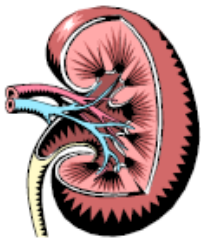




What is hypertension?

Blood pressure (BP) is determined by the amount of blood the heart pumps and the amount of resistance to the blood flow in the arteries. The more blood the heart has to pump and the narrower the arteries are, the higher the blood pressure becomes. When a person's blood pressure is consistently high, they have hypertension (HTN). A BP reading has two parts: the systolic number (the top number in the BP reading) and the diastolic number (the bottom number). The systolic number is the pressure in the arteries as the heart beats. The diastolic number is the pressure present in the heart when it is "at rest", between heartbeats. A person is diagnosed as having pre-hypertension when their systolic BP (the top number) is between 120 and 139 or their diastolic BP (the bottom number) is between 80 and 89 on multiple readings. People with pre-hypertension are more likely to develop high blood pressure at some point. A BP reading greater than 140/90 is considered hypertension. The goal for people with diabetes is to keep their BP below 130/80.



What does hypertension have to do with the kidneys?


The kidneys are responsible for filtering excess fluid and waste out of the body in the form of urine. They also regulate the amount of body water and chemicals (such as sodium, potassium, phosphorus and calcium) in the blood, remove drugs and toxins, and stimulate the production or release of certain hormones. When BP is consistently increased (hypertension), the walls of the blood vessels become damaged. When the blood vessels in the kidneys are damaged, the function of the kidneys decreases. This decreased kidney function is known as chronic kidney disease (CKD). When a person has CKD, the kidneys, as the blood vessels become more damaged, are no longer able to sufficiently remove wastes and excessive fluid from the body.

What does diabetes have to do with the kidneys?

Diabetes is a life-long disease that results from either the body's inability to produce enough insulin (a hormone), or the body's inability to properly use insulin. Diabetes causes damage to the blood vessels in the kidneys and to the kidneys themselves. This damage may also cause the kidney's functions to decrease.

The damage to the blood vessels in the kidneys caused by hypertension and diabetes cannot be repaired, but by controlling blood pressure and diabetes, further damage can be prevented.

Medications that can help prevent further damage to the kidneys and slow down the progression of CKD in diabetics with hypertension:

Medication Class:	ACE Inhibitors	ARB Agents
Full name of medication class:	Angiotensin-Converting Enzyme inhibitor	Angiotensin- II Receptor Blocking agents
	Angiotensin is a hormone that causes the circumference of blood vessels to get smaller (vasoconstriction), which increases BP.	Angiotensin II is a hormone that stimulates a protein in the vascular (blood) smooth muscle cells, which narrows (constricts) the blood vessels and increases BP. Angiotensin II also stimulates the release of another hormone, aldosterone. Aldosterone causes the body to retain water and salt, and blood vessel walls to thicken (which also increases BP).
How does this class of medication work?	ACE inhibitors block the production of angiotensin II by preventing an enzyme from producing it. This allows the blood vessels to relax.	ARB agents block the action of angiotensin II and prevent the blood vessels from constricting. As a result, it prevents BP from increasing.
Popular names for this type of medication:	Most of these medications end in -pril, such as: benazepril, enalapril, lisinopril, prinivil	Most of these medications end in -artan, such as: candesartan, irbesartan, losartan, valsartan