

# Management of Essential Hypertension



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## KEYWORDS

- Essential hypertension • Pharmacotherapy • Lifestyle modification • African American
- Elderly • Goals

## KEY POINTS

- Prevalence of essential hypertension is widespread in the United States and highest in African Americans. Racial/ethnic US minorities have lower hypertension control rates compared with non-Hispanic whites.
- Therapeutic lifestyle modifications are essential for all patients with essential hypertension, as a first step and also in conjunction with pharmacotherapy. The initial recommended drug therapy for patients without compelling conditions includes thiazide-type diuretics, calcium channel blockers (CCBs), angiotensin-converting enzyme inhibitors (ACEis) or angiotensin receptor blockers (ARBs).
- African Americans may have a better response to thiazide-type diuretic and CCBs as first-step therapy for blood pressure (BP) reduction and cardiovascular (CV) outcomes compared with ACEis or ARBs, only if there are no compelling indications for these other antihypertensive agents.
- Beta-blockers in older patients are less effective first-step agents for BP control and CV risk reduction, unless compelling indications, such as post-myocardial infarction status, are present.
- In multiple recent guidelines, the BP goal for most patients with essential hypertension is less than 140/90 mm Hg. More intensive goals may be recommended in future guidelines for high-risk patients, including persons with diabetes mellitus and in elderly patients, based on recent randomized clinical trial evidence.

## INTRODUCTION

The present evidence-based treatment of essential hypertension is a critical intervention in decreasing cardiovascular (CV) morbidity and mortality.<sup>1</sup> The World Health Organization considers elevated blood pressure (BP) as the most important risk factor for death and disability worldwide, affecting more than 1 billion individuals and causing an estimated 9.4 million deaths every year.<sup>2</sup>

A contemporary meta-analysis of 123 studies with 613,815 hypertensive participants noted for every 10-mm Hg reduction in systolic BP (SBP),

there is a significant reduction of the risk of major CV disease (CVD) events (relative risk 0.80, 95% confidence interval [CI] 0.77–0.83), coronary heart disease (CHD) (0.83, 0.78–0.88), stroke (0.73, 0.68–0.77), and heart failure (HF) (0.72, 0.67–0.78). Importantly, although the effect on renal failure was not significant (0.95, 0.84–1.07), there was a significant (13%) reduction in all-cause mortality (0.87, 0.84–0.91).<sup>3</sup>

In consideration of the preponderance of present data, BP lowering significantly reduces CV risk across various baseline BP levels and comorbidities, especially in high-risk patients. There is

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consensus in modern guidelines for treating adults with essential hypertension to a goal of less than 140/90 mm Hg. However, based on emerging evidence, there may be increasingly strong support for lowering SBP goals to perhaps less than 130 mm Hg or lower, especially in high-risk patients, including those with a history of CVD, CHD, chronic kidney disease (CKD), stroke, diabetes mellitus (DM), and the elderly. (SPRINT 39)

### ESSENTIAL HYPERTENSION IDENTIFICATION, PREVALENCE, AND CONTROL

The generally accepted classification of BP is based on the average of 2 or more properly measured, seated BP readings on each of 2 or more office visits (Table 1).

Patients with prehypertension are at increased risk for progression to hypertension, and those in the 130 to 139/80 to 89 mm Hg BP range are at twice the risk to develop hypertension as compared with those with lower values.<sup>4</sup> Presently, stages 2 and 3 hypertension have been combined into stage 2.

The auscultatory or practitioner-determined oscillometric method with a manual cuff is the most common technique in clinical practice and was used in most clinical trials of antihypertensive therapy. In contrast, automated oscillometric BP (AOBP) was used in the Systolic Blood Pressure Intervention Trial (SPRINT) which is a recent landmark trial that may impact recommendations on BP assessment and goals in future evidence-based guidelines. (SPRINT 39) The AOBP technique takes multiple consecutive readings with patients resting alone in a room and is infrequently used in clinical practice. A current edition of UpToDate states: "In general, systolic pressure readings are 5 to 10 mm Hg lower with AOBP

than with manual (auscultatory) measurement."<sup>5</sup> That should be in quotation marks if it stays.

A recent review compares office BP with manual AOBP and confirms unattended automated BP may elicit lower BP readings than attended BP measurements.<sup>6</sup>

The treatment of essential hypertension is the most common reason for adult clinical visits and for the use of prescription drugs in the United States.<sup>7</sup> The most recent US data available from the National Health and Nutrition Examination Survey from 2011 to 2014 confirm that hypertension remains a public health challenge because of its direct impact on the risk of CVD and renal disease. Moreover, the prevalence of hypertension in adults varies across race/ethnicity. Non-Hispanic blacks have the highest rates of hypertension prevalence nationally (40.8% for men, 41.5% for women). The rates are significantly lower for non-Hispanic whites, non-Hispanic Asians, and Hispanics, in both men and women (Fig. 1).<sup>8</sup>

Furthermore, the prevalence of controlled hypertension varies across race/ethnicity with non-Hispanic whites having a 55.7% control rate (53.8% in men, 59.1% in women), which is higher than that seen in racial/ethnic minorities.

- African Americans (AAs): 48.5% overall control rate
- Non-Hispanic Asians: 43.5% overall control rate
- Hispanics: 47.4% overall control rate<sup>8</sup>

### HYPERTENSION IN AFRICAN AMERICANS

Hypertension in AAs is the most powerful cause for disparities in CV and renal morbidity and mortality in this population as compared with non-Hispanic whites. Black men and women are more likely to die of heart disease and stroke, which are not only the leading causes of death for all Americans but account for the largest proportion of inequality in life expectancy between whites and blacks. These unacceptable disparities persist despite the existence of low-cost, highly effective preventative treatment specifically for the lowering of BP.<sup>10</sup>

There are several unique aspects of hypertension in US blacks compared with whites, which include

- Earlier onset
- Higher average BPs
- Increased incidence of target organ damage, including left ventricular hypertrophy (LVH), HF, impaired renal function, CKD with end-stage renal disease (ESRD), CHD mortality, peripheral arterial disease, and retinopathy

**Table 1**  
Classification of blood pressure based on the Joint National Committee 7

Category	SBP (mm Hg)	And	DBP (mm Hg)
Normal	<120	And	<80
Prehypertension	120–139	Or	80–89
Hypertension, stage 1	140–159	Or	90–99
Hypertension, stage 2	≥160	Or	≥100

From National High Blood Pressure Education Program. The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure, 2004. Available at: <http://www.ncbi.nlm.nih.gov/books/NBK9630/>. Accessed June 5, 2016; with permission.

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