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## Hypertension and Its Associated Factors: A Review Article.

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### ABSTRACT

High blood pressure is one of the first ten risk factors for health all over the world. It has accounted for 7 million mortalities per year. According to the report of WHO and its estimations, about 3.1 percent of the population in each country is afflicted with high blood pressure. It is predicted that in 2025, over 1.5 billion of people get afflicted with high blood pressure globally. These statistics remind us of the danger of the high prevalence of this disease in future. High blood pressure has no particular symptom in the majority of cases and for this reason many people suffer from this problem for years without even knowing. If not treated, high blood pressure can damage arteries and body organs. Blood pressure regulation is done in body through heart, kidneys and veins. Besides nutritional diets especially consumption of salt, such hormones as renin, angiotensin II, adrenaline and aldosterone do also affect it. High blood pressure is scarce among infants and has afflicted about .2 to 3 percent of them overall. Several factors are recognized as influencing high blood pressure during infancy including age of pregnancy and infant's weight upon birth. Among children and teenagers, high blood pressure is very prevalent (2 to 9 percent depending on age, sex and ethnicity) and is correlated with long-term risks of the disease. It is recommended that children above 3 years of age be regularly examined for their blood pressure. High blood pressure is not diagnosed unless one suffers from chronic blood pressure. If it is measured to be higher than 90/140 mmHg through two measurements within one week, its diagnosis is proved. The primary assessment of patients suffering from high blood pressure includes an investigation of patient's complete description as well as a clinical test. Alcohol consumption, stress, diseases and specific features of some chronic conditions do also raise the risk of high blood pressure, for instance high cholesterol, diabetes, kidney problem and sometimes pregnancy can lead to high blood pressure.

**Keywords:** hypertension, blood pressure, disease.

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## INTRODUCTION

High blood pressure is a noiseless and asymptomatic disease. It gradually pushes one closer to death. If not controlled at the initial stages, high blood pressure not only disrupts cardiovascular functioning but also afflicts other body organs (1). Generally speaking, the probability of affliction with high blood pressure rises with the growth of age. This probability is increased among men after the age of 35 and in women after their menopause. Affliction with blood pressure is not a certain consequence of old age (2). Some people never suffer from it. However, about two-third of people above the age of 65 get afflicted with high blood pressure (2, 3). Four of every ten men and three of every ten women suffer from this problem. Among those above 60 years of age this rate afflicts two persons from among every three people. About one-third of those afflicted with this disease are not taken under any medical care and their health is threatened (4).

The higher the blood pressure, the lower the life expectancy index. The probability of brain stroke and heart attack is higher among those suffering from high blood pressure in the long run. If it remains untreated for a long time, high blood pressure can lead to kidney failure or damage to eyesight (5). Heart might also grow in size unnaturally and be reduced in efficiency (6). This can lead to heart failure as well. It should be reminded that the consequences of high blood pressure can be significantly reduced through proper treatment. Through a proper therapy, the high mortality rate of heart diseases and brain stroke can be reduced (7). Checking one's blood pressure is a step that should be taken no matter one has a high blood pressure or not, annually or biennially (8). Just this way, one can know whether s/he has high or low blood pressure or not and can do something about it. Diet, sports and loss of weight can significantly decrease blood pressure among those who suffer from high blood pressure (2).

### **High blood pressure:**

High blood pressure is one of the first ten risk factors for health all over the world. It has accounted for 7,000,000 mortalities per year. According to the estimations made by WHO, about 3.1% of adults in each country suffer from high blood pressure (8). It is predicted that in 2025, over 1.5 billion people will have high blood pressure worldwide. These formidable statistics are a sign of the threatening prevalence of this disease in future (5).

Once blood pressure is high for any reason, heart is forced to re-pump blood and re-circulate it. Therefore, it is further activated. Blood pressure is categorized as either systolic or diastolic (7). The former occurs when heart muscle is automatically contracted completely and blood is sent into arteries (5). On the contrary, diastolic blood pressure is when heart is resting in the interval between two heart beats and blood is on its way back to heart due to the pressure of the blood in veins and valves to fill the right ventricle (4).

In the majority of cases high blood pressure shows to have no symptoms. That is why many people are afflicted with it globally without being aware of it. If not treated, high blood pressure can damage arteries and vital body organs (9). On an average, if constant blood pressure is above 140 systole and 90 diastole, it is considered a pathology and disease. Blood pressure regulation is done in body with the help of heart, kidney and veins. Besides diets especially salt, such hormones as renin angiotensin II, adrenaline and aldosterone do affect it (7).

Among infants, high blood pressure is very scarce and comprises about .2 to 3 percent of all infants. Several factors such as the age of pregnancy and baby's weight upon birth are recognized as influential factors on blood pressure during infancy (10). High blood pressure is very common among children and teenagers (2 to 9 percent depending on age, sex and ethnicity). It is correlated with many long-term hazards (11). Among children above 3 years of age, it is suggested that their blood pressure be regularly checked in each medical examination or checkup (1).

### **Symptoms of high blood pressure and diagnosis:**

High blood pressure is categorized as primary and secondary. In the former, the reason behind high blood pressure is not known since it has been created as a primary step. In the latter, high blood pressure is preceded by another disease (10). That disease can be considered as the reason behind high blood pressure. If the main disease is controlled, high blood pressure can be also better controlled (6).

The majority of people suffering from high blood pressure show to have no sign of the disease. Although a few individuals afflicted with high blood pressure suffer from headache, dizziness or a bit of nose bleeding, these symptoms do not occur unless the blood pressure reaches a critical or advanced level. The only way that helps to diagnose high blood pressure at the right time is to regularly measure it using a pressure gauge (8).

High blood pressure is when an individual suffers from chronic high blood pressure. If within one week blood pressure is measured to be high two times, it is diagnosed as high blood pressure (5). The initial examination of patients afflicted with high blood pressure includes examining patient's full description as well as clinical tests (2).

Secondary high blood pressure is more prevalent among children before puberty. In the majority of cases it would lead to kidney disease (11). Primary or secondary blood pressure is more prevalent among teenagers. There are several risk factors involved such as obesity and history of blood pressure in family (12). Lab tests are used to recognize the probable reasons behind secondary high blood pressure. It can also be used to know if high blood pressure can damage heart, eyes and kidneys. Other tests are also done concerning diabetes and cholesterol. Since these diseases are considered to be the risk factors of heart diseases they might need to be treated (4).

Testing the creatinine of blood serum to examine the existence of kidney diseases might cause or be caused by high blood pressure. In addition, it provides a basic measurement of kidney functioning which can be used to examine the side effects of antihypertensive medications on kidney functioning (3).

Testing the existence of protein in urine samples is also used as a corollary symptom of kidney diseases (13). EKG/ECG: is done to examine whether heart is under high blood pressure or not. This test can show the hypertrophy of the left ventricle and whether heart has had a history of slight disorder such as a silent heart attack or not (10).

Chest radiography or echocardiography can also be used to examine the symptoms of heart enlargement or injury (13).

#### **Risk factors:**

There are a myriad of risk factors for high blood pressure. Some are not controllable but the most prevalent risk factors of this disease are:

**Age:** the risk of high blood pressure is correlated with growing age. At the outset of middle age high blood pressure is very common among men. In women this disease is prevalent after menopause (14).

**Race:** High blood pressure is more common among the black. It is spread faster among the black than the white. Severe consequences of high blood pressure such as apoplexy and heart attack are more prevalent among them (6).

**Family background:** high blood pressure reveals itself more among family members (14).

#### **Other risk factors of high blood pressure which are controllable include:**

Obesity or overweight, immobility, smoking, over-consumption of salt, lack of potassium, lack of vitamin D, alcohol consumption, stress and mental pressure, diseases and special diseases such as diabetes and pregnancy, kidney vascular diseases (15).

Although it is more prevalent among adults, high blood pressure targets children as well. Among some children, high blood pressure occurs as a result of such problems as heart or kidney diseases. Improper life style, unhealthy diet and lack of physical activity can also lead to high blood pressure among children (1).

**Complications:**

High blood pressure is the most important preventable risk factor which account for premature death all over the world (15). It raises the probability of heart isthmic disease, brain stroke, peripheral artery disease and other cardiovascular diseases including heart failure, aortal aneurism, hardening of peripheral arteries, lung emboli, nephropathy and retinopathy (10).

High blood pressure is also a risk factor of cognitive disorder, mental deterioration and kidney chronic disease.

Child growth disorder, epilepsy, irritability, lack of energy and respiratory problems are correlated with high blood pressure in infants and children (15). Among older children, it can cause headache, unreasonable irritability, fatigue, blurred vision, nose bleeding and neural paralysis (6).

**Prevention**

Changes affecting life style would reduce the risks of affliction with high blood pressure (6). Attention to the hazardous consequences of high blood pressure in some vital body organs especially brain, heart, eyes, and kidneys is necessary for a timely diagnosis of this disease (11).

If there is a decrease in consuming starchy and greasy food as well as sugar blood pressure can be reduced. Other useful ways are consuming so much fruit and vegetables rich in potassium and calcium (11, 14).

Smoking should be avoided; physical exercises should be done constantly. A 5-minute jogging for 5 days a week can help to prevent the progress of this disease (16).

Healthy people are required to check their blood pressure at least once a year since high blood pressure, in the majority of cases, lacks in any symptom (11).

**Treatment**

A number of medications which are generally called antihypertensive drugs are used today for treating high blood pressure. In prescribing these drugs, one's cardiovascular disease (including myocardial infarction and apoplexy) as well as one's blood pressure are taken into account (16).

The goal of the therapy should be to reduce blood pressure to less than 90/140 mmHg for the majority of people and still lower than that of diabetic patients or those suffering from kidney diseases. Some medical specialists have suggested that the levels are kept lower than 80/120 mmHg. If the goals are not met, then further therapies are required. The medical goal for diabetic patients is to reduce blood pressure to lower than 80/120. In case these people are afflicted with microalbuminuria their blood pressure should be reduced to 75/115 (5).

Strategies for drug selection and how to make the best decision about different sub-groups has been changed through the passage of time. It varies across countries. There is no consensus among experts on the best remedy (17). Thiazide diuretics are considered at the front line of antihypertensive drugs. For people above 55 years of age or the African or Caribbean, calcium channel blockers (CCB) are used. For the young, angiotensin-converting-enzyme inhibitor (ACEI) acts as the selected primary remedy. For some people, more than one medication is used to control high blood pressure. They, in fact, need medical compounds. Those compounds approved include (18, 19):

CCBs and diuretics

Beta blockers and diuretics

Dihydropyridine CCBs and beta blockers

Dihydropyridine CCBs and verapamil or diltiazem

Resistant high blood pressure is one which remains unchanged and even above the target level in spite of a simultaneous use of three antihypertensive factors belonging to different medical groups (16).

### CONCLUSION

High blood pressure is considered to be the most important risk factor of coronary artery diseases and brain strokes. In their own turn, these diseases account for half of all mortalities in the U.S. According to the investigations conducted by WHO, non-communicable disease are preventable in the majority of cases. However, they account for 40% of all mortalities in developing countries as well as 75% of mortalities in developed countries (17). In most of the countries worldwide, cardiovascular disease are at the top of the list of mortalities induced by non-communicable diseases. WHO attempts to pave the way for a public battle against the spread-out of this disease (20). High blood pressure has altered the epidemiologic pattern of diseases in developed and developing countries (21). It follows from a rising urban life stress, immobility and changes in nutritional patterns. High blood pressure is now considered as the primary risk factor of cardiovascular diseases and is seen as a serious threat. Controlling high blood pressure is of a great significance in reducing the mortalities caused by these diseases. This adds to the importance of a timely diagnosis, prevention and treatment of the disease (20). Preventing high blood pressure involves a prevention of affliction with it and preventing its side effects. Raising people's awareness of this disease and controlling the factors involved in increasing blood pressure which can be balanced does prevent the affliction with this disease to a great extent (22). Major factors involved in high blood pressure which can be intervened are high blood sugar, obesity, high blood cholesterol, immobility, alcohol consumption, smoking, stress and lengthened consumption of oral contraceptives (20). Factors which cannot be intervened include age growth, sex, ethnicity and genetic factors, planning for a regular blood pressure checking, controlling one's diet through reduced consumption of salt, limited calories to prevent obesity, reduced consumption of cholesterol and saturated fats, removing mental and contextual stress, regular physical exercises and regular blood pressure checking (22). Patients' unawareness of their affliction with high blood pressure and lack of attention to adequate and effective treatment is considered as a serious social crisis (22, 23). Since a great many of people who suffer from high blood pressure are unaware of this disease, screening the society and investigating the prevalence of the disease play a key role in controlling this disease (20, 24).

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