Today is the era of technology. Due to easy access of everything, people are becoming fat and devices thinner. Because of the easiness, world is now suffering from lifestyle disorders rather than contagious disease. Contagious disease can be cured may be early or later but lifestyle disorder is difficult to cure once they enter complication. One of the conditions of lifestyle disorder is Hypertension. Almost 30% of world population is hypertensive till date. Still 15-20% population are unaware of the condition. Due to modernization, lack of exercise, smoking and drinking habits as fashion, food habits, etc younger generations are also getting into the problem. Symptoms usually are unnoticed till it damages heart, kidney or brain, therefore it is also called as Silent Killer. Many hypertensive drugs are in use for hypertension just to control the blood pressure. As per Ayurveda Classics, its aim it to protect the health of healthy person, and treat the diseased condition. Our classics has not described single disease which can be understood as hypertension. So according to our classics such condition should be treated using our Yukti (proper planning) and recognising Dosha (3 pillars of body) and Dushya (body tissues). This article is an attempt to how one can avoid the condition of hypertension through Aahar (food), Yoga (body postures) and Pranayama (breathing exercise). We aim to prevent disease; hence the preventive aspect can be understood in this topic.

Keywords: Hypertension, lifestyle disorder, Aahar, Yoga, Prevention

Introduction

Ayurveda is derived from 2 Sanskrit words, namely, “Ayus” and “Veda,” meaning life and knowledge, respectively. It literally means science of life. The basic philosophy of Ayurveda is that everything in the universe, including life, is composed of 5 elements, called Panchamahabhutas. These 5 elements are Akash (ether), Vayu (air), Agni (fire), Jala (water), and Prithvi (earth). These elements are not recognized as
physical elements but rather they represent principles unique to the particular element. For example, fire represents the natural force associated with light and heat, and water represent the property of cohesiveness that holds things together, and so on.

These elements, in turn, give rise to 3 basic types factors (or energies) that regulate the life cycle and control the entire human body. These factors, called Doshas, are Vata, Pitta, and Kapha. Vata arises from space and air, Pitta from fire and water, and Kapha from water and earth. Doshas contribute in various proportions to make up Prakruti (the essential constitution) of an individual. Prakruti is genetic in nature. Just as 3 Doshas control regulatory aspects of the body, 3 Gunas—Sattva, Rajas, and Tamas—influence and control the mind. Ayurveda also recognizes 7 Dhatus (tissue elements): Rasa (plasma), Rakta (blood), Mamsa (muscle), Meda (fat), Asthi (bone), Majja (bone marrow), and Shukra (reproductive tissue); 3 Malas (excretory products): feces, urine, and sweat; and Agni (energy metabolism). Any disturbance in any of these factors can give rise to disease. Because Dosha imbalance is at the core of every dysfunction, keeping Doshas in balance will maintain good health.

**Disease Management**

Disease evaluation and management in Ayurveda are individualized. Diagnosis is made by history-taking, observation, palpation, and performing an examination of various organs and systems with particular attention to the heart, lungs, and intestines. Particular attention is paid to the examination of the pulse, tongue, eyes, and nails. The nature and the quality of the assessment are quite different from conventional biomedical assessment most physicians are used to. The findings have different interpretations and are based on principles as explained in classics. Depending on Ayu, Sharirika Bala, Manasika Bala, Agni, etc., treatment is decided whether to go with Shama- na therapy (palliative) or Shodhana therapy (detoxification). If the patient is weak in all aspect, then Chitiksak (physician) should go with Shama-nna (palliative) therapy and if patient has good Bala (strength) then Chikitsak (physician) should go with Shodhana (detox) therapy.

In case of Hypertension, Acharya Charaka has described various factors in Vimanasthana, which are responsible for Rasavaha Strotas Dushi-ti, (Excessive intake of Guru (heavy), Sheet (cold), excessively unctuous food, and constant worry); Raktavaha Stroto Dushi (get vitiated due to intake of food and drinks which are irritant, unctuous, hot and liquid); excessive exposure to sunlight and fire, excessive intake of fatty diet and day time sleep causes the disturbance in the metabolism of lipid,[1] which finally results in to Dhamanipratichaya (Atherosclerosis / Arteriosclerosis) leading to genesis of HTN. In Ayurveda, Pragyaparadha (doing bad deeds knowingly) and Asatmyaindriyartha Samyoga (misuse of sense organs) are considered as the root causes for every disease, which indicate the involvement of mind. Manasika Bhava (mental factors) like Chinta (worry), Krodha (anger), Bhaya (fear) etc. play an important role in the etiopathogenesis, progression and prognosis of disease as well as response to the treatment of the disease. This fact reveals that Manas (mind) is also involved and the disease should be considered as psychosomatic.[2] Acharya Sushruta has also described ‘Shonit Kapha Prasadajam Hridayam’, which means while development of Garbha, heart is formed by the purest portion of Rakta (blood) and Kapha. [3] These originating constituents should be considered while treating cardiac ailments. Drugs acting on these con- stituents can offer more reliable results. As per classics, we can correlate Hypertension with Siragata Vata[4], Raktagata Vata[5], Avritta Vataroga[6]

**Prevalence**

An estimated 1.28 billion adults aged 30-79 years have hypertension worldwide, among which two third of them live in low- and middle-income
countries. 46% of adults are unaware about the condition that they are hypertensive. Less than 42% with hypertension are diagnosed and are treated. 1 among 4 men and 1 among 5 women are hypertensive.[7]

A study conducted in the rural areas of Kathmandu District reported a three-fold increase in the prevalence of hypertension prevalence in 25 years. The last two periodic surveys conducted in Nepal (STEPS survey 2007 and 2019) showed that the prevalence of hypertension had increased from 21.5% to 24.5% in Nepal. Other studies reported largely varied findings on hypertension, with prevalence ranging from 19.6% to 25.7% at the national level; 15.1% to 38.9% at the regional level; 21.7% to 48.1% in males; 10.5% to 35.2% in females; 22.5% to 38.6% in rural areas; and 32.5% to 38.9% in urban areas.[8]

Aims and objectives:
To understand and learn different perspective of preventive aspect of Hypertension through Ayurveda and Yoga.

Methods and Materials
Different classical books on Ayurveda along with research paper, modern literature, available research updates and scientific information available on internet etc. were searched and analyzed.

Aahar and hypertension
We all know that diet has high impact in our body may be healthy individual or diseased one. Healthy diet helps in proper development of our body and unhealthy diet brings out unequilibrium of Tridosha (three body humours) and further produce disease in body. Vaidya Jeevakam has also explained that if a person consumes good food, he doesn’t require any medicine but if a person is taking unhealthy diet, then even medicine will not give desired effect in the body.

Hypertension is also called as Silent killer as the symptoms are not seen before the condition damages any system in the body. [9] Unhealthy dietary behaviours often occur in association with other unhealthy behaviours such as physical inactivity, drinking of alcohol and smoking. Furthermore, unhealthy dietary practices such as high consumption of saturated fats, salt and refined carbohydrates as well as low consumption of fruit and vegetables tend to cluster together. [10] Therefore, to avoid the risk factor of hypertension or the one who is diagnosed with hypertension; one must follow the proper diet.

Different studies irrespective of age, sex, inclusion and exclusion criteria, methodology, statistical analysis, each studies found significant reduction in blood pressure with less consumption of Sodium diet [11] Researches has also proved that intake of less sodium and more potassium has positive impact on body. It helped in body weight reduction. [12] [13] One of the studies also showed that unrestricted consumption of a low-fat, high-fiber diet and daily exercise can mitigate oxidative stress, improve NO availability, and normalize BP in obese men within 3 weeks. [14]

Health organizations (i.e. National Heart, Lung, and Blood Institute, AHA, Dietary Guidelines for Americans, United States (US) guidelines for treatment of high BP) has consistently endorsed Dietary Approaches to Stop Hypertension (DASH) diet as an effective diet for controlling BP, among the studied dietary patterns. The DASH diet was developed to focus on a dietary profile mainly consisting of plant-based foods, whole grains, and low-fat dairy products. Effect of the diet has been shown to reduce Systolic Blood Pressure in HTN. [15] A review of studies published in 2021 in StatPearls, suggested that the DASH diet is associated with lowering Blood pressure, the risk of adverse cardiac events, Stroke, Type 2 diabetes & Obesity. A study published in 2019 in Scientific Reports suggests that adhering to the DASH diet is associated with “better metabolic profiles.” Researchers found that, compared to metabolic healthy obesity, “greater adherence to the DASH diet was associated with
21% lower odds of metabolic unhealthy obesity” regardless of age, sex, energy intake, physical activity, body-mass index, smoking and educational level. Research published in the Journal of the American Medical Association suggests that the DASH diet is associated with reductions in systolic blood pressure and diastolic blood pressure.[16]

It is clear that, hypertension is directly supported by excess sodium intake along with low physical activity, smoking and high consumption of fatty diet. Except this, increased consumption of diet with potassium, calcium and magnesium has positive effect in the health of heart and kidney which has high risk of damage due to increased sodium intake.[17] Acharya Charak in Vidhishonitiya Adhyaya has also explained the Hetus (causes) as Rotten & putrefied food possesses contradictory qualities (Viruddha), Sleeping during day time after taking liquid, unctuous and heavy food, Excessive anger, excessive exposure to the sun and fire, Unwholesome, hot and sharp wine and excessive food, consumption of salty, alkaline, acidic and pungent food items, Kulattha (horse gram), Masha (black gram), Nishpava (a type of bean) and Til taila (sesame oil), Pindalu (coco yam), Mulaka (raddish) and all green eatables; Meat of aquatic, marshy, Prasaha (birds who snatch for foods) and the animals living in holes; Curd, sour whey (Mastu), vinegar, Sura (wine); Suppression of the urge for vomiting, avoidance of bloodletting (in Sharad Ritu); Exertion, external injury, heat, taking food before previous food is digested.[18]

Acharya Charaka has also considered Lavana as a substance not to be used in excessive quantity for longer duration.[19] Additional dietary changes beneficial for reducing blood pressure include adopting the diet which is rich in fruits, vegetables, whole grains and low-fat dairy products, reducing consumption of refined sugar and heavily processed food, reducing caffeine intake, and limiting alcohol consumption. Daily consumable foods with low sodium and high potassium are- Non-Veg Diet: Eggs, fish, red meat, pork, and poultry, Fruits: Apples, avocado, bananas, strawberries, oranges, peaches and watermelon. (All raw fruits are naturally low in sodium and contain high amount of potassium).

Grains- Whole- Wheat bread, oatmeal, macaroni, and rice. Most grains are low in dietary fat, potassium, and calcium. Some may contain high amounts of sodium, especially when more than one serving is consumed. Legumes & nuts: Almonds, black beans, tofu, peanut butter, pistachios and walnut. (They contain high amount of fat in the form of healthy mono and poly unsaturated fatty acids. Also, they are rich in potassium and calcium) Vegetables: Broccoli, carrots, corn, mushrooms, potatoes, and spinach. Most raw vegetables are naturally low in fat and sodium, and high in potassium and calcium. [20]

Randomised study done in 1980s and 1990s also showed that consumption of garlic lowered the total cholesterol level by 5% to 12%. [21] A recent metaanalysis has shown an overall marginal benefit of garlic on lipid levels. [22] Except these- Dairy products like cheese, milk and yoghurt; Desserts like Pastries, cookies, muffins, choco pie and cakes and other baked products are high in sodium and fat and low in potassium and calcium. In Condiments, Fats, and Oils- Ketchup, pickles, mayonnaise, barbeque sauce, butter, and salad dressing. Theses group is mostly high in fat and sodium, and poor in potassium and calcium. Therefore, they should be consumed in moderation. [23] High blood pressure is the second leading cause of chronic kidney disease after diabetes. The pressure of the blood through the tiny blood vessels of the kidneys can cause damage. By making lifestyle changes such as modification of diet, exercise, stopping smoking and losing excess weight, can help lowering blood pressure and avoid the complications such as kidney disease, eye disease and heart disease. Making little changes now, may help reduce blood pressure and maintain better health. [24]

Yoga:
The hypertension can be considered as a psychosomatic disease; hence its seat is both Kaya (somatic) and Mana (psychic). There is intertwining relation between Kaya and Mana. \(^{[25]}\)

Yoga (body technique) and Pranayama (breathing technique) is very much helpful in prevention of lifestyle disorders. Hypertension also being one of the lifestyle disorders, Yoga and Pranayama acts as preventive therapy for maintaining blood pressure. It helps to balance the harmony between body and mind. \(^{[26]}\) Yoga and Pranayama helps in stress reduction and mind-body relaxation. \(^{[27]}\) There are several controlled and uncontrolled studies that have demonstrated the long-term usefulness of Yoga in the treatment of hypertension. \(^{[28]}\) \(^{[29]}\) In earlier studies involving the use of Savasna (a type of yogic activity), significant reductions in blood pressures were noticed. \(^{[30]}\) Randomized controlled study & other studies suggests Yoga is capable of producing a long-term beneficial effect in reduction of blood pressure. \(^{[31]}\) Yogic practices like Shavasana (corpse pose), Sukhasana (easy sitting), Makarasana (child pose), Vajrasana (diamond pose) as Yoga and Sheetali (cooling breathe), Shitkari (hissing breathe), Anuloma Viloma (controlled breathing) Pranayama can be easily practiced by hypertensive patients. These procedures can be followed as preventive and curative aspects as well.

According to Bruhadaranyaka and Chhandogya Upanishadas the main aim of Yogic practice and Pranayama is to control Prana (respiration). Though the target of controlling Prana is difficult to achieve, but mental peace and relaxation thus achieved could be used as a therapeutic tool. According to Patel and others in Britain, they have shown that meditation and prayer techniques can lower blood pressure on a short term and long-term basis. This factor further can be important in primary prevention of coronary atherosclerosis. Various biochemical inducers and aggravators of atherogenesis can also be decreased on metabolic level. Significant decline in cardiovascular risk factors, hypertension, dyslipidemias and obesity have also been reported by Patel et al in Britain using group meditation techniques, and in India by Mahajan et al in Delhi and Damodaran et al in Mumbai. \(^{[12]}\)

Significance of Yoga & Pranayama can be justified as during the relax stage, the body performs many anabolic reactions which are valuable for the regulation and proper functioning of body and mind (psychosomatic) physiology. \(^{[33]}\) Yogic practices and Pranayama harmonize the action of stress-induced reaction through balancing the Autonomic Nervous System. Agya Chakra is supposed to act as main governing Chakra in Chakral system of Nadis. All the parts of these Chakras include cerebral hemisphere, thalamus, hypothalamus functionary unit’s pituitary, and pineal glands. Regulation of respiratory rhythm through inhibitory response shifted sympathetic tone to parasympathetic and tries to synchronize the action of HPA axis. \(^{[34]}\) Many scientists believe Asanas restore baroreflex sensitivity, thereby reducing blood pressure. \(^{[35]}\)

Other Physiological Efects

Yoga can also alter various pulmonary, cerebral, mental, and metabolic physiological functions, producing beneficial effects on the cardiovascular status. These beneficial effects include better breath holding ability, improved tidal volume and vital capacity, an improvement in physical fitness \(^{[36]}\) reduction in anxiety \(^{[37]}\) and improved sugar levels among patients with diabetes. An association between increased cerebral blood flow and transcendental meditation (TM) has also been observed. A very unique and a distinct phase of relaxation, referred to as “the fourth state of consciousness” (the other 3 being waking, dreaming, and sleeping), has been described during TM. \(^{[38]}\) \(^{[39]}\) This state is characterized by not only the usual changes seen in deep relaxation such as reduced cortisol and plasma lactate levels, decreased muscle and red cell metabolism, and reduced breath rate, but also by an increased alpha brain wave activity and a distinctive pattern of en-
hanced cerebral blood flow. The regular practice of yoga has also been shown to have positive effects on mood and emotional well-being. Improved muscle strength and relaxation response have also been described.

Although Yoga cannot be recommended as a primary treatment of patients with hypertension and/or heart disease, its use as an adjunct in such patients can be safely recommended. Adjustment of postures could be required for certain patients. Pregnant women should avoid certain postural Yogic techniques. Also, those with a history of psychosis should refrain from Yoga. Excessive meditation could lead to mental disturbances.

Yoga is flexible and its techniques can be customised according to individual needs. It can be self-taught, although it is best learned with supervision in class situations. Yoga is a safe and inexpensive method for promoting general health and emotional well-being.

Discussion & Conclusion:

Hypertension or Silent Killer is serious condition once it is diagnosed. It is more difficult to treat once the patient enters the complication. Day by day the number of hypertensive patients is increasing rapidly. Dietary modification is very important in this condition. It can be reversible if proper care is taken in time. DASH diet has most significant result in lowering blood pressure. Besides this, taking less fatty diet, sodium diet and increasing potassium, calcium and magnesium is much beneficial. Potassium and sodium have direct effect on blood. Intake of more sodium decreases potassium level in blood and vice versa. An increased intake of potassium has greater BP lowering effects in the setting of a higher sodium intake and lesser BP effects when sodium intake is already low. When potassium intake is low, less Sodium consumption also helps to decrease BP. Therefore, diet with less sodium, protein and alcohol helps to decrease systolic BP whereas potassium rich diet helps with both systolic and diastolic BP. DASH diet with additional physical exercise shows more beneficial result in SBP and DBP.

Ayurveda is gaining attraction in present scenario. As the condition is diagnosed, many people seek Ayurveda therapy and treatment. Before the condition gets worsen, it is advised to adopt preventive therapy by following Ritu-Shodhana (detox according to seasons), doing Yoga and Pranayama daily or involving in some exercise, following proper diet, following of Dinacharya (daily regimen), Ratricharya (Night Regimen), & Ritucharya (Seasonal Regimen).

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