

# Aetiopathogenesis, prevention and management of hypertension—an ayurvedic view

## Abstract

Hypertension is a common disease in present era. Every fifth person is found hypertensive. Most adults develop it, in later half of their life More than 50% of the deaths and disabilities from heart disease and stroke together kill more than 12 million people each year. It has been predicted that by the year 2020 there will be a 75% increase in the global cardiovascular disease burden occurring. In *Ayurvedic* texts there is no clear pronunciation of Hypertension; According to *Charakacharya*, sometimes neither it is possible nor it's necessary to identify a disease by a name (*Anuktavyadhi*). An *Ayurvedic* physician should attempt to construct the *Samprapti* (Pathogenesis) of a given clinical condition on the basis of signs, symptoms, acuteness, chronicity, complication with investigative findings in each case and should plan the management accordingly.

Hypertension is dreadful disease which is multifactorial in its origin with a chronic aetiopathogenesis when thought adapting the principle of Dosh, Dhatu and Mala theory the pathology seems to be centered on Shonita Dhatu and Tridosha So it fall in the Madhyam Rogamarga (intermediate route) & hence it is Yasya disease (difficult to cure).

**Keywords:** hypertension, *Ayurveda*, *shonita dusti*, *anuktavyadhi*, *madhyam rogamarga*

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## Introduction

Hypertension is a common disease in present era. Every fifth person is found hypertensive. Most adults develop it, in later half of their life.<sup>1</sup> It is one of the most frequent cause for cardiovascular, cerebrovascular and renovascular mortality and morbidity.<sup>2</sup> The adverse effects of hypertension principally involve the blood vessels, central nervous system, retina, heart and kidneys, and can often be detected clinically.<sup>1</sup> It is very well established that in case of untreated hypertension mortality and morbidity increase several fold and that control of it, reverse this to a great extent. So that hypertension must be treated and controlled.<sup>3</sup> mainly in the developing countries. More than 50% of the deaths and disabilities from heart disease and stroke together kill more than 12 million people each year. It has been predicted that by the year 2020 there will be a 75% increase in the global cardiovascular disease burden occurring, The situation in India is rather more alarming, it has been predicted that there would be a 111% increases in the cardiovascular deaths in India by 2020. Therefore cardiologist has already drawn considerable attention to the WHO and various health administrations to develop effective strategies for Hypertension Prevention Programme.<sup>1</sup> There is an urgent need to develop personalized medicine through traditional Ayurvedic medicine; a shift from single target single intervention approach to integrative system biology i.e. holistic approach.

In modern medicine anti hypertensive drugs lower the high blood pressure but do not eradicate the risk of cardio-cerebro-reno-ophthalmo-vascular involvement, But *Ayurvedic* therapy can minimize the risk factor in a better way. In *Ayurvedic* texts there is no clear pronunciation of Hypertension; but it might be present from the time, when life is existing in the universe because diseases like *Pakshaghata* (Stroke), *Mutraghata* (Renal failure) and *Hridroga* (Heart disease) are very well explained in our texts which are common complications secondary to Hypertension. It proves the existence of this silent killer from since old days.<sup>4</sup>

## Nomenclature is unresolved question

In this modern era there are several references available for the disease Hypertension in *Ayurveda* but we cannot justify authentically how the modern medical science have strong worldwide acceptance of word Hypertension. Here some different opinion by different Academicians of *Ayurveda* suggested different names to demonstrate the phenomenon like *Raktagata vata* (Y.N Upadhyaya-1950), *Rakta Vikshepa* ( J.P Shukla - 1954), *Shiragata Vata* (G.N Chaturvedi-1962), *Avrita Vata* ( R.K Sharma-1966), *RaktaChapa* (Ravani and Mahaishkar UB-1967), *Rakta Sampida* (S.B Pandey-1972), *Iyana Bala* (B.Triguna-1974), *Dhamani prathichaya* (A.DAthawale), *Dhamani Prapurnata* (AD Athavale - 1977), *Rasa Bhara* (T.SAthawale-1979), *RaktaVridhhi* (G.N Chaturvedi-1981), *RudhiraMada* ( V.N Dwivedi-1991), *Raktavata* (P.VSharma-1993) and list goes on with different concept by different *Acharyas* and it makes confusion to upcoming *Ayurvedic* generation, what could be taken? and what could not?. Until and unless we cannot accept this disease with its causative factors, Pathophysiology, Acuteness, Chronicity, Complications and exact treatment modalities universally.<sup>5</sup>

According to *Charakacharya*, sometimes neither it is possible nor it's necessary to identify a disease by a name.<sup>1</sup> An *Ayurvedic* physician should attempt to construct the *Samprapti* (Pathogenesis) of a given clinical condition on the basis of signs, symptoms and investigative findings in each case and should plan the management accordingly.<sup>7</sup> The disease Hypertension is abnormality of *Rakta Dhatu*, (Blood) and is popularly known as *Shonit Dusti* (Vitiated Blood). The unique category of clinical presentation comprising *RaktaPitta*. (Abnormal bleeding from different roots of the body) *Rakta Pradara* (excessive vaginal bleeding), *RaktaMeha* (Hematuria) etc. and *Vat Rakta* (Group of vascular disorders with Gouty Arthritis) and some of mucosal inflammations as *Mukhapaka* (Oral Ulcers), *Akshiraga* (Redness of Eyes) *Upakusha* and *pootigraha* are also regarded maladies of *Shonita Dusti* (vitiation of blood).

*Shiroruka* (Headache) *Klama* (Nausea, Vomiting), *Anidra* (sleeplessness), *Bhrma* (imbalance of the body), *Buddi Sammoha* (Sluggishness in Intellect), *Kampa* (Tremors) etc. Also it is interesting to note that all these symptoms are akin to manifestations of hypertension. More to add, *Mada* (Delirium), *Moorcha* (Stupor) and *Sanyasa* (Coma), the different diseases caused by *Shonita Dushti* (vitiation of blood) are described also as progressive manifestation of increasing *Shonita Dushti*. So also, such a sequelae is equally true in relation to malignant Hypertension. All these deliberation corroborates parlance of the *Shonitadusti* and its different clinical manifestation of *Mada Moorcha* and *Sanyasa* to the essential Hypertension as well as Malignant Hypertension.<sup>8</sup>

The essential hypertension when thought adapting the principle of *Dosha*, *Dhatu* and Mala theory pathology seems to be centered on *Shonita Dhatu* and *Tridosha*. there is a need to understand the cause, pathogenesis, acuteness, chronicity, complication and Symptomatology of the disease & its holistic management.

## Regulation of blood pressure in ayurveda

Blood pressure is not described in any of the *Ayurvedic* classics. Blood pressure is an important phenomenon for the normal functioning of blood circulation, and physiology related to blood circulation is described by *Ayurvedic* Scholars. The regulation of Blood pressure is carried by Myocardial contractility, that pump the heart continuously and ejects the blood, helps in maintaining normal Blood pressure. In Ayurveda regulation of Blood pressure can be understood by functions of *Prana Vayu*, *Vyana Vayu*, *Sadhaka Pitta*, *Avalambaka Kapha*, *Rasa* and *Rakta Dhatu* which are situated in *Hridaya*. (Heart).

According to Ranjit Rai Desai, vitiation of *Vata*, *Pitta*, and *Kapha* (Premordial factors), *asthi meda* etc. affects blood pressure *Kapha* vitiation (*avalambak kapha*) increases cardiac strength but due to sluggishness of *kapha*, it decreases the *kapha* and on other hand *Pitta* (*sadhak pitta*) and *Vata* (*vyana vata*) vitiation increases blood pressure. Here one thing must be clarified that term for blood circulation is not the *rakta samvahana* (transportation of blood) but *rasanudhavana* (Circulation of Plasma) *Ayurveda* believes that *rasa* (plasma) is the circulating medium and not the *rakta* (blood).<sup>9</sup>

## Etiology of hypertension

Essential Hypertension is idiopathic where exact etiology of the rise in blood pressure is not yet clear. There are many pre disposing factors which causes hypertension is mention as follow.

- Alcohol intake (*Madyapan*)
- Salt intake (*Lavan*)
- Sedentary life style (*Ati Snighda*, *Madhur* & *Divaswap*)
- Mental Stress. (*Krodha*, *Bhaya*, *Shok*)
- Physical Strain (*Shrama*)
- Seasonal variations (*Rutu Sandhi*)
- Nidanarthkara* *Roga* - *Madhumeha* (Diabetes), *Sthoulya* (obesity), *Hridroga* (Heart disease), *Vrika roga* (Renal disease) are the precipitating diseases to form secondary hypertension.<sup>10</sup>

## Pathogenesis of hypertension in ayurveda

Ati lavana sevana (Excessive salt intake), madyapana (Alcohol consumption) snigdha bhojana (oily diet) Divaswap (day time

sleep) and manovighata (Mental accident) leads to vitiation of *Shonita* (blood). But *Shonita* being *Dhatu* (tissue) is not capable of vitiating *Doshas* (pre mordial factors of body) independently. The *Doshas* present in the *Shonita* which are involved indirectly in the manifestation of high blood pressure. The over use of salt, alcohol vitiates the *Sadhaka pitta* and *Shonita* (blood). Sedentary habits vitiates the *Avalambaka kapha* and psychological stress induces vitiation of *Prana vayu*. Initially *Prana vayu* gets *prakopa*. Since *Prana vayu* has influence on *Hridaya* (heart), vitiates *Hridaya* and its residing components like *Vyana vayu*, *Sadhaka pitta*, *Avalambaka kapha*. *Shonita* is also involved as it is located in *hridaya*. *Prakupita* (vitiating) *Avalambaka kapha* induces exaggerated contractility of the heart, while aggravated *Vyana vayu* leads increased *gati* (speed), the force of ejection of blood from *Hridaya*. These events result into forceful expulsion of blood through *dhamanis* (blood vessels), ultimately leading into increased resistance in vessels ensuring High blood pressure.

## Samprapti ghatakas (components of pathogenesis)

*Doshas: Prana, Udan & Vyana vayu, Sadhaka Pitta, Avalambaka Kapha* (Premordial factors)  
*Manas Dosh: Raja, Tama*

*Dushyas: Rasa, Rakta, Mamsa, Meda* (plasma, blood, Muscular & Adipose tissues)

*Updhatu: Sira, Dhamani* (Blood Vessels)

*Agni: Jatharagni-Dhatwagnimandya* (Gastric Fire)

*Aama: Rasagata* (Toxins at plasma level)

*Srotas (Channels): Rasavaha Raktavaha, Pranvaha & Manovaha* (Circulatory & Respiratory System)

*Srotodushti Prakar-(type of lesion): Sanga type of srotorodha (obstruction) Udabhava Sthana-* (site of occurrence): *Hridaya, Dhamani* (heart & blood vessels).

*Adhithana (Location): Mano-daihika* (physio-psychological) *Sira, Dhamani, Srotas* (blood vessels, body channels). *Sancharasthana (Transportation): Sarva Sharir* (whole body)

*Rogamarga (Disease route): Madhyama Rogamarga* (intermediate).

## Symptomatology (lakshanas)

Hypertension is asymptomatic in most of the cases but the symptoms can be seen in accelerated or sustained or Malignant Hypertension.

- Headache (*Shirorukh*)
- Tiredness (*Shrama*)
- Irritability (*Krodhaprachurata*)
- Raised body temperature (*Jwara*)
- Dizziness (*shirobhram*)
- Vomiting (*Klama*)
- Altered consciousness (*tamasaatidarshan*)
- Seizures (*Kampa*)
- Visual Disturbances (*Akshiraga*)
- Focal neurological signs (*Ardita*)

- k. Urinary symptoms (*Raktameha*)
- l. Delirium in Hypertensive (*Shiro Bhrama*)
- m. *Delirum* in encephalopathy (*Mada*)
- n. Stupor (*Moorchha*)
- o. Coma (*Sanyasa*).<sup>11</sup>

### Prevention is better than cure

The aim of *Ayurveda* is to promote the health by Preventive measures and further manage the disorder. The line of prevention and management of such disorder is beautifully quoted in *Ayurveda*.

- a. Psychological up gradation
- b. Life style and diet beneficial for heart.
- c. Diet and exercise to facilitate *srotas* flow.
- d. Follow the principles of peace (*ahimsa*)
- e. Follow the path of knowledge (*gyana*).<sup>12</sup>

### How to prevent hypertension

- a. **Stop smoking:** Smoking or use of tobacco products are the most significant risk factors for heart disease which contains chemicals may be responsible for atherosclerosis.
- b. **Be physically active:** It helps in control weight to reduce the chance of developing hypertension. Physical fitness can be achieved by increasing the intensity, duration and frequency of work outs such as gardening, housekeeping, use of stairs and mild to moderate morning walk for thirty minutes.
- c. **Regular health screening:** It is also an important way to prevent heart trouble “the earlier you start and treating it, the more disease you can prevent” Regular health check-ups or screening done by some simple parameters such as, measuring of blood pressure and blood test for LFT, KFT, Lipid profile, blood sugar and other basic features like BMI should be monitor regularly responsible for secondary hypertension.
- d. **Anti-stress measures:** Stress itself might be a risk factor, or it could be that high levels of stress make other risk factors worse. i.e. stress can cause high blood pressure, over eating, less physical activity. Chronic stress exposes your body to unhealthy, persistently elevated levels of the hormones like adrenaline and cortisol which increases the risk of heart attack.<sup>13</sup>
- e. **Dietetic regimen:** If the diet is pure, the heart will be pure. If the heart is pure the mind will be pure. If the mind is pure the intellect will be pure (*manusmruti*). As the food so the mind, as the mind so the man. As the food so the heart, as the heart so the man. (Bhagvadgita chapter.4) cardiologists blame that decline in the age growth of heart patients in India is due to the use of faulty food items (American heart association recommendations)
- f. **Fruits:** (Apple, Chikoos, lemon, grapes, papaya and orange) are high source of vitamins and minerals along with low calories. Eating a lot of fruit and green vegetables controlling weight and blood pressure.

Fiber rich diet is the form of unrefined whole grain, water soluble dietary fibers can incorporated into diet & result in significant lowering of cholesterol (4weeks).<sup>14</sup>

- a. Omega 3 fatty acids can be gained by eating fish at least twice a week.
- b. Avoid beverages and food that contain added sugars.
- c. Avoid table salt or take low salt diet.
- d. Regular intakes of some of the vitamins and minerals which may be associated with a healthy heart (chromium ,selenium, vitamin & magnesium vitamin C and Calcium)
- e. Barely butter milk, curd water, cow’s urine, kanji (sour vinegar), *tila taila* etc.<sup>15</sup>

### Principle of management

*Ayurveda* has certain limitations in the management of hypertension. Specially in the emergency treatment for the hypertensive crisis & other vascular episodes. However *Ayurveda* can contribute significantly in the chronic hypertensive conditions. Where the precipitating factors are hyperlipidemia, obesity and other life style problems. The management of this condition is according to predominance of *Dosha*, intensity of symptoms and involved relevant target organ damage in the pathogenesis.<sup>14</sup>

### Management of essential hypertension

It can be understand by various treatment modalities given for different conditions as follows: – Treatment of *Rakta Pradosha*, i.e. *RaktaPittahar* (Pacification of blood and *Pitta Dosha*) Herbal Medicine & Diet. *Virechana* (Therapeutic Purgation), *Upavasam* (Fasting), *Shonita Shraavanam* (Bloodletting).<sup>6</sup>

- i. *Vatapradhan Vatapitta:* (Stress, Senility or Neurotic) – *Manobrimhan* (Psychological up gradation and *Murdhnitail*. (Group of Procedures for Mental relaxation)
- ii. *Pitta pradhan Vatta pitta:* (Alcoholic, Chr. smoker,Hyperthyroidism, polycythemia vera, aggressive personality, hepatic disorders) – *Virechana*(*Pitta & Mutra virechan*), *Raktamokshan*( bloodletting).
- iii. *Kapapradhan Vatta kapha* – (hyper lipidemia, atherosclerosis, obesity or cardio vascular disorders) –Panchkarma Therapies–*Vamana*(therapeutic vomiting), *Virechana*(therapeutic purgation), *Lekhan Basti*(medicated enema), *Medohar* (lipid lowering) drugs. A combination of these three is also possible. A single line diagnosis and treatment not help to tackle the problem.

### Management of secondary hypertension

- a. **Renal hypertension** – *Mutraghata Chikitsa*(T/t of Renal failure) – *Gokshur*, *Punarnva*, *Kasni*, *Shilajit*.
- b. **Endocrine disorders** – Cushing syndrome, phaeochromocytoma and acromegaly – *Pitta Shamak & Agni Deepak Chikitsa*.

### Therapeutic management.<sup>17</sup>

<i>Hridya</i>	<i>Haritaki, Arjuna, Hridya maha kashaya</i>
<i>Srotasprasadana</i>	<i>Guggulu, pushkarmula, Kustha</i>
<i>Ojasya</i>	<i>Nagabala, Jivaniya varga, Vayasthapak, Kakolyadigana</i>
<i>Manasa Prasadana</i>	<i>Brahmi, Shankapushi, Rudraksha, Sarpagandha</i>

## Life style management.<sup>17</sup>

Metabolic Correction	<i>Triphala / Ghrita, Louki, Haritaki, Vacha, Rasna, Pippali, Sunthi, Puskar Moola, Katuki</i>
Physical Support	Daily routine, seasonal routine, <i>Panchakarma, Rasayana, Vajikarna</i>
Mental Support	Avoid conflict, emotion, Mediation – Yoga including Pranayam

## Conclusion

It can be concluded that by understanding the aetio-pathogenesis of hypertension. We can provide prevention and treatment of the condition by, *Nidan Parivarjan (avoid etiological factors)*, *Pathya Apathya(do & donts)*, *Shamana (pacification) & Shodhan (biopurification)*, *Rasayan (immunomodulatory)*, and *Vajikaran Chikitsa. (aphrodisiac treatment)*. Hypertension is dreadful disease which is multifactorial in its origin with a chronic aetio-pathogenesis. So it falls in the *Madhyam Rogamarga(intermediate route)* & hence it is *Yapya* disease (difficult to cure).

There is no clear clue regarding the hypertension in *Ayurvedic* text.

- It is a psychosomatic hemodynamic disease with a multi-factorial pathology of several dietary, environmental and genetic factors.
- Life style modification, stress management is essential for a maintenance of normal homeostasis and also blood pressure.

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## Conflicts of Interest

Author declares that there are no conflicts of interest.

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