



Review Article

PREVENTION AND MANAGEMENT OF HYPERTENSION W. S. R. TO AYURVEDA

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ABSTRACT

The whole world is becoming full of lifestyle disorders. Due to the rapid modernization people are leading more stressful lives. As a result of that modernization hypertension is one of the big world wide spread disorder which comes across in practice. About 26.4% of the world adult population in 2020 had hypertension and 29.2% were projected to have this condition by 2025. India is labeled as global capital of hypertension.

Ayurveda can be described as a real science of life. Ayurveda has an upper edge in treating the disease with emphasis on its root cause, where modern medicine is so entrenched in its pharmaceutical based symptoms treatment. The Ayurveda concentrates on achieving the promotion of health, prevention and management of disease for a healthy and happy life in the ailing society. The principals of Ayurveda are focused on maintaining good health by good diet and good lifestyle.

In Ayurveda, Hypertension can be correlated with *Raktagata Vata* and it is consider as *Tridoshaja Vyadhi*. Treatment for Hypertension in Ayurveda on the basis of aims at balancing of these three *Doshas*. Proper dietary habits, proper exercise, Yoga, Meditation along with Ayurveda herbs can be beneficial to balancing of mind, which reduce stress and maintain the blood pressure. This article is proved that the planning of proper herbal medications as per Ayurveda guidelines will definitely control the high blood pressure without any hazardous side effects of drugs.

KEYWORDS: *Aahara*, Ayurveda, Health, Hypertension, Life style.

INTRODUCTION

Hypertension is one of the most common lifestyle diseases today. Every third person is having suffering from it. Even kids can be victims of Hypertension. About in 90% patients there is no known cause for hypertension and this is very important to be alert. Hypertension itself is a very dangerous condition. It can cause drastic damage to the liver, brains, kidneys and the heart. The damaging of these vital organs is the most important cause of the death.^[1]

Hypertension is an important worldwide public health challenge. It is major cause for the morbidity and mortality worldwide.^[2] In India Hypertension is responsible for the 57% of stroke deaths and also 24% of all coronary heart disease deaths.^[3] The WHO rates Hypertension also as one of the most important cause of the premature death worldwide.^[4] In an analysis of worldwide data for the global burden of Hypertension, 20.6% of Indian men and 20.9% of Indian women were suffering from Hypertension in 2005. The rates for Hypertension are projected to go up to 22.9 and 23.6 for Indian men and women, respectively by 2025. ^[5] Recent studies from India have shown the prevalence of Hypertension to be 25% in urban and 10% in rural people in India. ^[6]

What is Hypertension?

Hypertension or high blood pressure is an asymptomatic medical condition in which systemic arterial blood pressure elevated beyond the normal values. Person's Blood pressure may be different at different times

of the day. It is usually higher after exercise, or under stress. Having higher blood pressure for short intervals of time is normal. However, when blood pressure stays high for a longer duration, it can leads to cardiovascular dysfunction and other serious health problems. High blood pressure can strain to the heart and damage arterial blood vessels, and increases the risk of congestive heart failure, myocardial infarction, pulmonary embolism, cerebral aneurysm and kidney failure, and even lead to death.^[7]

Cardiovascular risk factors such as smoking, high blood pressure, low high density lipoprotein (HDL) cholesterol, high low density lipoprotein (LDL) cholesterol, metabolic syndrome and diabetes are the major risk factors associated with the increasing cardiovascular diseases in India. ^[8]

Classification of Hypertension ^[9]

Category	Systolic (mm of Hg)	Diastolic (mm of Hg)
Normal	< 130	< 85
High Normal	130 – 139	85 - 89
Hypertension		
Stage 1 HTN (Mild)	140 – 159	90 - 99
Stage 2 HTN (Moderate)	160 – 179	100 - 109
Stage 3 HTN (severe)	180 – 209	110 - 119
Stage 4 HTN (Very severe)	> 210	> 120

Types of Hypertension ^[10, 11, 12, 13]

Medical science recognizes two types of hypertension –

1. Primary hypertension and
2. Secondary hypertension.

Primary hypertension

It is also called as Essential hypertension or idiopathic hypertension. There has no known cause, however many of the lifestyle factors contribute to this condition. About 90–95% of cases of hypertension are categorized as primary hypertension with no obvious underlying cause. This is found in most of people who have crossed the middle age. It cannot be permanently cured, but it controlled with the proper drugs and measures. The measures include sharp reduction of obesity and reduction of dietary salt.

Following factors are important in the etiology of essential hypertension: ^[14, 15, 16]

- Hereditary factor
- Environmental factor- overcrowding, pollution, competition in job.
- Age and sex factor
- Habit of Alcohol and smoking
- Increase in lipid profile and serum cholesterol
- Obesity
- Psycho-social factors- anxiety, tension.
- Dietary factor- more salt intake.

Secondary hypertension

When hypertension is caused by another condition or disease process, it is called secondary hypertension. This is also called as malignant hypertension. Incidence of the Secondary hypertension is comparatively very low. This is very danger and need to remedy urgently. Fewer than 10% of patients have secondary hypertension. The possible causes of secondary hypertension may be such as-

- Due to administration of certain drugs like contraceptive pills, steroids etc
- Hypertensive diseases of pregnancy: Toxemias of pregnancy
- Renal causes: Acute nephritic syndrome, chronic nephritis and polycystic kidney.
- Endocrinal causes: Thyrotoxicosis, myxedema and acromegaly.
- Metabolic causes: Diabetes mellitus, chronic gout and atherosclerosis.
- Congenital diseases: Coarctation of aorta
- Collagenosis and miscellaneous diseases: SLE and polyarteritis nodosa.
- Neurological: Encephalitis, brain tumor and cerebrovascular accidents
- Blood diseases: Polycythemia etc.

Signs and Symptoms of Hypertension ^[17, 18]

Most of the patients with hypertension have no specific symptoms except an elevated blood pressure. Symptoms of hypertension are usually variable and at time very vague. The popular symptoms of hypertension as following.

- Headache
- Nausea
- Numbness & burning sensation in hands & feet
- Vertigo
- Vomiting
- Feeling of tiredness, restlessness
- Breathlessness
- Loss of appetite
- Chest pain
- Discomfort
- Bleeding from nose
- Swelling in legs and eyes
- Irritability
- Haziness of vision

Complications of Hypertension ^[19]

Uncontrolled high blood pressure can lead to following some complications developed in the human body:

◦ Heart attack or stroke

High blood pressure can cause hardening and thickening of arteries (atherosclerosis), which can lead to the heart attack, stroke or other cardio-vascular complications.

◦ Aneurysm

High blood pressure can be cause of weaken and bulging the blood vessels, forming an aneurysm.

◦ Heart failure

Cardiac muscle thickens because of the pumping of blood against the higher pressure in blood vessels. The thickened muscle may have a hard time for pumping enough blood to body's needs, which can lead to heart failure.

◦ Organ malfunction

Weakened and narrowed blood vessels in kidneys and other organs, which prevent such organs from normal functioning.

◦ Vision loss

Hypertension damages the very small blood vessels in the retina of eyes can be lead to vision loss.

◦ Metabolic syndrome

Metabolic syndrome is a cluster of disorders of body's metabolism, which including increased waist circumference, high triglycerides, low HDL, high insulin levels and high blood pressure. If person have high blood pressure, it can be more likely to have other components of metabolic syndrome. The person has the greater risk of developing diabetes, heart disease or stroke.

◦ Memory problems

Uncontrolled high blood pressure may be affecting the ability of the person to think, remember and learn. Problem with memory or understanding concepts is more common in people with uncontrolled high blood pressure.

Ayurveda Approach to Hypertension

According to Ayurveda, high blood pressure involves all three *Doshas*, the heart, and the blood vessels. In high blood pressure we can see signs and symptoms of disturbance of *Vata dosha* that mainly of '*Vyana vayu*'. The

treatment is also on the basis to correction of the balance of *Vata dosha*. *Pitta dosha* vitiation is also seen often and it should be treated. People with *Pitta* and *Vata* predominant constitution are more prone to hypertension than any other. Unprocessed anger, frustration, irritability, anxiety and fear are leads to mal-adaptation of the endocrine system, which leads to conditions like hypertension.

Some Ayurveda scholars are correlate hypertension with the *Raktagata vata*. According to *Maharshi Charaka*, it is not essential to give a specific name to the every disease. In those conditions the physicians should treat the patient to be considering the nature of disease, its sites, etiology and *Dosha-dushya sammurchhana*.^[20]

Factors involved in HT

In Ayurveda, Hypertension can be considered as a *Raktaj Roga*, where the *Vata* is the associated (*Anubandha*) *Dosha*. Thus, the term *Raktagata Vata* is more appropriate to the condition instead of the above two. Therefore the treatment principles of *Raktaja Rogas* like *Raktapittahari Kriya*, *Virechana* and *Raktamokshana* can also be administered effectively in hypertension.

➤ *Vata Dosha*

- Prana Vayu*:** *Hridaya Dhruka* means the *Dharana* of heart is the typical function of *Prana Vayu*. It can be correlated with the vagal inhibition of nervous system.^[21] Vasomotor center controls the blood pressure by autonomic nervous system. In the same way *Prana Vayu* also controls the blood pressure by controlling of *Vyana Vayu*. So the pathology of *Prana Vayu* can be cause of abnormality of heart as well as vessels and developing hypertension.
- Vyana Vayu*:** This is responsible for contraction, relaxation and various movements in human body.^[22] With the help of *Vyan Vayu*, heart will be contracts and propels blood continuously to all over body. So, it is proves that the involvement of *Vyana Vayu* in regulation of blood pressure.
- Samana Vayu*:** After the digestive process *Samana Vayu* can be helps in the transport of *Rasa* into the heart from the digestive organs. Apart from the heart it circulates in the whole human body.^[23] Thus it proves that the *Samana Vayu* has an important role in the blood circulation and blood pressure.
- Apana Vayu*:** Vitiation of *Apana Vayu* hampers the excretion of *Purisha* and *Mutra*.^[24] So, these are affecting homeostasis of human body which may be affect blood pressure. So it proves that the *Apana vayu* also plays important role in regulation of normal blood pressure.

➤ *Mana (Mind)*

There is a close interrelation between the body and mind (*Mana*). *Manasik Bhavas* like *Krodha* (anger), *Chinta* (worry), *Bhaya* (fear) etc. plays an important role in the pathogenesis, progression and prognosis of all disease.^[25] This fact is focus that the *Mana* plays an important role in hypertension. Modern medical science also considers that the involvement of psyche (*Mana*) can be causative factors for hypertension. According to *Ayurveda*, *Vayu* is the regulator and

stimulator of *Mana*.^[26] This basic principle of Ayurveda should not neglect while treating of hypertension.

Symptoms of *Doshas* pre-dominancy

- Vata Dosha*:** When *Vata* predominates, an increase in blood pressure will be followed by worry, strain, overwork, anxiety or insomnia. It frequently associated with nervous system disorders. Anxiety, worry, stress, and strain, are usually the main factors, therefore, treat the psychological conditions.
- Pitta Dosha*:** When *Pitta* predominates, anger, nose bleed, Irritability, and Violent headaches Sensitivity to light contribute to high blood pressure.
- Kapha Dosha*:** When *Kapha* is prominent, there may be dull headache, edema, and lethargy with obesity. Blood pressure remains continually high. *Kapha* type of hypertension is almost due to arteriosclerosis.

Line of treatment in Ayurveda

1. *Nidana Parivarjan*

Avoidance of etiological factors of a disease is known as *Nidana Parivarjanam*. The following causative factors of hypertension should be strictly avoided.^[27, 28]

- Excessive intake of salt, vegetable oils, chilies, fast foods, junk foods, spicy foods, tea and coffee etc.
- Alcohol consumption and smoking.
- Day sleeping and awakening at night.
- Excitation, provocation, quarrelling, worries and anxieties
- Tight clothing
- Excessive indulgence in sexual activities

2. *Life Style Modifications*

- Weight reduction
- Regular physical exercise, daily brisk walking for half an hour
- Well-timed sleeping and awakening
- Regular practice of Yoga and herbal Meditation
- Avoid the intake of oily, salty, sour and spicy food
- Intake of balanced diet, more use of fruits and green vegetables in diet
- In diet more use of wheat, Barley, Sorghum, green gram, horse gram, Bitter gourd, Bottle gourd, Turnip, Carrot, Radish, Indian gooseberry, Cucumber, Black grapes, Pomegranate, Apple, Pineapple, milk etc.

3. *Shamana Chikitsa*

The following drugs (single/compound drugs) are commonly used for prevention and control of Hypertension.

a. *Single Drugs*

Sarpagandha, *Ashwagandha*, *Jatamamsi*, *Brahmi*, *Shankhapushpi*, *Lasun*, *Mandookparni*, *Yashtimadhu*, *Arjuna twaka* etc drugs are generally administered in the form of *Churna* (powder), *Swarasa* (juice), *Kwatha* (decoction) and *Sita kashaya*.

b. *Compound Drugs*

- ***Churna*:** *Sarpagandha churna*, *Ashwagandha churna*, *Shatavari churna*, *Yashtimadhu churna*, *Arjuna twak churna*.

- **Modak:** *Vrihat Ashwagandha modak, Himsagar modak.*
- **Avaleha:** *Brahmi rasayana*
- **Vati:** *Brahmi vati, Sarpagandha Ghana vati*
- **Rasoushadhi:** *Chintamani chaturmukh rasa, Rasaraja rasa*
- **Asava-Arishta:** *Saraswatarishta, Ashwagandharishta, Arjunarishta, Punarnava asava.*
- **Pishti:** *Mukta pisti, Praval pishti, Jaharmohara khatai pishti*
- **Bhasma:** *Mukta bhasma*
- **Taila:** *Himsagar taila, Brahmi taila*
- Medicated oil is boiled with milk a hundred times known as *Shatavartita Kshirabala Taila*. Five drops of this oil are mixed with a cupful of milk and given to the hypertensive person, then there will be assured benefits. [29]

Treatment according to *Doshas* predominance: [30]

1. *Vata Dosh:*

- Take 125 mg of *Serpagandha* and *Jatamansi* 3 times daily for 2 – 3 months.
- Eat entire crushed clove (with honey) once or twice a week.
- Take *Saraswat* powder in warm milk.

2. *Pitta Dosh:*

- Use tranquilizing herbs (example 250 mg of *Brahmi*, or *Brahmi Rasayana*, *Saraswat* powder) at night.
- To purify *Pitta*, take 1 gram of *Sariva* (*Indian Sarsaparilla*) for 15 days.

3. *Kapha Dosh*

- 1 gm. of *Guggulu* or *Arjuna* twice daily for 3 months.
- 250 mg. of *Shilajit* 3 times daily for 3 months.
- *Triphala Guggul* 1 gm. daily for 3 months.

4. *Shodhana Chikitsa*

This is a specialized therapy of Ayurveda to eliminate toxins from the human body by the giving of bio-cleansing procedures i.e. *Panchakarma*.

- a. ***Basti karma:*** can be applied for the disease as it is directly indicated for *Vata Vyadhi*.
- b. ***Virechan karma:*** also useful in *Shonitaj Vyadhi* as described by *Maharshi Agnivesha*.
- c. ***Shirodhara:*** with medicated liquids, *Takra* (Butter milk), milk, water, medicated oils can be get good improvement in high blood pressure.
- d. ***Rakta mokshan karma:*** also directly indicated in *Shonitaj Vyadhi*.

5. *Aahariya dravya*

Ayurveda is the conventional medicinal system that strategy of curing and preventing of all diseases using of natural resources. So we can manage the hypertension on the basis of regular good diet.

Following *Aahariya dravyas* have some beneficiary property to good work on hypertension;

a. ***Mudga (Phaseolus tribolus)*** [31]

Chemical constituent: Vitexin, lutcolin & kaempferol.
Mudga is having an important role on *Raktavaha Sansthana*. Because, of its *Laghuguna* get digested

easily. In hypertension due to *Agnidushi* day by day increases blood pressure and creates complications. Hence, *Laghumudg Aahara* are most useful in hypertension. So, one should have *Mudga* in regular diet.

b. ***Methika (Trigonell foenum)*** [32]

Chemical constituent: Steriodalsaponin, Tigonin, Trigonelloside, Chaoline & Gitogenin.

Methika digest the *Aama* in body and worked as *Deepana Dravya*. *Methika* also do *Malashudhi* and improves *Jatharagni*. Then because, of good *Agnirasa*, *Raktavaha Sanasthana* gets *Prakruta* and decreases blood pressure.

c. ***Papaya (Carica papaya)*** [33]

Chemical constituent: Papain, Caricine, Myrosin & Carpasemine.

Papaya fruit is having *Ushnavirya*. Its *Ushnavirya* plays an important role in *Aama Pachana*. Which *Aama* is increases blood pressure by blocking the *Raktavaha Srotasa*. *Papaya* is mainly used in hypertension which develops from *Vikruta Pachanashakti*.

d. ***Draksha (Vitis vinifera)*** [34]

Chemical constituent: Trepenes, Maltase, Norisoprenoids & Glucose.

Draksha works on *Vata Dosh* (*Vyana* and *Aapana*). *Draksha* works as *Anulomaka* through which pressure of *Aapana Vayu* on *Vyana Vvayu* and *Pureeshavaha Srotas* releases. Therefore, important *Hetu Malavrodha* of hypertension is decreased hence, it's indirectly helps in lowers the blood pressure.

e. ***Marecha (Piper nigrum)*** [35]

Chemical constituent: Piperine, Piperidine, Piperttine, Chavicine

Marecha is having *Chedana* property which is very useful in dissolving the blockages and releasing the pressure of blood on arterial walls. *Marecha* is very powerful substance so, used in very less quantity as a medicine.

f. ***Jeeraka (Cuminum cyminum)*** [36]

Chemical constituent: Cumaldehyde

Jeeraka is *Vikrutakaphavatahara* also *Raktashudhikara*. Hence, used in hypertension. Also the property *Mutrala* of *Jeeraka* gives significant antihypertensive effect without any side effect.

Therefore, *Jeeraka* can safely recommended for longer period to the patients of mild to moderate hypertension mainly associated with fluid retention.

6. ***Yoga & Meditation in HTN***

Excessive mental, emotional and physical stress can get worse the symptoms of many chronic disorders, including hypertension. This is due to the cause of hormonal changes and other biochemical responses to stress. That can imbalance the nervous system and depress the healing ability of the body.

Regular practice of integrated *Yoga* can promote tranquility of mind and increase resistance to stress. [37] This stress can be causative factor of hypertension. Combination of relaxing postures (*Shavasana*,

Sukhasana, Dhanurasana, Makarasana and Vajrasanas), breathing exercises (*Pranayama*) and meditation has given better results in hypertensives.^[38]

Relaxation postures of body are reducing the activity of Sympatho-Adrenal system, this helps in reduction of catecholamine activities and gradually reduce the blood pressure.

CONCLUSION

Hypertension is a lifestyle disorder. It is treated with changes in our lifestyle and medicines. In modern science there are various anti hypertensive allopathic drugs are available for the control of blood pressure. These anti hypertensive drugs can help to control blood pressure, but it will not cure permanently high blood pressure. When we stop treatment, our blood pressure and it related health problems will be rise. So, for a healthy future, everyone have to follow the Ayurveda regimens about the hypertension. Ayurveda has an upper edge in treating the hypertension with emphasis on its root cause, where modern medicine is so entrenched in its pharmaceutical based symptoms treatment. Ayurveda approach to treat every disease according to its *Samprapti* (pathogenesis) and it is very practical.

This review about the hypertension is proved that the proper medications as per Ayurveda guidelines will definitely control blood pressure without any hazardous side effects. Hypertension can also managed by well following of *Pathya* and *Apathyaas Ahar - Vihar* (diet management and appropriate lifestyle) and *Yoga* mentioned in Ayurveda. These are maintaining homeostasis of human body and thereby preventing the hypertension.

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