



Hypertension Silent Killer: A Narrative Review

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Abstract

It is considered the first risk factor and the main cause of death on a global scale, and it is a medical condition known as high blood pressure, as it is the high and continuous force with which blood pushes against the walls of the arteries, which increases the burden on the heart muscle in pumping blood, and is the cause of death from stroke and heart disease. Kidney disease, diabetes, etc. It is considered a hidden epidemic, as it has no symptoms, but is discovered in the form of previous and other diseases or through monitoring and diagnosis, and if it is not treated, the infection with one of the aforementioned diseases increases significantly. As we mentioned previously, it is a condition that affects people all over the globe, but it concerns some groups and regions in particular, including the southern and eastern parts of the continent of Asia, the continent of sub-Saharan Africa, Latin America, and the Pacific Ocean, which was witnessed in the year two thousand and nineteen according to Global estimates have documented the death of ten million people due to this rise, most of which were from countries below or slightly above the poverty line. From an economic standpoint, the increase causes a tangible economic burden, as it represents about ten percent of global health expenditure on diseases, represented by the patient's health control and death losses due to high blood pressure.

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1. Introduction

High arterial pressure is a widespread health problem among the Earth's population, as it affects more than 1.28 billion adults, and the affected numbers have doubled since the year one thousand nine hundred and ninety^[1]. The reason for the continuous increase is due to the increase in human numbers and the increase in the number of elderly people. Leaving a percentage of infections untreated². Genetic and environmental causes have a share in the spread of high blood pressure, and age is a key player in its spread, as there is a direct relationship between aging and high blood pressure, meaning that the two variables increase together, and this is due to environmental causes, as well as the dynamic changes of the blood due to the hardening of the vessels. An example of this is the aorta, where diastolic pressure decreases and systolic pressure increases^[2, 3].

Race is an influential factor in increasing stress, as it is more prevalent among both sexes in the black African population when compared to other places^[4]. Blood pressure is considered the force that drives blood towards the walls of the vessels that transport blood to the cells of the body. It is defined as diastolic pressure divided by systolic pressure, and the difference between them is pulse pressure, which is measured in millimeters of mercury or kilopascals^[5, 6]. The normal level is 120/80 mm Hg, and it is considered one of the indicators used in medical diagnosis. Blood pressure has a relationship with the resistance displayed by the arteries, the amount of blood pumped by the heart, and the stiffness of the arterial vessels, and it also varies from one person to another according to the condition, activity, health, and nature of the disease^[7]. Blood pressure is divided into two main types: high pressure and low pressure, while the third type is called normal blood pressure. The causes of the two aforementioned types are multiple and may occur without warning or with the occurrence of a specific disease^[8, 9]. This review reviews high blood pressure in terms of its causes and complications resulting from not treating it in all forms.

It is considered a global disease problem affecting approximately one billion adults. We suggest that when conducting future clinical studies, the link between studying the causes and proposing treatment must be considered, through cooperation with drug specialists and pharmacists to reach a useful treatment.

2. Causes of Hypertension

As we mentioned earlier, environmental and genetic factors have the largest share in causing high blood pressure in humans, and the variables of age and gender also have a significant share in the spread of the disease, while the following causes participate in smaller proportions than previously in the spread of the condition, and these causes include a poor diet and increased lipids. Blood, cigarette consumption, excess salt, obesity, fatigue, and stress^[10]. The relationship between high blood pressure and body mass index is direct. This is according to what was shown in one of the studies, whereby a person with an above-normal body mass index is three times more susceptible to infection than a person who has a normal body mass index. As for addicts, their exposure rate to high blood pressure is About seventy percent compared to those who do not drink alcoholic beverages^[11]. Smokers also had a higher rate of infection than their counterparts, as previous research has shown. These studies also indicated that participants in extreme sports are more susceptible to infections, and those with chronic diseases are more prone to high blood pressure. Women aged 45 and over are also more susceptible to this condition due to menopause^[12-14].

3. Complications of Hypertension

Chronic and dangerous diseases, such as Kidney failure, heart disease, vascular sclerosis, and stroke, are considered a result of high blood pressure, due to difficulties in diagnosis and health monitoring of this increase in the elderly leads to them contracting these diseases and thus dying of life, as it is a chronic condition that must be diagnosed and its causes treated, otherwise Leads to death^[15, 16].

4. Hypertension and Kidney disease

Persistent raise blood pressure is with to chronic renal disease, as its symptoms include weight loss, an unpleasant taste in the mouth, loss of appetite for food, pain in the upper part of the stomach, vomiting, itching, a feeling of drowsiness, and stuttering^[17]. Damage to tissues, glomeruli, tubes and small blood vessels is the result of renal sclerosis, as these tissues end in death due to the vessels being narrow as they do not allow a sufficient amount of oxygen-laden blood to pass through them^[16, 18]. It is the accumulation of hyaline on the walls of arterial blood vessels and their narrowing, which leads to the passage of a small and insufficient amount of blood loaded with oxygen to the tissues, which leads to weakening of the tubules, interstitial fibrosis, glomerular changes, and thus kidney failure and cessation, as this process is known as " arteriosclerosis"^[19]. Kidney failure is considered a result of chronic hypertension, which is the main cause of nephropathy. The explanatory mechanism linking high blood pressure and nephropathy is ambiguous, but there are two proposed mechanisms for studying the pathophysiology of vascular sclerosis of the kidney, which is represented by glomerular injury, it is a group of highly condensed capillaries that carry out the renal filtration process. The first theory specifies a decrease in

glomerular perfusion, which participates in atherosclerosis, while the other specifies an increase in glomerular blood pressure and an increase in the speed of glomerular filtration at the center of causing atherosclerosis in the renal blood vessels^[20,21]. Renal sclerosis increases and worsens with high pressure, as the glomeruli become unable to secrete and filter high-weight components such as proteins, which leads to their excretion with urine, as they are not filtered due to the proteins not passing to the nephron, their high percentage in it, and the increased percentage of albumin in the blood. Diuretic acid for a whole day is used to analyze the proteins present in it, which are the cause of nephropathy and there are no noticeable symptoms^[22]. Renal sclerosis varies between countries of the world, where the percentage of Italian patients in the late stages who are on dialysis is approximately seventeen percent, while the percentage of similar French patients was twenty-five percent, while in Japan and China in the year 2000 the percentage was six and seven percent. It increased to approximately 7.8 percent^[23-25]. Kidney disease due to high blood pressure varies according to race, with African Americans being exposed to it more than Caucasians and at an earlier age^[25].

5. Hypertension and Heart Diseases

High blood pressure has a strong relationship with cardiomyopathy and its functions, as this high blood pressure affects the ventricle, left atrium, and coronary vessels. There are no special criteria for heart defects associated with high blood pressure, but the Spanish Society has a different opinion, as Gonzalez Maceda and his group suggested that heart diseases related to high blood pressure are nothing but changes in the ventricle and left atrium, fibrillation, and decreased perfusion^[26, 27]. Swelling of the left ventricle and dilation of the left atrium are among the damages that affect the heart due to high blood pressure, according to what was agreed upon by international associations, while the symptoms included weakness of the heart, damage to its muscle, irregular heartbeat, and decreased perfusion^[26,27]. It is believed that swelling of the left ventricle is an alternative process that works to reduce ventricular effort and the pathological change that leads to increased heart damage related to high blood pressure. This swelling is an indication of heart defects related to high blood pressure, and over time, this swelling can lead to heart damage and Stroke, sudden seizure, nephropathy, and finally a heartbeat disorder that leads to death^[28-30]. Approximately 34% and 32% of males and females, including forty percent, have high blood pressure accompanied by hypertrophy of the left ventricle, which is common, and these estimates increase with time. These people suffer from heart disease with high blood pressure, and race is governed here as well, as It is characterized by black skin rather than white skin, and this is accompanied by diastolic functional fluctuation^[31-34]. The main causes of this disease, which cause increased cardiac pressure and swelling of the right ventricle, which ultimately leads to heart damage, are high blood pressure, overweight, smoking, chronic dangerous diseases, alcohol, salt, race, and the person's age. As for obesity, it leads to increased blood pressure and Which causes myocardial weakness, which is caused by an increase in renin concentration through the production of the hormone leptin through fat cells^[35, 36, 37]. As this violates the mechanisms of the body's replacement of unusual and excess renin and aldosterone, and finally, heart damage related to high blood pressure, as overweight or

obesity causes a defect in the heart and its functions, and this occurs through inflammation and deterioration of the arrangement of the pathways in the cells [38, 39]. The common complications of heart failure resulting from high blood pressure are both diastolic and systolic heart dysfunction, which often leads to atrial fibrillation, coronary artery insufficiency, complications of kidney disease, vasodilation, aortic stenosis, and hypertrophy of the heart muscle [40-41]. Diagnostic techniques including carotid ultrasound, magnetic resonance imaging and ECG, are the cheapest and most available of the first two tools for diagnosing and detecting what is happening in the heart due to high pressure [42, 43]. These methods are non-surgical to detect heart muscle dysfunction, Hence its importance emerged, as it is used for the purpose of knowing the diseases that afflict the heart, including coronary, congenital, hypertrophy of the heart muscle, and other diseases that afflict the heart [44, 45].

6. Hypertension and Stroke

One of the common causes of illness and death associated with high blood pressure is stroke [46]. Since the year one thousand nine hundred and ninety, the world has witnessed a noticeable decrease in the incidence of stroke, but its economic burden has not stopped, as more than a million strokes are diagnosed in Europe annually, and it is said that aging plays a role in the increase in the number [46, 47, 48]. Stroke has three forms of hemorrhage (subarachnoid, intracerebral, and ischemic), and their rates are respectively three, ten, and eighty-seven percent of stroke in general, and the rates rise and vary depending on the country [49, 50-52]. As we mentioned previously, the sex and race of the person have an effective contribution to the spread of the disease, as the number of infections differs between men and younger women, as women are infected less than men, but in old age it is the opposite, and also in females with black skin it is higher than males between the ages of 65 and 74 years old [53]. Nearly thirty studies recorded that sixty-four percent suffer from high blood pressure, which is the biggest cause of stroke, Medical follow-up before it is too late has an important role in overcoming the disease, as the lack of it has increased the death rate in poor countries, and despite the availability of its causes, the incidence of it is low, but the death rate in hospitals is believed to be due to lack of timely health care [47, 54]. Diagnosing and treating a stroke requires extreme precision and focus, as this is considered very difficult due to the difference between the type and time of appearance [55-59]. In the United States, the number of those infected had reached 3.4 million adults, under the age of eighteen years [60]. Evidence-based studies have shown that when blood pressure is reduced to below 90/150 mmHg and controlled, the risk of stroke will decrease [61, 62]. From the above, there must be modern mechanisms to reduce the causes of stroke after identifying and controlling them, as the greater the knowledge of the causes or their good statistics, the greater the reduction and prevention of the disease, One study conducted on Chinese adults with high blood pressure showed that the subgroup that had the lowest number of platelets and an increase in homocysteine had a higher risk of stroke than its counterpart, and the risk decreased when using folic acid to seventy-three percent [63]. The causes of stroke are cigarettes, lack of food, and lack of movement, as they constitute seventy-five percent of the causes and are considered among the factors that can be controlled. If they are controlled, we will thus avoid a large percentage of the

burden of injury [64]. To reduce the economic burden resulting from cardiovascular diseases, we must apply some instructions, which are reducing or abstaining from salt, following a regular and good nutritional system, preventing smoking, and having a green environment [65, 66].

7. Hypertension and Diabetes

Diabetes has a strong relationship with increase high blood pressure, as diabetes is considered a widespread disease that affects people in old age. There are two main types of diabetes: Type 1 and Type 2. The latter complains of high blood pressure, as the renes and blood vessels suffer from insulin pressure, as is believed. While impaired metabolism of sugars or carbohydrates is common in people with high blood pressure, the relationship is considered double-edged between the two diseases [67, 68, 69]. Over time, as the blood pressure increases in people with diabetes, the blood vessels of both large and small types multiply. Although the incidence of cardiovascular diseases due to the decrease in pressure decreases, the treatment method becomes more involved, complex, and expensive. There are many people who complain of uncontrolled high blood pressure associated with diabetes [68, 70]. Diabetes and high blood pressure are two indivisible parts, as one leads to the other. Approximately under sixty and over forty percent of people with diabetes suffer from high blood pressure, as 20.5 million Japanese adults suffer from it, including those who suffer from impaired glucose tolerance and 43 they complain of high blood pressure [71].

8. Hypertension and Eye Disease

The eye has its share of diseases due to high blood pressure, including defects in the retina, optic nerve, and choroid. If blood pressure increases sharply, it increases and high blood pressure in the eye develops [72]. High pressure is considered one of the causes that ultimately destroys the target organs, and sometimes high pressure causes occlusion of the main retinal vessels, which include the branch and central retinal artery and the central retinal vein [73, 74]. Hardening of blood vessels results from retinopathy, which includes two pathological processes, which results, as we mentioned above, from chronic and acute high blood pressure [75]. Due to the closure of the vessels or the expansion of the large ones due to high blood pressure, it leads to damage to vision [76]. Approximately fifty-two percent of adults in the United State have normal blood pressure, and thirty-three percent complain of high blood pressure [77]. The percentage of retinopathy associated with high blood pressure varies, ranging from two to seventeen percent, depending on population science or demographics [78]. Demographic characteristics such as race, age, and gender have an effective contribution to this disease, as people of African American and Chinese origin are also characterized by retinopathy associated with high blood pressure. As for age, the relationship between it and blood pressure increases as the person's age increases, as at the age of five and Forty affects males more than females, while over sixty-five years of age it affects females more than males [77]. At a systolic pressure of one hundred and forty millimeters of mercury and a diastolic pressure above ninety millimeters of mercury, atherosclerosis occurs due to retinopathy [76]. Pathological conditions are accompanied by increased blood pressure of unknown or primary cause, as it is considered the result of genetic and environmental variables, while secondary

hypertension develops in pathological conditions such as pheochromocytoma and others [79]. Macular pucker, papilledema, and exudative retinopathy lead to double vision loss, which young eye specialists complain about. According to studies conducted, it has been shown that the genetic aspect has an impact on retinopathy. As we previously mentioned, factors such as gender, race, age, and lifestyle practices such as salt, smoking, alcohol, and weight gain, heredity, fatigue, fast food, and unhealthy nutrition play a role in increasing the pressure that leads to retinopathy, and perhaps the effective cause of retinal dysfunction is time of high blood pressure. As for malignant high blood pressure, it is associated with higher blood pressure than normal, and another recent study conducted in the year 2010 confirmed that there are four sites that have a role in retinopathy [80, 81]. The third place, which is coded 12q24, was related to increased blood pressure and coronary heart disease, arterial weakness, stiffness, and exudation are degrees of the pathological strategy of retinopathy, which are related to the ability to control increased pressure. In the first step, as a result of luminal pressures, autonomic control processes lead to constriction of the retinal vessels and vascular weakness to limit the flow. In the second stage, sections of the endothelial layer are exposed to variations, including thinning of the inner layer, medial swelling, and vitreous rarefaction in the blood vessels [81]. In the third stage, retinal hemorrhage, scleral discharge, insufficient blood supply to the retina, and smooth muscle damage, which is the result of a defect in the blood brain barrier of blood and plasma [81]. The development of retinopathy due to increased pressure can be avoided by controlling, monitoring and treating the pressure, the time period of the person's high blood pressure, what he experiences during the rise, and its consequences, as well as the clinical changes that are deduced by endoscopic of the middle fundus and the accompanying increase in blood pressure, are considered diagnostic of retinopathy, to know the symptoms that cause increased pressure, which are taken from the patient: headache, eye pain, blurred vision, focal nerve weakness, focal nerve damage, chest pain, suffocation, and difficulty breathing when tired, difficulty breathing during sleep and heart tremors [82, 83]. Tests for the patient with ophthalmopathy include, according to what was stated by the American Academy of Ophthalmology in the year 2009, a blood pressure test for the patient, a cardiovascular test, a lung test, a nervous system test, and an endoscopy test, as these tests are related to the level of pressure and its measurement, and it is characterized by the fact that most sometimes there are no symptoms [79]. It is very important to perform a Eye fundus examination to find the degree of retinal impairment due to height. Symptoms of retinopathy include narrowing and tortuosity of the vessels, and retinal blood leakage, as well as dry discharge, spots and edema [75, 81]. Symptoms of persistent increased retinal pressure include vascular dilatation, arteriovenous malformation, or silver and copper vessels [81]. Retinal detachment occurs due to epithelial detachment, which results from damage to the placenta due to increased pressure [76]. This disease affects younger people who have malignant hypertension [84]. In addition to choroidopathy, the increase in pressure may lead to damage to the optic nerve, which is shown in the form of an optic disc [81]. Its signs include bleeding at the edge of the disc, blurring of its edges, blockage of the veins, papillary swelling, and other secretions [76]. Patients with malignant hypertension are characterized by pallor of the optic nerve

and the accumulation of cysts that lead to macular asterisks, and are accompanied by an increase in pressure that makes the sufferer have eye pain, migraine sensations, and decreased vision [75]. Retinal disease associated with high blood pressure must be differentiated from diabetes through differential diagnosis, which is carried out through individual systemic diseases and their evaluation [75, 76]. In order to get rid of this disease associated with high blood pressure, blood pressure must be reduced through treatments designated by a specialist physician and health care official, as well as knowing the time period for developing high blood pressure in order to prevent complications that lead to vision impairment [85]. To get rid of this disease associated with increased pressure, pressure must be reduced through specialized treatments, to get rid of this disease associated with increased pressure, pressure must be reduced through specialized treatments, which are of two types: angiotensin-converting enzyme inhibitors, calcium channel blockers, or those of less use, which are alpha-adrenergic blockers, direct vasodilators, and central alpha-adrenergic. Bevacizumab treatment was later used, which has proven its effectiveness in preventing retinopathy associated with high blood pressure. This is done by a specialist physician and a health care official. Also, know the time period of infection with high fever in order to prevent complications that lead to visual impairment [77, 86]. Damage to the optic nerve due to increased pressure may lead to glaucoma [87]. Deaths due to malignant hypertension have been recorded, estimated at fifty percent in sixty days and ninety percent in twelve months. Complications of retinopathy associated with increased pressure and vascular hardening include exposure to heart disease and its complications and stroke [88].

9. Conclusion

Through statistics and previous studies that have confirmed that more than one billion people in the world suffer from high blood pressure, and this high blood pressure lead to health problems that may be lead to death, and these are diseases that affect the basic organs in the body such as the heart, blood vessels, and kidneys, and the brain and eyes, which causes coronary heart disease, vascular disease, stroke, diabetes, eye diseases, and others, and some of these diseases may lead to death, If not controlled hypertension, treated, and its causes are reduced, this can be done in several ways, these methods include the main and basic treatment by maintaining the health of the body through healthy nutrition by following a healthy diet and staying away from fast, fatty foods and sugars and reducing the intake of sodium and potassium salts, maintaining the ideal weight and avoid obesity by following a diet. Intermittent fasting, limiting alcoholic beverages, doing reasonable exercise, avoiding stress and fatigue, and staying away from life's troubles, it is possible to avoid nervous and psychological stress through laughter and entertainment, if high blood pressure is at its beginning and it is possible to control it in these ways. But if high blood pressure is not controlled, in addition to what was mentioned, drug treatments are the best way to lower pressure, considering the side effects of each drug.

10. Highlights

This review reviews high blood pressure, its causes and complications, and the global economic burden resulting from its treatment and non-treatment as a global disease problem.

This review presents a proposal that we hope will be taken into consideration when designing and conducting clinical trials on patients with HBP, which is to link the cause and the manufactured drug through cooperation between the researcher, drug specialists, and pharmacists in order to reach the appropriate treatment.

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