

Hypertension: Types, Causes and Cures

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Hypertension, also referred to as high blood pressure, HTN or HPN, is a medical condition in which the blood pressure chronically elevates. Hypertension can be classified either essential (primary) or secondary. Essential hypertension indicates that no specific medical cause can be found to explain a patient's condition. Secondary hypertension indicates that the high blood pressure is a result of (*i.e.*, secondary to) another condition, such as kidney disease or tumours.

Persistent hypertension is one of the risk factors for strokes, heart attacks, heart failure and arterial aneurysm. It is a leading cause of chronic renal failure. Even moderate elevation of arterial blood pressure leads to shortened life expectancy. At severely high pressures, defined as mean arterial pressures 50% or more above average, a person can expect to live not more than a few years unless appropriately treated.

In individuals older than 50 years, hypertension is considered to be present when a person's systolic blood pressure is consistently 140 mm Hg or greater or when the diastolic blood pressure is consistently 90 mm Hg or greater. Beginning at a systolic pressure of 115 and diastolic pressure of 75 (commonly written as 115/75 mm Hg), cardiovascular disease (CVD) risk doubles for each increment of 20/10 mmHg.

Prehypertension is defined as blood pressure from 121/81 mm Hg to 139/89 mm Hg. Prehypertension is not a disease category; rather, it is a designation chosen to identify individuals at high risk of developing hypertension. Resistant hypertension is defined as the failure to reduce BP to the appropriate level after taking a drug.

Essential (primary) hypertension:

By definition, essential hypertension has no identifiable cause. However, several risk factors have been identified, including obesity, salt sensitivity, renin homeostasis, insulin

resistance, genetics, and age.

Obesity:

The risk of hypertension is five times higher in the obese as compared to those of normal weight and up to two-thirds of cases can be attributed to excess weight. More than 85% of cases occur in those with a Body Mass Index greater than 25. A definitive link between obesity and hypertension has been found using animal and clinical studies, from these it has been realized that many mechanisms are potential causes of obesity induced hypertension. These mechanisms include the activation of the sympathetic nervous system as well as the activation of the renin – angiotension-aldosterone system.

Sodium sensitivity:

Sodium is an environmental factor that has received the greatest attention. Approximately one third of the essential hypertensive population is responsive to sodium intake. This is due to the fact that increasing amounts of salt in a person's bloodstream causes cells to release water (due to osmotic pressure) to equilibrate the concentration gradient between the cells and the bloodstream, thereby increasing the pressure within the blood vessel walls. The increased Na⁺ stimulates ADH and thirst mechanisms, leading to a concentrated urine and the kidneys holding onto water along with the person increasing the intake of water. Also, the water movement between cells and the interstitium plays a minor role compared to this.

Role of renin:

Renin is an enzyme secreted by the juxtaglomerular apparatus of the kidney and linked with aldosterone in a negative feedback loop. The range of renin activity observed in hypertensive subjects tends to be broader than in normal individuals. In consequence, some hypertensive patients have been defined as having low-renin. Low-renin hypertension is

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