

## The silent killer: Hypertension

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### Abstract

Hypertension is one of the most common lifestyle diseases today, with every third person having suffered from it. And that even kids can be victims of high blood pressure.

The fact is that in 90% patients there is no known cause for hypertension and this makes it even more important to be alert. Most are not even aware that they have hypertension, which makes the scenario rather grim.

Hypertension is likely to end up being an epidemic in the near future, and approximately one-third of our population will suffer from it by 2020. Currently, estimates put the incidence of hypertension to 20 to 40% in urban areas and 12 to 17% in rural areas of India."

"One in three Indian adults has high blood pressure. Anyone, including children, can develop it," The World Health Statistics 2012 report, India has low rates of hypertension compared to world. 23.10% men and 22.60% women above 25 years suffer from hypertension. India also fares better than the global average of 29.20 in men and 24.80 in women respectively.

High BP can lead to heart disease and stroke - leading causes of death in India.

Killer disease "High blood pressure or hypertension kills nearly 1.5 million people every year in South-East Asia,"

**Keywords:** hypertension, high blood pressure, cardiovascular disease, lifestyle

### Introduction

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### Aims and Object

- **Aim:** The overall aim was to determine effective and efficient health and wider benefits, as well as public preferences for the process of care, health and other outcomes.
- **Objectives:** Provide platform for interaction of all disciplines of medicine for prevention of hypertension.

Provide up to-date guidelines for detection and treatment of hypertension.

Provide platform for interaction of national and international societies of hypertension.

Provide platform for interaction of media, general public and experts on hypertension.

### Material and method

This study is carried out by literature search and critical review of the obtained facts. The various medical research databases like PubMed, Google scholar, and another national research databases. The terms entered for search are "Hypertension (HTN or HT), also known as high blood pressure (HBP)". Manual search was made by going through the reference list of retrieved articles to identify relevant additional study.

### Observation and Discussion

Hypertension (HTN or HT), also known as high blood pressure (HBP), is a long term medical condition in which the blood pressure in the arteries is persistently elevated <sup>[1]</sup>. High blood pressure usually does not cause symptoms <sup>[2]</sup>.

Blood pressure is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively. Normal blood pressure at rest is within the range of 100–140 millimetres mercury (mmHg) systolic and 60–90 mmHg diastolic <sup>[3]</sup>. High blood pressure is present if the resting blood pressure is persistently at or above 140/90 mmHg for most adults. Ambulatory blood pressure monitoring over a 24-hour period appears more accurate than office best blood pressure measurement.

Lifestyle changes and medications can lower blood pressure

and decrease the risk of health complications. Lifestyle changes include weight loss, decreased salt intake, physical exercise, and a healthy diet. If lifestyle changes are not sufficient then blood pressure medications are used [4]. Up to three medications can control blood pressure in 90% of people. The treatment of moderately high arterial blood pressure (defined as >160/100 mmHg) with medications is associated with an improved life expectancy [5]. The effect of treatment of blood pressure between 140/90 mmHg and 160/100 mmHg is less clear, with some reviews finding benefit and others finding a lack of evidence for benefit [6]. High blood pressure affects between 16 and 37% of the population globally. In 2010 hypertension was believed to have been a factor in 18% (9.4 million) deaths [7].

**Types of hypertension and complications**

High blood pressure is classified as either primary (essential) high blood pressure or secondary high blood pressure. About 90–95% of cases are primary, defined as high blood pressure due to nonspecific lifestyle and genetic factors. Lifestyle factors that increase the risk include excess salt, excess body weight, smoking, and alcohol. The remaining 5–10% of cases are categorized as secondary high blood pressure, defined as

high blood pressure due to an identifiable cause, such as chronic kidney disease, narrowing of the kidney arteries, an endocrine disorder, or the use of birth control pills [8]. Long term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, peripheral vascular disease, vision loss, and chronic kidney disease [9].

**Signs and symptoms**

Hypertension is rarely accompanied by symptoms, and its identification is usually through screening, or when seeking healthcare for an unrelated problem. Some with high blood pressure report headaches (particularly at the back of the head and in the morning), as well as light-headedness, vertigo, tinnitus (buzzing or hissing in the ears), altered vision or fainting episodes [10]. These symptoms, however, might be related to associated anxiety rather than the high blood pressure itself [11].

On physical examination, hypertension may be associated with the presence of changes in the optic fundus seen by ophthalmoscopy. The severity of the changes typical of hypertensive retinopathy is graded from I–IV; grades I and II may be difficult to differentiate [12].

**Table 1:** Hypertensive retinopathy grade

Grade	Stage	Description	Ocular symptoms	Systemic involvement
1	Mild hypertension	Mild generalised arteriolar narrowing or sclerosis	No symptoms	None
2	More marked hypertension	Definite focal narrowing and arteriovenous crossings. Moderate to marked sclerosis of the retinal arterioles. Exaggerated arterial light reflex	No symptoms	None or minimal
3	Mild angiopathic retinopathy	Retinal haemorrhages, exudates and cotton wool spots. Sclerosis and spastic lesions of retinal arterioles	May be symptomatic	Cardiac, cerebral or renal dysfunction are frequently identifiable
4	Severe hypertensive retinopathy	Severe Grade III signs and papilledema. Elschnig's spots are present in some	Symptomatic	Cardiac, cerebral and renal dysfunction are more severe

The severity of the retinopathy correlates roughly with the duration or the severity of the hypertension.

**Diagnosis**

Hypertension is diagnosed on the basis of a persistently high resting blood pressure. Traditionally, the National Institute of Clinical Excellence recommends three separate resting sphygmomanometer measurements at monthly intervals [13]. The American Heart Association recommends at least three resting measurements on at least two separate health care visits. Ambulatory blood pressure monitoring over 12 to 24 hours is the most accurate method to confirm the diagnosis [14].

**Table 2:** Typical tests performed

System	Tests
Kidney	Microscopic urinalysis, protein in the urine, BUN and/or creatinine
Endocrine	Serum sodium, potassium, calcium, TSH
Metabolic	Fasting blood glucose, HDL, LDL, and total cholesterol, triglycerides
Other	Haematocrit, electrocardiogram, and chest radiograph

Sources: Harrison's principles of internal medicine [15]

**Prevention**

Much of the disease burden of high blood pressure is experienced by people who are not labelled as hypertensive.

Consequently, population strategies are required to reduce the consequences of high blood pressure and reduce the need for antihypertensive drug therapy. Lifestyle changes are recommended to lower blood pressure, before starting drug therapy. The 2004 British Hypertension Society guidelines proposed lifestyle changes consistent with those outlined by the US National High BP Education Program in 2002 for the primary prevention of hypertension: maintain normal body weight for adults (e.g. body mass index 20–25 kg/m<sup>2</sup>) reduce dietary sodium intake to <100 mmol / day (<6 g of sodium chloride or <2.4 g of sodium per day) engage in regular aerobic physical activity such as brisk walking (≥30 min per day, most days of the week) limit alcohol consumption to no more than 3 units/day in men and no more than 2 units/day in women consume a diet rich in fruit and vegetables (e.g. at least five portions per day); Effective lifestyle modification may lower blood pressure as much as an individual antihypertensive drug. Combinations of two or more lifestyle modifications can achieve even better results [16]. There is considerable evidence that reducing dietary salt intake lowers blood pressure, but whether this translates into a reduction in mortality and cardiovascular disease remains uncertain. Estimated sodium intake ≥6g/day and <3g/day are both associated with high risk of death or major cardiovascular disease, but the association between high sodium intake and adverse outcomes is only observed in people with

hypertension. Consequently, in the absence of results from randomized controlled trials, the wisdom of reducing levels of dietary salt intake below 3g/day has been questioned <sup>[17]</sup>.

### Management

According to one review published in 2003, reduction of the blood pressure by 5 mmHg can decrease the risk of stroke by 34%, of ischaemic heart disease by 21%, and reduce the likelihood of dementia, heart failure, and mortality from cardiovascular disease <sup>[18]</sup>.

### Target blood pressure

Various expert groups have produced guidelines regarding how low the blood pressure target should be when a person is treated for hypertension. These groups recommend a target below the range 140–160 / 90–100 mmHg for the general population <sup>[19]</sup>. Controversy exists regarding the appropriate targets for certain subgroups, including the elderly, people with diabetes and people with kidney disease <sup>[20]</sup>.

Many expert groups recommend a slightly higher target of 150/90 mmHg for those over somewhere between 60 and 80 years of age <sup>[21]</sup>. One expert group, the JNC-8, recommends the target of 150/90 mmHg for those over 60 years of age, but some experts within this group disagree with this recommendation <sup>[22]</sup>. Some expert groups have also recommended slightly lower targets in those with diabetes or chronic kidney disease with proteinuria, but others recommend the same target as for the general population. The issue of what is the best target and whether targets should differ for high risk individuals is unresolved, but current best evidence supports more intensive blood pressure lowering than advocated in some guidelines <sup>[23]</sup>.

### Lifestyle modifications

The first line of treatment for hypertension is lifestyle changes, including dietary changes, physical exercise, and weight loss. Though these have all been recommended in scientific advisories, a Cochrane systematic review found no evidence for effects of weight loss diets on death or long-term complications and adverse events in persons with hypertension. The review did find a decrease in blood pressure <sup>[24]</sup>. Their potential effectiveness is similar to and at times exceeds a single medication. If hypertension is high enough to justify immediate use of medications, lifestyle changes are still recommended in conjunction with medication.

Dietary changes shown to reduce blood pressure include diets with low sodium, the DASH diet, and vegetarian diets. While potassium supplementation is useful it is unclear if a high dietary potassium intake is beneficial <sup>[25]</sup>.

Physical exercise regimens which are shown to reduce blood pressure include isometric resistance exercise, aerobic exercise, resistance exercise, and device-guided breathing.

Stress reduction techniques such as biofeedback or transcendental meditation may be considered as an add-on to other treatments to reduce hypertension, but do not have evidence for preventing cardiovascular disease on their own <sup>[26]</sup>.

### Medications

Several classes of medications, collectively referred to as

antihypertensive medications, are available for treating hypertension.

### Conclusion

People should follow an active lifestyle which will help in weight loss. Even small amounts of weight loss can make a big difference in helping to prevent high blood pressure. A regular physical exercise is crucial, as people who are physically active have a lower risk of suffering from blood pressure than those who lead a sedentary lifestyle. You can work to reduce your risk for hypertension by following a healthy diet, maintaining healthy weight, not smoking, and being physically active.

In today's scenario, where everyone is working towards achieving a target to climb up the corporate ladder, strict lifestyle modifications can go a long way in reducing the menacing effects of hypertension.

Factors that are responsible Late eating, excessive time spent on smartphones by youngsters who seem to be living in a virtual world instead of physically walking around and getting to know people personally, sedentary lifestyles etc. contribute majorly to the rise in hypertension.

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