

## Review on Hypertension: Causes, Symptoms, and Treatments

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### ABSTRACT

The most common modifiable risk factor for death and disability is hypertension, which includes stroke, accelerated coronary and systemic atherosclerosis, heart failure, chronic kidney disease, lowering blood pressure with antihypertensive drugs, and reducing target organ damage and the prevalence of the occurrence of cardiovascular disease. According to the 2017 American College of Cardiology (ACC)/American Heart Association (AHA) hypertension guidelines, hypertension is defined as systolic blood pressure (BP) greater than 130 mmHg or diastolic blood pressure (BP) greater than 80 mmHg. In patients with CHD, CHF, following kidney transplantation, diabetes mellitus, and stroke, blood pressure should be less than 130/80 mmHg. Reducing dietary sodium intake, losing weight if the patient is overweight, getting regular exercise, drinking moderately, and eating more potassium-rich foods were all recommended. The first antihypertensive medication should be chosen from one of the four types known to minimize cardiovascular events: thiazide diuretics, ACE inhibitors, ARBs, and calcium channel blockers. In clinical practice, two interventional approaches—renal denervation and baroreflex activation therapy—are employed to treat a variety of treatment-resistant hypertension. Carotid body ablation and AVF insertion are two more interventional techniques, although none of these prevent cardiovascular disease outcomes or death in hypertensive patients.

**Keywords:** Blood Pressure, Antihypertensive Drugs Therapy, Renal Denervation, Carotid Body Ablation Therapy

### I. INTRODUCTION

According to the World Health Organization's (WHO) most recent estimates, hypertension affects billions of people worldwide and is a very common risk factor for the development of cardiovascular disease. Even though hypertension has long been recognized as a major cause of mortality and disease burden, people with hypertension who also have additional cardiovascular risk factors have even greater

morbidity and mortality rates[1]. Treatment paradigm debates and the emphasis on treating hypertension have changed dramatically over time. In the past, the goal has been to identify the one pharmacological therapy that reduced the risk of cardiovascular disease (CVD) the best. The focus of hypertension treatment today, however, has rightfully shifted to the following: 1) the patient characteristics (age, absolute 10-year ASCVD risk, known CVD, and comorbidities) that determine BP level at which antihypertensive medication therapy will be commenced; and 2) BP level at which BP should be reduced to the lowest possible level to provide the best protection against pressure-related CVD events.[2, 3] The latter will rarely be achieved with a single pharmacological regimen. Long-term pharmaceutical interventions, which have been proven to be beneficial through several meticulous clinical trials, are frequently used in the treatment of most chronic disorders. These pharmacological therapies are only effective if patients adhere to their doctor's recommended treatment plan. Systemic arterial hypertension (also known as hypertension) is characterized by chronically elevated blood pressure (BP) in the systemic arteries. The ratio of systolic BP (the pressure that the blood exerts on the artery walls when the heart contracts) to diastolic BP (the pressure when the heart relaxes) is widely used to express blood pressure.[4] The blood pressure thresholds that characterize hypertension differ depending on the technique of measurement. Hypertension can have several causes. Most patients (90-95%) have very heterogeneous 'essential' or primary hypertension with a complex gene-environment etiology. A favorable family history is common in hypertensive patients, with heritability (a measure of how much of a trait's variance is related to genetic factors) estimated between 35% and 50% in most studies. In adults in the United States, hypertension is defined as persistent systolic blood pressure (SBP) of at least 130mmHg or diastolic blood pressure (DBP) of at least 80mmHg. more than 1 billion adults globally.[5] Hypertension is linked to an increased risk of CVD events (coronary heart disease, heart

failure, stroke, and death. It is believed that one in every four persons in India has hypertension, although only around 12% of them have it under control. India has set a target of 25% relative decrease in hypertension (high blood pressure) prevalence by 2025.[6, 7] The link between blood pressure and an increased risk of CVD is graded and continuous, with blood pressure as low as 115/75 mmHg, which is well within the normotensive range, being well within the normotensive range. Successful hypertension prevention and treatment are critical in lowering illness load and enhancing longevity in the world's population. In treating hypertension, it is vital to assess a person's projected atherosclerotic CVD (ASCVD) risk rather than just their blood pressure level, because people with high CVD risk benefit the most from BP-reducing treatment.[8, 9] This review article covers the epidemiology and pathophysiology of primary hypertension, prevention strategies for slowing the progression of BP elevation, management strategies (including optimal BP targets) for lowering BP and preventing CVD outcomes in patients with established hypertension, and the effects of antihypertensive treatment on quality of life; and finally, we will

look at knowledge gaps, future trends, and the outlook for hypertension research and treatment over the next few years.

### Hypertension

High blood pressure, often known as hypertension, frequently goes unnoticed but can increase the risk of heart disease, stroke, and other grave illnesses. Hypertension can be controlled with medication and lifestyle modifications. Blood pressure is the force exerted by a person's blood on the walls of their blood vessels. This pressure is determined by blood vascular resistance and the amount of work the heart must accomplish. This pressure is determined by blood vascular resistance and the amount of work the heart must accomplish. This pressure may increase due to various medical disorders, drugs, and health issues. Blood pressure that is routinely more than 140 over 90 millimeters of mercury (mm Hg) is referred to be hypertension. The 130 mm Hg systolic value denotes the pressure experienced as the heart circulates blood throughout the body. The 80 mm Hg diastolic reading represents the pressure experienced as the heart relaxes and fills with blood.[10, 11]

**Table 1:** Blood pressure representation

	(mmHg) Systolic	(mmHg) diastolic
standard blood pressure	beneath 120	beneath 80
Increasing blood pressure	120–129	beneath 80
level one hypertension	130-139	80-89

Genetics, lifestyle factors such as a poor diet and lack of physical activity, obesity, and certain underlying medical disorders such as renal disease and diabetes can all contribute to hypertension. Treatment usually entails making lifestyle changes such as lowering weight, eating a nutritious diet, increasing physical exercise, stopping smoking, and drinking less alcohol. In some circumstances, blood pressure medication may be prescribed.[12, 13]

It is critical to monitor blood pressure on a regular basis and seek medical assistance if it routinely exceeds 130/80 mmHg. Although hypertension can often be effectively managed with lifestyle changes and medication, if left untreated, it can lead to serious health complications and even death. A doctor would often take many blood pressure measurements over time to diagnose hypertension and may request additional testing such as blood tests, urine tests, or an electrocardiogram (ECG).[14, 15]

### Types of Hypertensions

Hypertension, or high blood pressure, can be classified into two main types based on the underlying cause of the condition:

- 1. Primary (essential) hypertension:** This is the most common type of hypertension, also known as essential hypertension. Primary hypertension develops gradually over time and has no identifiable cause. It is often related to lifestyle factors such as obesity, a diet high in salt and saturated fats, physical inactivity, and stress.
- 2. Secondary hypertension:** This type of hypertension is caused by an underlying medical condition such as kidney disease, adrenal gland disorders, thyroid problems, or obstructive sleep apnea. Treatment of the underlying condition may help to lower blood pressure.[16-18]

### Causes

Primary or essential hypertension is high blood pressure that is not a symptom of another illness or condition. Doctors refer to elevated blood pressure that has an underlying disease as secondary hypertension.

There are several causes of primary hypertension, including:[19-21]

- being overweight
- insulin sensitivity

- high salt consumption
- excess alcohol consumption
- a sedentary way of life
- smoking
- have a blood pressure-related relative.
- are black African or black Caribbean in origin.
- live in a depressed neighborhood.



Figure 1: Causes of primary hypertension and secondary hypertension.

### Symptoms

There may be no symptoms that hypertension patients experience. Without being recognized, hypertension can harm the kidneys, blood vessels, and the heart.

Hypertension, commonly known as high blood pressure, is a condition in which the force of blood against artery walls is constantly increased. Because hypertension frequently has no visible symptoms, it is known as the "silent killer." However, some hypertensive people may experience the following symptoms.

Regular blood pressure checks are crucial.[22-24] High blood pressure can cause death in rare and severe circumstances.;

- Sweating

- Anxiety
- sleeping issues
- blushing
- excruciating headaches
- Pain in the chest.
- eyesight blurring or other vision changes
- nausea.

It is crucial to remember that these symptoms are not limited to hypertension and can be caused by a variety of different medical disorders. The only way to tell if you have hypertension is to have your blood pressure checked by a healthcare expert on a regular basis.[25, 26]



Figure 2: Symptoms of hypertension.

**Risk element**[26, 27]

The risk of hypertension is influenced by several factors.

**Age:** People above the age of 65 are more likely to have hypertension. As the blood vessels harden and narrow as we age because of plaque formation, blood pressure may gradually rise.

**Ethnicity:** Some ethnic groups are predisposed to hypertension more than others. African Americans are more in danger than other ethnic groups.

**Weight:** Obesity is a leading cause of hypertension.

**Tobacco and alcohol use;** Consuming high amounts of alcohol or smoking on a regular basis might raise blood pressure.

**Sex:** Males have a larger risk of acquiring hypertension than females, according to a 2018 analysis. However, this is only true until women approach menopause.

**Existing medical conditions:** Hypertension can be caused by cardiovascular disease, diabetes, chronic renal disease, and excessive cholesterol levels, especially as people age.

**Complications of uncontrolled hypertension**

Uncontrolled hypertension, commonly known as high blood pressure, can lead to a number of health problems throughout the body. The following are

some of the most prevalent complications of uncontrolled hypertension:

**Cardiovascular illness:** Hypertension is a substantial risk factor for cardiovascular disease, stroke, and other conditions. Blood pressure that remains elevated for an extended period of time can damage the arteries that carry blood to the heart and brain, resulting in illnesses such as coronary artery disease, heart attack, and stroke.

**Kidney failure:** Uncontrolled hypertension can harm the filtration mechanism of the kidneys, resulting in chronic kidney disease and kidney failure.

**Eye injury:** High blood pressure can damage the microscopic blood vessels in the eyes, resulting in retinopathy, vision loss, and even blindness.

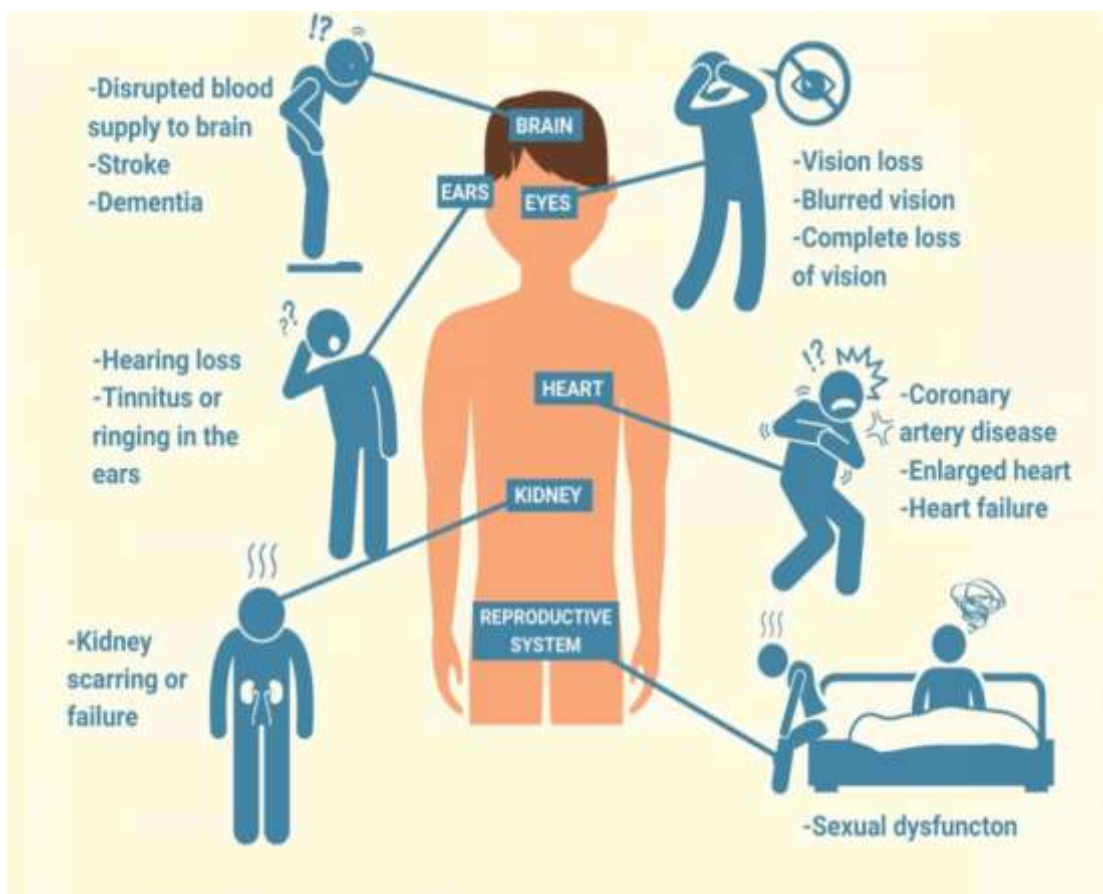
**Peripheral arterial disease (PAD):** Elevated blood pressure can induce arterial narrowing in the legs and arms, resulting in peripheral artery disease, which can cause pain, numbness, and paralysis in the limbs.

**Sexual impotence:** Erectile dysfunction in men and diminished libido in women can be caused by hypertension.

**Impaired cognition:** Uncontrolled high blood pressure has been linked to cognitive impairment and an increased risk of dementia.

**Diabetes mellitus:** Hypertension is frequently associated with metabolic syndrome, a collection of disorders that includes obesity, insulin resistance, and high cholesterol levels. These diseases, when combined, increase the risk of cardiovascular disease and type 2 diabetes.

Overall, uncontrolled hypertension can have substantial and long-term health consequences, emphasizing the significance of frequent blood pressure monitoring and management.[28-30]



**Figure 3: Complications of uncontrolled hypertension**

**Prevention, Screening, and Diagnosis**

**Screening and diagnosis**

Because essential or primary hypertension is usually asymptomatic, all adults should have their blood pressure measured at regular office visits. Blood pressure measurements taken repeatedly in a clinical office setting are most commonly used to diagnose hypertension. Accurate BP measurement and documentation are required to categorize BP levels, determine BP-related CVD risk, and guide management. Since 2010, technologies for measuring out-of-office blood pressure have been widely used to guide hypertension diagnosis and treatment.[31-33]

HBPM is the measurement of blood pressure at regular intervals by an individual at

home or anywhere outside of the clinic environment. ABPM involves monitoring and recording blood pressure at regular intervals (generally every 20-30 minutes), typically over a 24-hour period, and while people go about their daily activities. The capacity to measure blood pressure outside of the office has allowed for the discovery of various BP phenotypes, such as a white coat or isolated clinic hypertension and masked or isolated ambulatory hypertension. White coat hypertension is distinguished by increased office blood pressure but normal ABPM or HBPM readings. Masked hypertension, on the other hand, is distinguished by normal office measurements but high out-of-office readings (ABPM and HBPM).[34, 35]

### Diagnosis

Hypertension, often known as high blood pressure, is normally diagnosed by taking a series of blood pressure readings over time. A patient is diagnosed with hypertension when their blood pressure readings are consistently high, defined as a systolic blood pressure of 130 mmHg or higher or a diastolic blood pressure of 80 mmHg or higher.

Additional tests, such as 24-hour blood pressure monitoring or ambulatory blood pressure monitoring, may be used to confirm the diagnosis. Wearing a device that measures blood pressure at regular intervals throughout the day and night is required for these tests.[36, 37]

Additional tests, such as blood tests to check for kidney or thyroid problems, or imaging tests to check for abnormalities in the heart or blood vessels, may be required in some cases to determine the underlying cause of hypertension.[38]

Treatment for hypertension may include lifestyle changes as well as drugs. Dietary changes, regular exercise, weight loss, restricting alcohol use, and stress reduction are examples of lifestyle improvements. Diuretics, ACE inhibitors, beta-blockers, calcium channel blockers, and other medications as suggested by a healthcare provider may be prescribed to reduce blood pressure.[39]

If hypertension is diagnosed, further testing may be required to determine the cause and severity of the condition. This may include blood tests, urine tests, an electrocardiogram (ECG), an echocardiogram, or other diagnostic tests as recommended by a healthcare provider. A skilled

healthcare expert should provide a diagnosis of hypertension and propose suitable medication to manage the illness and limit the risk of consequences.

Blood pressure should be checked on a frequent basis to ensure that it remains within a healthy range. This can be done at home using a blood pressure monitor or in the office of a healthcare practitioner. Hypertension, if left untreated, can increase the risk of major health issues such as heart disease, stroke, renal disease, and visual problems.[40, 41]

Individuals with hypertension should maintain a healthy lifestyle, manage stress, and follow up with their healthcare provider on a regular basis to ensure that their blood pressure is under control and that any necessary adjustments to their treatment plan are made.[42]

Individuals with hypertension should also be aware of the potential side effects of their medications and report any concerns to their healthcare provider. Dizziness, weariness, headaches, and nausea are common adverse effects of blood pressure medicines.

Regular blood pressure monitoring and follow-up meetings with a healthcare professional are essential for managing hypertension efficiently and reducing the risk of problems. Individuals suffering from hypertension should also be aware of the symptoms of a hypertensive crisis, which can include a severe headache, chest pain, shortness of breath, and difficulty speaking. If you encounter any of these symptoms, you should seek medical attention immediately.[43, 44]

**Table 2: Hypertension diagnosis:**

Blood Pressure Category	Systolic (mmHg)	Diastolic (mmHg)
Normal	<120	<80
Elevated	120-129	<80
Hypertension Stage 1	130-139	80-89
Hypertension Stage 2	≥140	≥90
Hypertensive crisis	>180	>120

A person is diagnosed with hypertension when their blood pressure consistently registers at or above 130/80 mmHg, as indicated by the Hypertension Stage 1 category in the table. However, a diagnosis may be made based on a single high reading, especially if the person is predisposed to developing hypertension due to factors such as age, family history, or other medical conditions. A single blood pressure reading does not always indicate hypertension, and numerous

readings taken over time are usually required for a reliable diagnosis. A skilled healthcare expert should also provide a diagnosis of hypertension and propose suitable treatment to manage the illness and limit the risk of consequences.[45, 46]

### Treatment of Hypertension

Hypertension, often known as high blood pressure, is a prevalent medical disorder that affects millions of individuals worldwide. It raises the risk

of cardiovascular disease, stroke, and kidney failure, among other health issues. Hypertension is often treated with a mix of lifestyle changes and medication.[47-49]

### 1.Changes in lifestyle

- Reduce your salt consumption.
- Increase your potassium consumption
- Keep a healthy weight
- Increase your physical activity level.
- Limit your alcohol consumption.
- Stop smoking

### 2.Medications:

- Diuretics: aid in the removal of excess salt and water from the body in order to reduce blood pressure.
- ACE inhibitors and ARBs: relax blood arteries and reduce heart workload.
- Calcium channel blockers: relax blood vessels and reduce the workload on the heart.
- Beta-blockers: lower the workload of the heart and the amount of blood it pumps.

The medicine of choice is determined by a number of criteria, including age, race, and medical history. It is critical to collaborate with a healthcare practitioner to develop the best effective treatment strategy for each individual. Additionally, to ensure that blood pressure is well-controlled, regular blood pressure monitoring and medication adjustments may be required.

### 3.Alternative and complementary therapies:

Some people may choose to treat their hypertension with complementary and alternative therapy. These are some examples:

- Stress management practices, such as deep breathing and meditation, can help lower blood pressure.
- Acupuncture: some research indicates that acupuncture may help decrease blood pressure.
- Dietary supplements: Some dietary supplements, such as garlic, and fish oil have been shown to reduce blood pressure.

It should be noted that, while these therapies may be beneficial, they should not be utilized in place of traditional medical therapy. Before beginning any new therapy or supplement, consult with your doctor.

### 4.Follow-up and monitoring:

Regular monitoring and follow-up are essential for optimal hypertension management. Blood pressure should be tested on a regular basis, and medication modifications may be required to keep blood pressure under control. Lifestyle modifications should be ongoing and progress should be tracked.

In summary, hypertension is normally treated with a mix of lifestyle changes, medication, and regular monitoring and follow-up. Working with a healthcare practitioner to build an individualized treatment plan is critical to properly managing this illness and lowering the risk of consequences.

### 5.Taking care of underlying conditions:

Hypertension can be caused by an underlying medical condition such as kidney disease, sleep apnea, or thyroid difficulties in some situations. In many circumstances, treating the underlying illness may also aid in blood pressure reduction.

### 6.Patient education is essential:

Patient education is another critical component of hypertension management. Patients should be taught about the hazards of hypertension as well as the need of making lifestyle changes and adhering to drug regimens. They should also be taught how to check their blood pressure at home as well as recognize and respond to problem signals.

### 7. Programs for hypertension management:

Some healthcare systems provide hypertension management programs that provide patients with support and education to help them manage their blood pressure. Regular check-ins with a healthcare practitioner, education and counseling, and assistance for lifestyle adjustments are all possible components of these programs.

In general, hypertension treatment is multidimensional, involving a combination of lifestyle changes, medication, monitoring and follow-up, and patient education. Most persons with hypertension can successfully lower their blood pressure and reduce their risk of problems with the right therapy and care.

### Drugs used in hypertension.

In the previous 60 years, antihypertensive medication therapy has advanced dramatically. Throughout this time span, various drug classes have gained importance. The drugs used in the

treatment of hypertension are mentioned below.[50-52]

**i. Diuretics**

- **Thiazides:**Hydrochlorothiazide, Chlorthalidone, Indapamide.
- **High ceiling:** Furosemide.
- **K<sup>+</sup> Sparing:** Spironolactone, Amiloride.

**ii. Inhibitor of ACEC:** captopril, Enalapril, Lisinopril, Perindopril, Ramipril, are examples of ACE inhibitors..

**iii. Angiotensin (AT1 receptor) blockers:** Losartan, Candesartan, Valsartan, Telmisartan.

**iv. Direct renin inhibitor:** Aliskiren

**v. Calcium channel blockers**

- **Phenyl alkylamine:** Verapamil
- **Benzothiazepine:** Diltiazem

- **Dihydropyridines:** Nifedipine, Felodipine, Amlodipine, Nitrendipine, Lacidipine.

**vi. Sympathetic inhibitors:**

- **β- adrenergic blocker:** Propranolol, Metoprolol, Atenolol
- **α + β adrenergic blocker:**Labetalol, Carvedilol
- **α- adrenergic blocker:**Prazosin, Terazosin, Doxazosin, Phentolamine
- **Central sympatholytic:** Clonidine, Methyldopa

**vii. Vasodilators:**

- **Arteriolar dilator:** Hydralazine, Minoxidil
- **Arteriolar + Venodilator:** Nitroprussidesodium

**Table 2: Mechanism of action of drugs used in the treatment of hypertension:**

S.No.	Drug Category	Example	Mode of action	Ref. No.
1	<b>Diuretics</b>			[53, 54]
	• <b>Thiazides</b>	Hydrochlorothiazide, Chlorthalidone	Decrease sodium reabsorption and thereby fluid reabsorption; this results in lower amounts of circulating sodium.	[53]
	• <b>High ceiling</b>	Furosemide.	Block a transport system that transports sodium, potassium, and chloride across cell membranes in a variety of tissues, including the thick ascending loop of Henle. Their natriuretic effect is due to this inhibitory effect.	[54]
	• <b>K<sup>+</sup> Sparing</b>	Spironolactone, Amiloride.	Amiloride, triamterene, and spironolactone reduce the lumen-negative transepithelial potential difference by inhibiting electrogenic salt transport. This diminishes the driving power for potassium movement into the tubular lumen and, as a result, potassium excretion.	[55]
2	<b>Inhibitors of ACE</b>	Captopril, Enalapril, Lisinopril	ACE inhibitors hinder the body's enzyme from making angiotensin II, a chemical that constricts blood vessels. High blood pressure can result from this constriction, which forces the heart to work harder. Angiotensin II also causes the release of blood pressure-raising hormones.	[56]



3	<b>Angiotensin(AT1) Receptor blocker</b>	Losartan, Candesartan, Valsartan, Telmisartan.	They work by inhibiting the angiotensin (AT1 type) receptor, which regulates angiotensin's physiological effects on blood pressure, salt and water balance, and cardiovascular function and structure.	[57]
4	<b>Direct renin inhibitor</b>	Aliskiren	Direct renin inhibitors (DRIs) are increasingly being utilized to treat hypertension. Aliskiren, the first oral DRI, reduces blood pressure by inhibiting the renin catalytic site, lowering angiotensin I production and conversion to angiotensin II. However, reactive renin secretion may limit its BP-lowering effect as angiotensin II secretion decreases.	[58]
5	<b>Calcium channel blockers</b>			[59, 60]
	<ul style="list-style-type: none"> <li>• <b>Phenyl alkylamine</b></li> </ul>	Verapamil	A sympathomimetic phenylethylamine with amphetamine-like action that activates the CNS and increases B/P, most likely via norepinephrine and dopamine metabolism. Causes hypothalamic stimulation	[59, 60]
	<ul style="list-style-type: none"> <li>• <b>Benzothiazepine</b></li> </ul>	Diltiazem	Because benzothiazepines have both cardiac depressant and vasodilator actions, they can lower arterial pressure without causing the same level of reflex cardiac stimulation as dihydropyridines.	[59, 60]
6	<ul style="list-style-type: none"> <li>• <b>Dihydropyridines</b></li> </ul>	Nifedipine, Felodipine, Amlodipine, Nitrendipine, Lacidipine	Dihydropyridines operate by binding to and blocking voltage-gated L-type calcium channels located on arterial smooth muscle cells. These channels often open in response to an electrical stimulus, or action potential, thus the name "voltage-gated" L-type calcium channels.	[59, 60]
	<ul style="list-style-type: none"> <li>• <b>β- adrenergic blocker</b></li> </ul>	Propranolol, Metoprolol, Atenolol	Beta-blockers induce the heart to beat more slowly and forcefully, lowering blood pressure. Beta-blockers also aid in widening veins and arteries, improving blood flow.	[61, 62]

	<ul style="list-style-type: none"> <li>• <b><math>\alpha</math> + <math>\beta</math> adrenergic blocker</b></li> </ul>	Labetalol, Carvedilol	Alpha + beta-adrenergic blockers work by preventing the binding of adrenaline (epinephrine) and noradrenaline (norepinephrine) to alpha and beta-adrenergic receptors. These medications diminish the impact of these hormones on the body by inhibiting certain receptors.	[61, 62]
	<ul style="list-style-type: none"> <li>• <b><math>\alpha</math>- adrenergic blocker</b></li> </ul>	Prazosin, Terazosin, Doxazosin, Phentolamine	Alpha-adrenergic blockers are drugs that inhibit the function of alpha-adrenergic receptors. These receptors are found on the smooth muscles of blood arteries as well as organs like the prostate gland. Blocking these receptors can cause smooth muscle relaxation and blood vessel dilation, leading to lower blood pressure and improved urine flow in patients with prostate enlargement.	[61, 62]
	<ul style="list-style-type: none"> <li>• <b>Central sympatholytic</b></li> </ul>	Clonidine, Methyldopa	Reduces blood pressure primarily through activating central adrenergic receptors in brainstem centers, resulting in decreased sympathetic nerve activity and neuronal release of norepinephrine to the heart and peripheral circulation.	[61, 62]
7	<b>Vasodilators</b>			[63, 64]
	<ul style="list-style-type: none"> <li>• <b>Arteriolar dilator</b></li> </ul>	Hydralazine, Minoxidil	Dilate or prevent constriction of blood arteries, allowing for increased blood flow to numerous organs throughout the body.	[63, 64]
	<ul style="list-style-type: none"> <li>• <b>Arteriolar + Venodilator</b></li> </ul>	Nitroprusside sodium	Relax both arteriolar and venous, allowing for increased blood flow to numerous organs throughout the body.	[63, 64]

## II. CONCLUSION

Hypertension is common globally, and as the population ages, more and more people get hypertension. As a result, the problem of identifying, treating, and controlling hypertension is massive. Current efforts are aimed at detecting and treating hypertension in middle and elderly age. Because the prevalence of hypertension rises linearly with age, measures to prevent hypertension, such as a healthy diet and regular physical activity, should begin early in life. Early detection and treatment of hypertension is critical for individuals who have already developed it. Because existing antihypertensive drugs are not

ideal on their own, a combination of drugs is required in a large proportion of patients. Such medications should be chosen in a logical and evidence-based manner.

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