VAISHAMYA*

As hypertension is not described *in Ayurvedic* Compendium, so disease's *Nidanas* are not addressed individually. Acharya Vagbhatta has mentioned causes of Vyana Vayu vitiation as excessive walking, a sedentary lifestyle, excessive participation in inappropriate activities, ingestion of incompatible and dry foods, excess happiness, and depression.[37] As per contemporary science, Primary hypertension is idiopathic. There are various lifestyle interventions that help in reducing blood pressure levels. Weight loss, reduction of dietary NaCl intake, taking a diet rich in fruits and vegetables and low-fat dairy products, regular aerobic activity, prevention and treatment of obesity, etc are important factors in reducing blood pressure and cardiovascular disease risk.[38]

We can understand the pathogenesis of *Vyana Bala Vaishamya* by taking all these factors into account. *Ati Lavana Sevan* due to the presence of *Jala Mahabhuta* increases Kleda in the body, *Diwaswapana* increases *Snigdha Guna* in the body which increases *Kleda,* and *Avyayama* causes vitiation of *Kapha* which promotes *Snigdhata* and *Kleda.* This increased *Kleda* causes an increase in *Rakta, Lavana Rasa* also has the property to increase *Rakta.* [39] So, an increased force of *Vyana Vayu* is required for an increased volume of *Rakta* for proper Rasa-Rakta Samvahana.

Guru Aahara (~heavy foods), *Ati Snighdha*(~oily and unctuous foods), *Ati Matra Aahara* (~Excessive eating), and *Ati Chinta* (~Overthinking) are all causative factors of *Rasavaha Srotodushti.* [40] *Bhaya* (~fear), *Krodha* (~anger), *Shoka* (~grief), etc *Mansika bhavas* causes *Dushti* of *Manovaha Srotas*. When Rasavaha and Manovaha Srotas get afflicted, doshas get *Sthan Sanshraya* in their respective roots which are *Hridaya*(~Heart) and *Dhamanis*(~Arteries). [40][41] In the heart, *Gati*(~heart rate) is increased which increases cardiac output and causes a further increase in blood pressure. In arteries, there occurs vasoconstriction which increases peripheral resistance and causes an increase in blood pressure.

Figure 1: Etiopathogenesis of *Vyana Bala Vaishamya*



CONCLUSION:

Although hypertension has been understood along with several ayurvedic terminologies, its correlation with *Vyana-bala vaishamya* seems the most appropriate. Description of *Pakshaghat* in classics supports the fact that the condition Hypertension was prevalent at that time also but remained undiagnosed. It also supports the fact that it is a kind of *Vata-Vyadhi* as *Pakshaghat* (~Stroke) which is one of the complications of hypertension is mentioned under *Vata-Nanatamaj Vikara* by Acharya Charak and *Maha Vata Vyadhi* by Acharya Sushruta. It is rational to understand cardiac output and peripheral resistance, the two deciders of hypertension, along with the concepts of *Vyana Vayu Karma.* Various signs and symptoms of *Vyana Vayu* vitiation are the same as that of hypertension. Moreover, in light of the overactivity of the sympathetic nervous system also it is logical to refer to hypertension by this term. Therefore, the term used by NHP, *Vyana-bala-vaishamya*, is the most appropriate one to refer to hypertension.

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