Review Article

Research on Chronic Diseases

# A Brief Note about High Blood Pressure

## Abstract

Blood pressure is the measurement of the pressure or force of blood pushing against blood vessel walls. When you have hypertension (high blood pressure), it means the pressure against the blood vessel walls in your body is consistently too high. High blood pressure is often called the "silent killer" because you may not be aware that anything is wrong, but the damage is still occurring within your body.

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**Received:** 01-Jul-2022, Manuscript No. oarcd-22-70610; **Editor assigned:** 04-Jul-2022, PreQC No. oarcd-22-70610 (PQ); **Reviewed:** 18-Jul-2022, QC No. oarcd-22-70610; **Revised:** 21-Jul-2022, Manuscript No. oarcd-22-70610 (R); **Published:** 28-Jul-2022, DOI: 10.37532/rcd.2022.6(4).90-93

## Introduction

Your blood pressure reading has two numbers. The top number is the systolic blood pressure, which measures the pressure on the blood vessel walls when your heart beats or contracts. The bottom number is the diastolic blood pressure, which measures the pressure on your blood vessels between beats when your heart is relaxing [1]. Fortunately, there are certain things you can do to help reduce your risk of developing high blood pressure. These include the following:

- Eat right: A healthy diet is an important step in keeping your blood pressure normal. The DASH diet (Dietary Approaches to Stop Hypertension) emphasizes adding fruits, vegetables and whole grains to your diet while reducing the amount of sodium. Since it's rich in fruits and vegetables, which are naturally lower in sodium than many other foods, the DASH diet makes it easier to eat less salt and sodium [2].

- Keep a healthy weight: Going hand-in-hand with a proper diet is keeping a healthy weight. Since being overweight increases your blood pressure, losing excess weight with diet and exercise will help lower your blood pressure to healthier levels.

- Cut down on salt: The recommendation for salt in your diet is to have less than 1,500 milligrams of sodium a day (equal to about one teaspoon). To prevent hypertension, you should keep your salt intake below this level. Don't forget that most restaurant foods (especially fast foods) and many processed and frozen foods contain high levels of salt. Use herbs and spices that do not contain salt in recipes to flavour your food; do not add salt at the table. (Salt substitutes usually have some salt in them) [3].

- Keep active: Even simple physical activities, such as walking, can lower your blood pressure (and your weight).

- Drink alcohol in moderation: Having more than one drink a day (for women) and two drinks a day (for men) can raise blood pressure [4].

Four classes of high blood pressure medications are considered "first line" (most effective and commonly prescribed) when starting treatment. Sometimes other medications are coupled with these first-line drugs to better control your high blood pressure [5]. First-line, pressure-lowering medications are:

- Angiotensin-converting enzyme (ACE) inhibitors block the production of the angiotensin II hormone, which the body naturally uses to control blood pressure. When angiotensin II is blocked, your blood vessels don't narrow. Examples: lisinopril (Zestril® or Prinivil®), enalapril or captopril.

- Angiotensin II receptor blockers (ARBs) block this same hormone from binding with receptors in the blood vessels. ARBs work the same way as ACE inhibitors to keep blood vessels from narrowing [6]. Examples: metoprolol (Lopressor®; Toprol® XL), valsartan (Diovan® or Prexxartan®) or losartan.

- Calcium channel blockers prevent calcium from entering the muscle cells of your heart and blood vessels, allowing these vessels to relax. Examples: amlodipine (Norvasc® or Katerzia®), nifedipine (Procardia®XL or Nifedical®XL), diltiazem (Cardizem®, Dilacor® XR or Tiazac®) [7].

- Diuretics (water or fluid pills) flush excess sodium from your body, reducing the amount of fluid in your blood. Diuretics are often used with other high blood pressure medicines, sometimes in one combined pill. Examples: in dapamide, hydrochlorothiazide (Microzide® or Oretic®) or chlorothiazide [8].

Talk to your healthcare provider about what side effects and problems are possible when you take your blood pressure medicine. You should avoid some medications during pregnancy. If you get side effects that concern you, call your provider. They may change your dose or try a different medication. Don't stop taking the medicine on your own [9].

- Eat foods that are lower in fat, salt and calories, such as skim or 1% milk, fresh vegetables and fruits, and whole-grain rice and pasta. (Ask your healthcare provider for a more detailed list of low sodium foods to eat.)

- Use flavorings, spices and herbs to make foods tasty without using salt. The optimal recommendation for salt in your diet is to have less than 1,500 milligrams of sodium a day. Don't forget that most restaurant foods (especially fast foods) and many processed and frozen foods contain high levels of salt. Use herbs and spices that do not contain salt in recipes to flavor your food. Don't add salt at the table. (Salt substitutes usually have some salt in them) [10].

- Avoid or cut down on foods high in fat or salt, such as butter and margarine, regular salad dressings, fatty meats, whole milk dairy products, fried foods, processed foods or fast foods and salted snacks.

- Ask your provider if you should increase potassium in your diet. Discuss the Dietary Approaches to Stop Hypertension (DASH) diet with your provider. The DASH diet emphasizes adding fruits, vegetables and whole grains to your diet while reducing the amount of sodium. Since its rich in fruits and vegetables, which are naturally lower in sodium than many other foods, the DASH diet makes it easier to eat less salt and sodium [11].

Can high blood pressure affect pregnancy?

High blood pressure complicates about 10% of all pregnancies. There are several different types of high blood pressure during pregnancy and they range from mild to serious. The forms of high blood pressure during pregnancy include:

- Chronic hypertension: High blood pressure which is present before pregnancy.

- Gestational hypertension: High blood pressure in the latter part of pregnancy.

- Preeclampsia: This is a dangerous condition that typically develops in the latter half of pregnancy and results in hypertension, protein in the urine and generalized swelling in the pregnant person. It can affect other organs in the body and cause seizures (eclampsia).

- Chronic hypertension with superimposed preeclampsia: Pregnant people who have chronic hypertension are at increased risk for developing preeclampsia [12].

Your provider will check your blood pressure regularly during prenatal appointments, but if you have concerns about your blood pressure, be sure to talk with your provider.

Your provider will diagnose you with one of two types of high blood pressure:

- Primary (also called essential) high blood pressure. Causes of this most common type of high blood pressure include aging and unhealthy habits like not getting enough exercise.

- Secondary high blood pressure. Causes of this type of high blood pressure include different medical problems (for example kidney or hormonal problems) or sometimes a medication you're taking [13].

High blood pressure, also called hypertension, is blood pressure that is higher than normal. Your blood pressure changes throughout the day based on your activities. Having blood pressure measures consistently above normal may result in a diagnosis of high blood pressure (or hypertension) [14].

The higher your blood pressure levels, the more risk you have for other health problems, such as heart disease, heart attack, and stroke. Your health care team can diagnose high blood pressure and make treatment decisions by reviewing your systolic and diastolic blood pressure levels and comparing them to levels found in certain guidelines [15]. The guidelines used to diagnose high blood pressure may differ from health care professional to health care professional:

- Some health care professionals diagnose patients with high blood pressure if their blood pressure is consistently 140/90 mm Hg or higher.2 this limit is based on a guideline released in 2003, as seen in the table below [16].

- Other health care professionals diagnose patients with high blood pressure if their blood pressure is consistently 130/80 mm Hg or higher.1 this limit is based on a guideline released in 2017, as seen in the table below [17].

Hypertension is quite common. In fact, since the guidelines changed in 2017, nearly half of American adults could now be diagnosed with this condition.

## Discussion

High blood pressure has many risk factors, including:

- Age. The risk of high blood pressure increases as you 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 [18].

- 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 amount of blood flow 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 heart disease. Second hand smoke also can increase your heart disease risk [19].

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

- Too little potassium in your diet. Potassium helps balance the amount of sodium in your cells. A proper balance of potassium is critical for good heart health. If you don't get enough potassium in your diet, or you lose too much potassium due to dehydration or other health conditions, sodium can build up in your blood [20].

- 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.

- 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.

Stress-related habits such as eating more, using tobacco or drinking alcohol can lead to further increases in blood pressure.

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

## Conclusion

Hypertension typically develops over the course of several years. Usually, you don't notice any symptoms. But even without symptoms, high blood pressure can cause damage to your blood vessels and organs, especially the brain, heart, eyes, and kidneys. Early detection is important. Regular blood pressure readings can help you and your doctor notice any changes. If your blood pressure is elevated, your doctor may have you check your blood pressure over a few weeks to see if the number stays elevated or falls back to normal levels. Treatment for hypertension includes both prescription medication and healthy lifestyle changes. If the condition isn't treated, it could lead to health issues, including heart attack and stroke.

## Acknowledgement

None

## Conflict of Interest

There is no Conflict of Interest.

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