

A LITERARY REVIEW ON PREVENTIVE MEASURES OF ESSENTIAL HYPERTENSION

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ABSTRACT

Non communicable diseases are having increasing importance among the adult population in both developed and developing countries. India is experiencing a rapid rising burden of NCD'S causing significant morbidity and mortality. Sedentary lifestyle, unhealthy diet, mental stress, tobacco and alcohol use, physical inactivity are major risk factors causing obesity, raised blood pressure, raised blood glucose and cholesterol. Hypertension is chronic condition of concern due to it's role in causation of coronary heart disease, stroke and other vascular complications. Hypertension is commonest cardiovascular disorder which accounts 20 -50% of all deaths. Now a days due to changed

lifestyle prevalence of hypertension is increasing day by day. As said "Prevention is better than cure", it is important to eradicate hypertension by preventive measures. *In Ayurved samhitas* there is no description of hypertension to exactly correlate with modern aspect of hypertension. But *Aacharya Charak* in *Trishothiya Adhyaya* has explained that if disease is unknown physician should understand the nature of disease by *dosha*, *dushya* and *samprapti* and have to treat the disease. In this article an effort has been made to understand the essential hypertension and its prevention through diet, Yoga and Ayurveda to reduce the risk of developing cardiovascular diseases.

KEYWORDS: Essential hypertension, Lifestyle disorder, Preventive measures, Ayurveda.

INTRODUCTION

In modern era non communicable diseases are of major concern due to changed life style. Cardiovascular diseases account for 30% of deaths worldwide. Due to modernization

smoking, serum cholesterol and hypertension are major risk factors for developing cardiovascular disease.^[1] In India hypertension is almost responsible cause which contributes nearly 10% of all deaths due to non-communicable diseases. It is estimated that 16% of ischemic heart diseases, 21% of peripheral vascular diseases, 24% of acute myocardial infarctions and 29% of strokes are due to hypertension. Hypertension is a condition when systolic blood pressure is greater than or equal to 140 mmHg or diastolic blood pressure is greater than or equal to 90 mmHg or patient currently taking medicine to lower the high blood pressure. In 2008 worldwide nearly 40% adults above the age of 25 years diagnosed with hypertension. In India hypertension prevalence has risen rapidly over the past 3 decades from 5% to between 20% & 40% in urban areas while 12% & 17% in rural areas. The number of hypertensive individuals is predicted to nearly double from 118 million in 2000 to 213 million by 2025 in India.^[2]

In Ayurveda there is no any particular disease to exactly correlate with hypertension but *Acharya Charak* has explained in *charak samhita trishothiya adhyaya* that if physician is not able to name a particular disease he should understand the nature of disease by *dosha*, *dushya*, *samprapti*, etiological factors, site of manifestation of disease. And then he should initiate the treatment.^[3]

AIM AND OBJECTIVE

To understand the essential hypertension & to study the role of diet, Yoga, pranayama and lifestyle changes according to Ayurveda and modern science for prevention of essential hypertension.

MATERIAL AND METHODS

This study is a literary review based on conceptual study. All the literature review collected from classical texts of Ayurveda, modern reference books and internet web sites.

Blood pressure level is a function of cardiac output and peripheral resistance that is the resistance in blood vessels to the flow of blood. In general population it is needed to start the pharmacological treatment at age equal or greater than 60 years when systolic blood pressure ≥ 150 mmHg or diastolic blood pressure ≥ 90 mmHg. While at age less than 60 years or patient having chronic kidney diseases, diabetes when systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg.^[4] When cause of hypertension are generally unknown it is called as primary or essential hypertension. When hypertension is due to some other

diseases, process or abnormality it is called as secondary hypertension. Risk factors for hypertension are age, sex, genetic factors, ethnicity.^[5] overweight & obesity, excess consumption of salt (sodium chloride), alcohol consumption, tobacco chewing, sedentary lifestyle, mental stress, potassium calcium and magnesium imbalance in diet.

Pathophysiology of Hypertension

Pathophysiology of hypertension include sympathetic nervous system and kidney which helps to maintain blood pressure. Hypertension is caused by increased cardiac output or increased peripheral resistance. factors involved in increased cardiac output are excess sodium intake and excessive sodium retention by kidneys which increase circulatory fluid volume. Resetting of pressure Natriuresis rises systolic blood pressure which further evokes sodium retention. The renin _ angiotensin system (RAS) maintain salt and water homeostasis and blood pressure control. Inappropriate release of renin culminating in formation of angiotensin II which causes vasoconstriction which result in hypertension. Excessive activity of sympathetic nervous system increases blood pressure by affecting cardiac output. Direct medication and factors like intracellular calcium, growth factors like angiotensin II, insulin, prostaglandins, endothelin increases peripheral resistance which ultimately increases blood pressure.^[6]

Prevention of Hypertension

1. **Nutrition:** For prevention of hypertension dietary changes are very important. Low calorie, low fat, low sodium diet with normal protein intake is prescribed. Earlier Kempner's rice-fruit-sugar diet is suggested for hypertension. Kempner's rigid rice – fruit sugar diet provides about 2000 Kcal, 20 gm fat, 20 gm proteins, 150 mg sodium and 200 mg chloride. All fruits are permitted.
 - A) Sodium: – Sodium intake should be restricted between 200 to 400 mg depending on severity of disease.
 - B) Potassium: – If diuretics are administered to patients suffering from hypertension the diet should be supplemented with potassium salts, to make up for potassium excreted in the urine.
 - C) Proteins: – Protein intake should be just adequate to meet the daily requirements. Kempner recommended a restriction in the protein to about 20 gms.

- D) Fats: – It is advisable to reduce intake of animal fats to minimum. Dietary fat should mainly consist of vegetable oil rich in essential fatty acids. The intake of foods rich in cholesterol should be kept minimum.
- E) Calories: – Calories should be just adequate to meet the daily requirements. In case of obese persons, calorie intake will have to reduce to bring down their body weights to normal.
- F) Vitamins: – The patient suffering from hypertension should take daily one multi vitamin and mineral tablet.^[7]

2. Weight Reduction: Obesity is a risk factor for hypertension. Thus in the prevention of hypertension weight reduction is important for proper maintenance of blood pressure and health. *Acharya Charak* explained etiopathology of obesity in *Sutrasthan Ashtaninditiya adhyaya*, explaining that abstinence from that causes helps in weight reduction.

1. Avoid over intake of food.
2. Avoid intake of heavy and nourishing, sweet, cooling and unctuous food.
3. In case of over corpulent for slimming heavy (due to increased hunger) and non nourishing diet is prescribed.
4. Diet and drinks that alleviate *vata* and *kapha* and can reduce fat are advised.
5. Intake of *takrarishta*, honey, barley, *Yava* (*Hordeum Vulgarae*), *guduchi* (*Tinaspora cordifolia* Miers), *musta* (*Cypers rotundus* Linn.), *haritaki* (*Terminalia chebula* Linn.) *bibhitaki* (*Terminalia belerica* Roxb.), *amalaki* (*Emblica officinalis* Gaertn.), *mudga* (*Phaseolus mungo* Linn.), *kulattha* (*Dolichos biflorus* Linn.), seed of *adhaki* (*Cajanus cajan* Millsp.), *priyangu* (*Aglaia roxburghiana* Mig.), rice of *shali shashtik* is advisable as food with honey water as *anupan*.^[8]

3. Behavioural Changes (*Aachara Rasayana*): Behavioural changes are important preventive factor to decrease the risk of hypertension. Reduction of stress, avoid smoking, modification of personal life style, yoga and meditation could be profitable.^[9] Ayurveda science have explained *Aachara rasayana* as code for good behavior. One should always speak truth, refrain from alcohol, sexual act, anger and violence. One should be peaceful, avoid exertion, speak sweetly, practice *japa* that is chanting names of God and cleanliness. One should be courageous, generous, perform penance, respect god and elders, be always kind to all. One should sleep and get up at proper time, take milk and ghee every day, not egoistic, have good conduct, be devoid of wrong thoughts, inclined towards philosophy, have

belief in good, serve elders, read religious books. These changes will help to maintain good physical and mental health that is *swasthyarakshana*.^[10]

4) Yoga and Pranayam Yoga and pranayama relax body, mind and soul. It controls blood pressure, cures depression, stress and anxiety. It improves blood circulation in body, reduce heart problems like heart attack and strokes, cures insomnia, control anger, improves immunity and gives positive energy. *Aasanas* advised to prevent hypertension are –

1. *Vajrasana*
2. *Paschimottasana*
3. *Pawan muktasana*
4. *Marjarisana*
5. *Balāsana*
6. *Shavasana*.

Pranayama - *Bhastrika pranayama*, *Kapalbhati*, *Anulom vilom pranayama* and *Bhramari pranayama*.^[11]

CONTRAINDICATIONS

Yogaasnas that put the body in inverted position that is having the legs higher than the heart and heart higher than the head should be avoided by peoples with cardiovascular disease. *Asanas* like *Sarvangasana* (shoulder stand) and *Shirshasana* (head stand position) and even gentle relaxing inversions like *viparit karni* (legs up the wall pose) should be avoided.^[12]

DISCUSSION

In the current scenario hypertension is a lifestyle disorder of primary concern. In developing countries the prevalence of hypertension is shifting from older age group to younger age group also. Beside medical treatment it is better to decrease the incidence of hypertension by finding the root cause that leads to hypertension. Although the exact aetiopathology of essential hypertension is difficult to know but the condition that aggravates the hypertension can be known and help to prevent the hypertension. Altered lifestyle, stress, eating pattern and habits, disturbed sleep, overuse of fast food, packed preserved food leads to obesity hypertension and diabetes. Ayurveda is a science that helps to prevent and eradicate the diseases by *aahar*, *vihar*, behavioural changes, yoga and meditation for physical and mental health. Balanced diet, weight control, proper sleep and rest, regular practice of pranayama and yoga is the key to healthy life and control the hypertension. Yoga practice is useful to

effectively bring down the adrenalin level in flight and fight response of body which is the cause of hypertension. Stress induced or sustained muscular contraction reduces lumen diameter of blood vessels in muscles, so stretching of muscles will help to reduce increased blood pressure. In brain medulla oblongata has respiratory and vasomotor center side by side thus in stressful condition rapid breathing pass electric signals from respiratory to vasomotor center which increases blood pressure. Thus pranayama helps to regulates the breathing and to control over blood pressure.^[13] Hypertension is the outcome of altered life style, diet and stress thus it is important to correct these factors to overcome the problem and healthy long life.

CONCLUSION

Hypertension is a serious leading problem in society and only medicines is not a solution to overcome it. It is a life style disorder and can be prevented effectively by healthy changes made in lifestyle. We can fight hypertension by healthy diet, weight control and healthy state of mind.

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