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How do doctors treat high blood pressure?

Transcript:

“High blood pressure doubles the risk of heart attacks and strokes as well as increased risk of kidney failure, loss of eyesight, and even Alzheimer’s.”

Blood pressure is defined as the force of blood on your arteries- there is normal pressure and high forceful pressure.

Most people gulp down their pills daily without knowing how they work in the body. It is important to know, and such knowledge facilitates, better management.

Over a billion people worldwide have hypertension or high blood pressure, the incidence being increasing with people living longer.

In the US, adults 1 in every 3 have high blood pressure, and nearly 20 percent do not know they have it.

Africa has the highest rate of high blood pressure in the world, affecting about 46% of adults, a World Health Organization (WHO) study has found. It blamed increasing urbanization and unhealthy lifestyles for the rise in cases.

What is the mechanism that creates high blood pressure?

When you are young and active, your blood vessels are thin and elastic- meaning expandable. AS you get older these vessels become harder and narrower, through a process of arteriosclerosis, resulting in the loss of expandability and elasticity referred to as peripheral resistance.

The heart takes the brunt by pumping the blood flow with more force, which causes the upper pressure-the systolic to rise.

The normal upper pressure today is considered as 120 mm Hg for all ages after the age of 40 years.

This upper pressure number measures the pressure in your arteries when your heart beats.

The lower pressure that is the diastolic number represents the measure the pressure in your arteries between beats. This increases due to peripheral resistance of these arteries with age, and the diastolic rises. This is also the phase when the left ventricle fills with blood from the left atrium.

So, the blood pressure readings considered normal are the upper pressure systolic in the range between 120-130 mm/l.

The diastolic would be in the range of 60-70mm/l.

120 over 80 (120/80) is considered the normal range for blood pressure, per the American Heart Association (AHA).

When your doctor checks your blood pressure there are three issues he would be having in his mind.

The first would be to find out what the upper pressure is: secondly, lower pressure which reveals the peripheral resistance in your arteries: and thirdly your pulse or heart rate.

These are checked by using an apparatus called sphygmomanometer, or the present day, digital BP machines, which records the pulse rate, too.

Checking your body weight is important in the management of high blood pressure. Being overweight or obese increases your risk of developing high blood pressure. If you are overweight and have high blood pressure you need to lose weight to bring your blood pressure within the normal range. Obesity alone does not cause obesity, though it contributes to it. Other factors can increase your blood pressure, such as kidney problems, thyroid problems, obstructive apnea, and a family history of high blood pressure.

After doing the preliminary required blood tests to check your lipids, liver and kidney functions, thyroid functions, among others, your doctor will plan a therapy regime for you.

If you are moderately obese with slight elevation of blood pressure, figures such as 130mmHg to 140 mm Hg. And diastolic in the 80s, referred to as the prehypertension stage, your doctor will refer you to a dietician to educate on a weight reducing diet. Daily physical exercise regime, such as walking, or aerobic exercises at the gym, would lose your weight.

No medication will be required in such situation. Review in a month's time would be organized.

If your blood pressure is high- say systolic over 140 and diastolic 90, medication will be required in addition to dietetic control and exercises.

If your diastolic pressure is high over 90mm Hg. and the systolic pressure is on the prehypertension level of about 130mm Hg. Your doctor will prescribe medication to dilate the arteries to release the pressure from the heart.

We are talking now about essential hypertension, the common high blood pressure you and I get as we grow old, with no definitive cause.

You could have high blood pressure due to certain conditions, then we call it secondary hypertension.

- Such causes include: Obstructive sleep apnoea.
- Kidney disease
- Adrenal gland tumours
- Thyroid problems
- Certain defects you are born with (congenital) in blood vessels.
- Certain medications, such as birth control pills, cold remedies, decongestants, over-the-counter pain relievers and some prescription drugs
- Illegal drugs, such as cocaine and amphetamines

When should you take your blood pressure medication?

Recent studies suggest that taking blood pressure medications at night does a better job of lowering your blood pressure and, more importantly, may reduce the risk of death, heart attack, heart failure and stroke.

Discuss this matter with your doctor.

Checking Aldosterone levels

If your blood pressure has been difficult to control with the standard medications that being prescribed, your doctor will check your blood aldosterone levels.

Aldosterone is produced in the cortex of the adrenal glands, located above the kidneys.

Aldosterone helps the kidneys manage water, sodium, and potassium levels. Too much aldosterone secretion due to a tumour of the adrenal cortex can lead to retain water and sodium and flush the potassium. In short aldosterone level when high reabsorbs sodium i.e., salt and lose potassium by the kidneys, resulting in an electrolyte imbalance.

Medications your doctor would prescribe for high blood pressure depends on various factors:

If the pulse is rapid with high blood pressure, he would prescribe a beta-blocker to slow down your heart rate to reduce the blood pressure.

Your doctor may add on a diuretic to lower the salt content, as high sodium levels and excess fluid in your body can increase your blood pressure.

If your BP is high, he may prescribe an ACE inhibitor.

Now let us talk about angiotensin in relation to blood pressure.

The liver creates and releases a protein called angiotensinogen. This is broken up by renin, an enzyme produced in the kidneys, to form angiotensin 1.

Angiotensin 1 is then converted into angiotensin 11.

The renin-angiotensin-aldosterone system referred to as the RAAS, regulates your blood pressure.

Angiotensin 11 is the principal effector hormone in the RAAS system, causing narrowing or vasoconstriction of blood vessels resulting in increased blood pressure.

What are ACE inhibitors?

ACE inhibitors aim to stop the production of angiotensin, while Angiotensin II receptor blockers or ARBs, block angiotensin from binding with receptors and thus will relax the blood vessels.

Most of you must be on ACE inhibitors, or ARBs prescribed by your doctor for hypertension.

Now you know how they work in your body to bring down the blood pressure.

Let us now talk about Calcium channel blockers, another series of tablets given to reduce your blood pressure.

They lower your blood pressure by preventing calcium entering the cells of your heart and arteries.

Normally calcium helps to contract the heart muscles during pumping of blood. By blocking calcium, calcium channel blockers allow blood vessels to relax and open.

They also have the added advantage of slowing your heart rate, relieves angina and controls irregular heartbeats.

In addition to high blood pressure, your doctor may prescribe calcium channel blockers to prevent, and treat a variety of conditions such as:

Coronary artery disease

Chest pain (angina)

Irregular heartbeats (arrhythmia)

Some circulatory conditions, such as Raynaud's disease

Just check your antihypertensive tablets you are taking, and your doctor may have put you on a Calcium channel blocker.

Avoid taking grapefruit while taking certain calcium channel blockers. Grapefruit juice interacts with the drug and can affect heart rate and blood pressure. This can cause symptoms such as headaches and dizziness.¹

High blood pressure is a silent killer disease and controlling it with or without medication is a priority health concern of all of us.

Especially, those who are obese and having type 2 diabetes need to be extra cautious to maintain a normal range blood pressure.

Hope this video talk was useful. Stay safe happy Easter and goodbye for now.