



Hypertension with special reference to causes and diet

KEYWORDS

hypertension, cardiovascular diseases, kidney diseases

DR SANJAY SHARMA

CHEMISTRY DEPARTMENT, DAV COLLEGE, AMRITSAR (INDIA)

ABSTRACT

Blood pressure is the force of blood against the walls of blood vessels as heart pumps blood around the body. If this pressure becomes too high, it is said to be high blood pressure, or hypertension. Pre-hypertension occurs when one gets to a level near 130/85. Blood pressure higher than 140/90 must be taken care of by medication. As recommended by WHO and the Committee on the Detection Evaluation and Treatment of Hypertension the blood pressure lower than 130 mm Hg is considered to be normal pressure, an optimum pressure is less than 120 mm Hg. High blood pressure is one of the most important factors for cardiovascular diseases and chronic kidney disease. Healthy diet, exercise and medications can control Blood pressure.

Blood pressure is the force of blood against the walls of blood vessels as heart pumps blood around the body. If this pressure becomes too high, it is said to have high blood pressure, or hypertension. Normal systolic blood pressure is less than 130 mm Hg and that an optimum pressure is less than 120 mm Hg as recommended by Committee on the Detection Evaluation and Treatment of Hypertension (JNC/6)

Elevated blood pressure is an important risk factor for cardiovascular diseases and kidney disease (Lewington et al., 2002). It is estimated that high blood pressure leads to 9.4 million deaths per year worldwide (Lim et al., 2012). Sedentary life, unhealthy diet, overweight and stress are factors which contribute to the development of high blood pressure (Stamler et al., 1999). High blood pressure can be lowered by changing lifestyle and with medication.

Causes of Blood pressure; kidney dysfunctions is one of the reasons of high blood pressure and it is caused by taking twice the protein we need, nearly all of which is animal and not plant protein.

The liver is also involved in blood pressure regulation. The liver is the largest internal organ, and controls blood sugar by the release of glycogen into the blood. Liver problems are strongly associated with blood pressure.

Obesity is a very powerful direct factor for high blood pressure. One must lose weight to lower blood pressure. People eat twice the food they need. Low calorie diets (from low fat foods) lower blood pressure in people without any much change in lifestyle. Men only need about 1,800 daily calories, and women only about 1,200. Calorie restriction greatly improves blood pressures, not only through weight loss, but by less oxidative stress from overeating.

Excessive free radicals which are a result of oxidative stress cause damage to the entire body. Oxidative stress can be reduced by a healthy diet which is low in calories, regular exercise, and proven supplements- especially antioxidants.

Role of lipids in blood pressure; Total cholesterol (TC) gives indication about heart and artery disease in general. Some studies show good correlation of high TC and hy-

pertension, total cholesterol should be in the range 150–200. Mortality and sickness increase with any level over 150, and especially over 200. Cholesterol is only found in animal products such as saturated animal fats from red meat, poultry, eggs, and dairy foods. The consumption of these food products should be restricted to control cholesterol.

High triglycerides are also one of the important factors for hypertension and CHD in general. Triglycerides should be 150 or less. Mortality and sickness increase with any level over 150, especially in the case of diabetes and other blood sugar disorders. High levels are generally due to excessive intake of any simple sugars including fruit juice, honey, dried fruit and white sugar. High TG is not due to consumption of fat alone (as in cholesterol). Consumption of simple sugars, results in high TG levels. So sugars and fat intake must be restricted to keep oneself fit.

Role of sodium and potassium; High blood pressure plays an important role for the cardiovascular diseases. Studies have shown that reducing sodium intake reduces average blood pressure (Sacks, et al., 2001). Some studies indicate dietary potassium intake is negatively associated with blood pressure (Tunstall-Pedoe, 1999).

The altered sodium and potassium homeostasis play a key role in the pathogenesis of hypertension (Adrogué & Madias, 2007). It has been reported that a low-sodium/high-potassium diet also decreases blood pressure in adults on anti-hypertensive medications (Huggins et al., 2011).

Diet to control blood pressure; Proper diet alone can control high blood pressure without any supplements, fasting, or hormones. We consume more fat calories in food, these are nearly all saturated, artery-clogging saturated animal fat.

We eat twice the protein what is actually needed. We also eat an incredible 160 pounds of various sugars every year. Extreme intake of simple sugars is the main cause of insulin resistance. Refined grains are another cause. This excess protein causes high uric acid levels and kidney disease leading to high blood pressure.

Fats and oils should be less in diet, and that too must

come from vegetable sources. There are no “good fats” (other than an omega-3 supplement), all trans-fats and hydrogenated fats and oils should be totally avoided. To live longer it is recommended to consume lesser calories by choosing whole grains, beans, vegetables, fruits, and seafood.

CONCLUSION; High blood pressure is one of the most important factors for cardiovascular diseases and chronic kidney disease. Kidney disease will get worse with the high blood pressure. Keeping blood pressure under control, can help to prevent these complications. Healthy diet, exercising and taking medications can control Blood pressure.

REFERENCE

Adrogué HJ, Madias NE (2007) Sodium and potassium in the pathogenesis of hypertension. *N Engl J Med* 356: 1966–1978. doi: 10.1056/nejmra064486 Huggins CE, Margerison C, Worsley A, Nowson CA (2011) Influence of dietary modifications on the blood pressure response to antihypertensive medication. *Br J Nutr* 105: 248–255. doi: 10.1017/s0007114510003223 Lewington S, Clarke R, Qizilbash N et al (2002) Age-specific relevance of usual blood pressure to vascular mortality: a meta-analysis of individual data for one million adults in 61 prospective studies. *Lancet* 360:1903–1913 Lim SS, Vos T, Flaxmann AD et al (2012) A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 380:2224–2260 Sacks FM, Svetkey LP, Vollmer WM, Appel LJ, Bray GA, et al. (2001) Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet. *N Engl J Med* 344: 3–10. doi: 10.1056/nejm200101043440101 Sixth report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Arch Intern Med* 1997; 157: 2413–46. Stamler J, Stamler R, Neaton JD et al (1999) Low risk-factor profile and long-term cardiovascular and noncardiovascular mortality and life expectancy: findings for 5 large cohorts of young adult and middle-aged men and women. *JAMA* 282:2012–2018 Tunstall-Pedoe H (1999) Does dietary potassium lower blood pressure and protect against coronary heart disease and death? Findings from the Scottish Heart Health Study? *Semin Nephrol* 19: 500–502.