

# Treatment of Hypertension: A Review

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## Abstract

**Importance:** Hypertension, defined as persistent systolic blood pressure (SBP) at least 130 mm Hg or diastolic BP (DBP) at least 80 mm Hg, affects approximately 116 million adults in the US and more than 1 billion adults worldwide. Hypertension is associated with increased risk of cardiovascular disease (CVD) events (coronary heart disease, heart failure, and stroke) and death.

**Observations:** First-line therapy for hypertension is lifestyle modification, including weight loss, healthy dietary pattern that includes low sodium and high potassium intake, physical activity, and moderation or elimination of alcohol consumption. The BP-lowering effects of individual lifestyle components are partially additive and enhance the efficacy of pharmacologic therapy. The decision to initiate antihypertensive medication should be based on the level of BP and the presence of high atherosclerotic CVD risk. First-line drug therapy for hypertension consists of a thiazide or thiazidelike diuretic such as hydrochlorothiazide or chlorthalidone, an angiotensin-converting enzyme inhibitor or angiotensin receptor blocker such as enalapril or candesartan, and a calcium channel blocker such as amlodipine and should be titrated according to office and home SBP/DBP levels to achieve in most people an SBP/DBP target (<130/80 mm Hg for adults <65 years and SBP <130 mm Hg in adults ≥65 years). Randomized clinical trials have established the efficacy of BP lowering to reduce the risk of CVD morbidity and mortality. An SBP reduction of 10 mm Hg decreases risk of CVD events by approximately 20% to 30%. Despite the benefits of BP control, only 44% of US adults with hypertension have their SBP/DBP controlled to less than 140/90 mm Hg.

**Conclusions and relevance:** Hypertension affects approximately 116 million adults in the US and more than 1 billion adults worldwide and is a leading cause of CVD morbidity and mortality. First-line therapy for hypertension is lifestyle modification, consisting of weight loss, dietary sodium reduction and potassium supplementation, healthy dietary pattern, physical activity, and limited alcohol consumption. When drug therapy is required, first-line therapies are thiazide or thiazidelike diuretics, angiotensin-converting enzyme inhibitor or angiotensin receptor blockers, and calcium channel blockers.

Read the text about hypertension carefully and answer the following multiple-choice questions:

What is the definition of hypertension according to the text?

- a) A persistent diastolic blood pressure of at least 120 mm Hg
- b) A persistent systolic blood pressure of at least 120 mm Hg
- c) A persistent systolic blood pressure of at least 130 mm Hg or diastolic blood pressure of at least 80 mm Hg
- d) A persistent diastolic blood pressure of at least 130 mm Hg or systolic blood pressure of at least 80 mm Hg

How many adults in the US are affected by hypertension according to the text?

- a) Approximately 116 million
- b) Approximately 1 billion
- c) Approximately 130 million
- d) Approximately 100 million

What is the main risk associated with hypertension?

- a) Increased risk of diabetes
- b) Increased risk of cardiovascular disease (CVD) events
- c) Increased risk of respiratory diseases
- d) Increased risk of cancer

What is recommended as the first-line therapy for hypertension?

- a) Medication only
- b) Surgery
- c) Lifestyle modification
- d) Radiation therapy

Which of the following is NOT mentioned as part of lifestyle modification for hypertension?

- a) Weight loss
- b) High sodium intake
- c) Physical activity

d) Moderate alcohol consumption

How much does a reduction of 10 mm Hg in systolic blood pressure decrease the risk of CVD events?

- a) Approximately 10%
- b) Approximately 20% to 30%
- c) Approximately 50%
- d) Approximately 5%

What percentage of US adults with hypertension have their blood pressure controlled to less than 140/90 mm Hg?

- a) 50%
- b) 60%
- c) 70%
- d) 44%

What is mentioned as one of the first-line drug therapies for hypertension?

- a) Antibiotics
- b) Anti-inflammatory drugs
- c) Thiazide or thiazidelike diuretics
- d) Antidepressants

What is the recommended SBP/DBP target for adults <65 years old according to the text?

- a) <130/80 mm Hg
- b) <140/90 mm Hg
- c) <120/80 mm Hg
- d) <120/70 mm Hg

According to the conclusions and relevance section, what is emphasized as the leading cause of CVD morbidity and mortality?

- a) Diabetes
- b) Hypertension
- c) Obesity
- d) High cholesterol