

Non-Pharmacological Management of Hypertension

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Abstract: *Hypertension is a commonly observed disease globally. It increases the risk of other cardiovascular diseases as well. This condition can be managed by adopting certain non-pharmacological ways and in case it does come under control, then by taking antihypertensive medicines. It includes modification in diet, exercise, check on obesity, restraint on smoking and alcohol. Therapeutic use of medicines may be associated with some side effects but non pharmacological methods will not have any side effects infact it has additional health benefits.*

Keywords: Hypertension, non pharmacological management, lifestyle modification

1. Hypertension

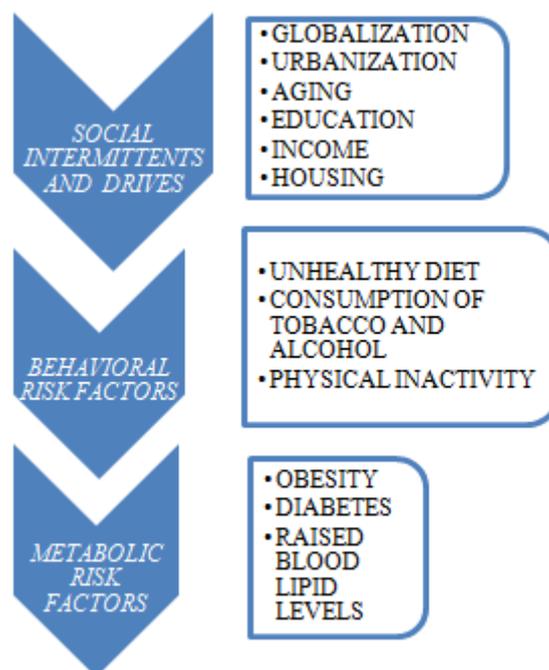
Blood pressure is the pressure exerted by blood on internal walls of arteries. Hypertension, also known as high or raised blood pressure, is a condition in which the blood vessels have persistently raised pressure. The higher the pressure in blood vessels the harder the heart has to work in order to pump blood. If left uncontrolled, hypertension can lead to a heart attack, an enlargement of the heart and eventually heart failure. Blood vessels may develop bulges (aneurysms) and weak spots due to high pressure, making them more likely to clog and burst. The pressure in the blood vessels can also cause blood to leak out into the brain. This can cause a stroke. Hypertension can lead to kidney failure, blindness, rupture of blood vessels and cognitive impairment also. Hypertension is defined as a systolic blood pressure equal to or above 140 mm Hg and/or diastolic blood pressure equal to or above 90 mm Hg. Normal levels of both systolic and diastolic blood pressure are particularly important for the efficient function of vital organs such as the heart, brain and kidneys and for overall health and wellbeing.^[1]

2. Global Threat

Hypertension is one of the major global threat involving cardiovascular diseases (CVDs), kidney disease, and other complications. According to studies in 2017, CVDs caused more than 17 million deaths worldwide which is nearly one third of the total.

It accounts for approximately 40% of total mortality due to non-communicable diseases mainly ischemic heart disease and stroke.^[1, 2]

Factors contributing to the development of high blood pressure and its complications



In certain cases hypertension may also be caused by use of other drugs (drug induced hypertension). These drugs could be oral contraceptives, NSAIDs, cyclosporine, tacrolimus, recombinant human erythropoietin, corticosteroids, monoamine oxidase inhibitors (MAO inhibitors), nasal decongestants, diet pills, products containing large quantities of sodium like effervescent mixtures,^[7] certain herbal medicines like muktavati and ginkgo etc

Management of hypertension:

- Pharmacological methods
- Non-pharmacological methods

Pharmacological Management

Pharmacological management of hypertension includes therapeutic use of antihypertensive drugs. There are many classes of antihypertensives which lower blood pressure by different means. Among the most important and most widely used medications are

- Thiazide diuretics,
- Calcium channel blockers,
- ACE inhibitors,
- Angiotensin II receptor antagonists (ARBs), and
- Beta blockers.

The fundamental goal of treatment should be the prevention of the important endpoints of hypertension, such as heart attack, stroke and heart failure. Patient age, associated clinical conditions and end-organ damage also plays a part in determining dosage and type of medication administered. Clinical evidence shows calcium channel blockers and thiazide-type diuretics are preferred first-line treatments for most people (from both efficacy and cost points of view), an ACE inhibitor is also sometimes recommended for those under 55 years old.^[8]

The available antihypertensive agents are generally equally effective in lowering blood pressure however; there may be interpatient variability that can affect the way a patient will respond to one treatment over another.

Non-Pharmacological Management:

Since hypertension is chronic non-curable disease, one needs to control it to avoid its complicated severe effects on vital organs. To understand the importance of maintaining blood pressure in acceptable limits one needs education and training on how to improve their lifestyle habits.

Non-pharmacological management can be implemented to prevent hypertension in people who are at high risk or the one who is already diagnosed with higher blood pressure. In hypertensive patients adopting lifestyle changes may reduce current dose and overall pharmacological medication.

It includes:

- Modification in diet
- Restriction in salt intake
- Avoiding carbonated beverages
- Exercise
- Reduction in weight
- Stress management
- Restraint on smoking
- Check on alcohol
- Limiting caffeine
- Controlling underlying diseases

Modification in diet

DASH (Dietary Approaches to Stop Hypertension) helps in lowering risk of hypertension in prehypertensive person. Also it reduces the blood pressure in hypertensive patients. DASH includes diet rich in whole grains, nuts, high fibre food (fresh fruits and vegetables).^[6]

Along with the DASH, people should also consume low fat dairy products, raw garlic, amla, drum stick, sesame seeds, cinnamon, omega 3 (fish oil supplements, flax seeds) probiotics like curd, apple cider vinegar for better results. High potassium containing foods like tender coconut water, cucumber and banana helps in controlling high blood pressure.

Hypertensive patients should avoid processed, fatty, sugary, fried and junk food.

Restriction in sodium intake

Usually sodium is taken in the form of common salt and baking soda. Restriction of sodium to less than 6 g sodium chloride is achievable and may control stage 1 hypertension

in some patients with an average decrease of 6.3/2.2 mm Hg. Sodium restriction can be achieved by refraining from adding salt at the table and avoiding highly salted processed food.^[9]

Avoiding carbonated beverages

Sugared carbonated beverages makes up substantial proportion of daily calories consumed and is a major contributor to the rising obesity epidemic and obesity is one of the risk factors for hypertension. In addition to the effect on weight, there has been accumulating evidence that soft drinks and other sources of dietary sugar may also be associated with hypertension, independent of their effect on obesity.

Fructose is a common constituent of soft drinks. A fructose load stimulates the formation of triglycerides and has a direct effect on insulin resistance. The mechanisms by which fructose could lead to increased blood pressure may include obesity through increased caloric intake, insulin resistance, or accumulation of uric acid.^[3]

Exercise

Becoming more active can lower the systolic blood pressure by an average of 4 to 9 millimetres of mercury (mm Hg). That's as good as some blood pressure medications. For some people, getting some exercise is enough to reduce the need for blood pressure medication. Generally 30 minutes of exercise per day is recommended.^[9]

If the blood pressure is at a desirable level — less than 120/80 mm Hg — exercise can help prevent it from rising with age.

But to keep the blood pressure under control, there is need to exercise on a regular basis. It takes about one to three months for regular exercise to have an impact on blood pressure. The benefits last only as long as the person continues to exercise.^[4]

Reduction in weight

Obesity increases the risk of hypertension so weight should be maintained with proper exercise and diet. Particularly one should pay attention to waist line obesity

Stress management

Stress is one of the major risk factors of hypertension. Stress management is possible by practicing Yoga, meditation and breathing exercises. Adequate sleep reduces stress. Positive approach towards life helps in stress management.

Restraint on smoking

Cigarette smoking acutely exerts a hypertensive effect, mainly through the stimulation of the sympathetic nervous system. Smoking affects arterial stiffness and has detrimental effect on central blood pressure, which is closely related to target organ damage. Hypertensive smokers are likely to develop severe forms of hypertension, including malignant and renovascular hypertension, an effect likely due to an accelerated atherosclerosis.^[5]

Check on alcohol

Today, alcoholic beverages are consumed regularly by most of the human societies in the world. However its abuse is a major public health problem in the world. The magnitude of the increase in blood pressure in heavy drinkers averages about 5 to 10 mmHg, with systolic increases nearly always greater than diastolic increases, hence consumption of alcohol should be avoided.

Limit on caffeine

Limit tea, coffee to two cups per day. Restrict intake of other caffeinated/cocoa products like chocolates and beverages.

Controlling underlying diseases

Diabetes and atherosclerosis are risk factors for hypertension so these disorders should be kept under control.

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