

Hypertension-Causes

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Abstract

High blood pressure is a common condition in which the long-term force of the blood against artery walls is high enough that it may eventually cause health problems, such as heart disease. Blood pressure is determined both by the amount of blood the heart pumps and the amount of resistance to blood flow in the arteries. The more blood the heart pumps and the narrower the arteries, the higher the blood pressure.

Patient can have high blood pressure (hypertension) for years without any symptoms. Even without symptoms, damage to blood vessels and heart continues and can be detected. Uncontrolled high blood pressure increases your risk of serious health problems, including heart attack and stroke. High blood pressure generally develops over many years, and it affects nearly everyone eventually. Fortunately, high blood pressure can be easily detected. And once you know

higher blood pressure than does primary hypertension [5-7] Various conditions and medications can lead to secondary hypertension, including

- Obstructive sleep apnea
- Kidney problems
- Adrenal gland tumors
- Thyroid problems
- Certain defects as (congenital abnormalities in blood vessels)
- Certain medications, such as Oral contraceptive pills ,cold remedies, decongestants, over-the-counter pain relievers and some prescription drugs

Risk factors

High blood pressure has many risk factors, including:

Age: The risk of high blood pressure increases with age. Until about age 64, high blood pressure is more common in men. Women are more likely to develop high blood pressure after age 65.

Race: High blood pressure is particularly common among people of African heritage, often developing at an earlier age than it does in whites. Serious complications, such as stroke, heart attack and kidney failure, also are more common in people of African heritage.

Family history: High blood pressure tends to run in families.

Being overweight or obese: The more you weigh the more blood you need to supply oxygen and nutrients to your tissues. As the volume of blood circulated through your blood vessels increases, so does the pressure on your artery walls.

Not being physically active: People who are inactive tend to have higher heart rates. The higher your heart rate, the harder your heart must work with each contraction and the stronger the force on your arteries. Lack of physical activity also increases the risk of being overweight.

Using tobacco: Not only does smoking or chewing tobacco immediately raise your blood pressure temporarily, but the chemicals in tobacco can damage the lining of your artery walls. This can cause your arteries to narrow and increase your risk of

Signs and Symptoms

Most people with high blood pressure have no signs or symptoms, even if blood pressure readings reach dangerously high levels [1-4] A few people with high blood pressure may have headaches, shortness of breath or nosebleeds, but these signs and symptoms aren't specific and usually don't occur until high blood pressure has reached a severe or life-threatening stage.

Causes

There are two types of high blood pressure.

Primary hypertension

For most adults, there's no identifiable cause of high blood pressure. This type of high blood pressure, called primary hypertension, tends to develop gradually over many years.

Secondary hypertension

Some people have high blood pressure caused by an underlying condition. This type of high blood pressure, called secondary hypertension, tends to appear suddenly and cause

heart disease. Secondhand smoke also can increase your heart disease risk.

Too much salt (sodium) in your diet: Too much sodium in your diet can cause your body to retain fluid, which increases blood pressure.

Drinking too much alcohol: Over time, heavy drinking can damage your heart. Having more than one drink a day for women and more than two drinks a day for men may affect your blood pressure [6].

If you drink alcohol, do so in moderation. For healthy adults, that means up to one drink a day for women and two drinks a day for men. One drink equals 12 ounces of beer, 5 ounces of wine or 1.5 ounces of 80-proof liquor.

Stress: High levels of stress can lead to a temporary increase in blood pressure. If you try to relax by eating more, using tobacco or drinking alcohol, you may only increase problems with high blood pressure.

Certain chronic conditions: Certain chronic conditions also may increase your risk of high blood pressure, such as kidney disease, diabetes and sleep apnea.

Sometimes pregnancy contributes to high blood pressure, as well [9].

Although high blood pressure is most common in adults, children may be at risk, too. For some children, high blood pressure is caused by problems with the kidneys or heart. But for a growing number of kids, poor lifestyle habits, such as an unhealthy diet, obesity and lack of exercise, contribute to high blood pressure.

Complications

The excessive pressure on your artery walls caused by high blood pressure can damage your blood vessels, as well as organs in your body. The higher your blood pressure and the longer it goes uncontrolled, the greater the damage [10].

Heart attack or stroke

High blood pressure can cause hardening and thickening of the arteries (atherosclerosis), which can lead to a heart attack, stroke or other complications.

Aneurysm

Increased blood pressure can cause your blood vessels to weaken and bulge, forming an aneurysm. If an aneurysm ruptures, it can be life-threatening.

Heart failure

To pump blood against the higher pressure in your vessels, the heart has to work harder. This causes the walls of the heart's pumping chamber to thicken. (left ventricular hypertrophy). Eventually, the thickened muscle may have a hard time pumping enough blood to meet body needs, which can lead to heart

failure. Weakened and narrowed blood vessels in kidneys. This can prevent these organs from functioning normally.

To measure blood pressure, doctor or a specialist will usually place an inflatable arm cuff around arm and measure blood pressure using a pressure-measuring gauge. A blood pressure reading, given in millimeters of mercury (mm Hg), has two numbers. The first, or upper, number measures the pressure in your arteries when your heart beats (systolic pressure). The second, or lower, number measures the pressure in your arteries between beats (diastolic pressure) [11,12].

Blood pressure measurements fall into four general categories:

- Normal blood pressure: Blood pressure is normal if it's below 120/80 mm Hg.
- Elevated blood pressure: Elevated blood pressure is a systolic pressure ranging from 120 to 129 mm Hg and a diastolic pressure below 80 mm Hg. Elevated blood

Treatment

Changing lifestyle can go a long way toward controlling high blood pressure [13]. Doctor may recommend the patient to make lifestyle changes including:

- Eating a heart-healthy diet with less salt
- Getting regular physical activity
- Maintaining a healthy weight or losing weight if you're overweight or obese
- Limiting the amount of alcohol you drink
- But sometimes lifestyle changes aren't enough. In addition to diet and exercise, your doctor may recommend medication to lower your blood pressure.
- Blood pressure treatment goal depends on how healthy you are.
- Medications to treat high blood pressure

Thiazide diuretics

Diuretics, sometimes called water pills, are medications that act on kidneys to help body eliminate sodium and water, reducing blood volume.

Thiazide diuretics are often the first, but not the only, choice in high blood pressure medications. Thiazide diuretics include chlorthalidone, hydrochlorothiazide (Microzide) and others.

If not taking a diuretic and blood pressure remains high. Diuretics or calcium channel blockers may work better for people of African heritage and older people than do angiotensin-converting enzyme (ACE) inhibitors alone. A common side effect of diuretics is increased urination [14].

Angiotensin-converting enzyme (ACE) inhibitors

These medications-such as lisinopril (Zestril), benazepril (Lotensin), captopril (Capoten) and others-help relax blood vessels by blocking the formation of a natural chemical that narrows blood vessels. People with chronic kidney disease may benefit from having an ACE inhibitor as one of their medications.

Alpha blockers

These medications reduce nerve impulses to blood vessels, reducing the effects of natural chemicals that narrow blood vessels. Alpha blockers include doxazosin (Cardura), prazosin (Minipress) and others.

Alpha-beta blockers

In addition to reducing nerve impulses to blood vessels, alpha-beta blockers slow the heartbeat to reduce the amount of blood that must be pumped through the vessels. Alpha-beta blockers include carvedilol (Coreg) and labetalol (Trandate).

Vasodilators

These medications, including hydralazine and minoxidil, work directly on the muscles in the walls of your arteries, preventing the muscles from tightening and your arteries from narrowing.

Aldosterone antagonists

Examples are spironolactone (Aldactone) and eplerenone (Inspra). These drugs block the effect of a natural chemical that can lead to salt and fluid retention, which can contribute to high blood pressure.

Renin inhibitors

Aliskiren (Tekturna) slows down the production of renin, an enzyme produced by your kidneys that starts a chain of chemical steps that increases blood pressure.

Aliskiren works by reducing the ability of renin to begin this process. Due to a risk of serious complications, including stroke, you shouldn't take aliskiren with ACE inhibitors or ARBs.

Conclusion

Central-acting agents. These medications prevent your brain from signaling your nervous system to increase your heart rate and narrow your blood vessels. Examples include clonidine (Catapres, Kapvay), guanfacine (Intuniv, Tenex) and methyldopa. To reduce the number of daily medication doses, doctor may prescribe a combination of low-dose medications rather than larger doses of one single drug. In fact, two or more blood pressure drugs often are more effective than one. Sometimes finding the most effective medication or combination of drugs is a matter of trial and error.

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