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Diagnosis and Treatment of Primary Hypertension

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Diagnosis and Treatment of Primary Hypertension

Keith E. Wyche, MD and A. Maziar Zafari, MD, PhD, FACC

I. INTRODUCTION

Systemic arterial hypertension is currently the most common cardiovascular disorder in the United States, affecting 43 million people each year.¹ More than 50% of people with hypertension are unaware that they have the condition, and even more go untreated. Moreover, the characteristics of hypertension change with race, age, gender, geography, and socio-economic status. A higher prevalence of hypertension is seen in African-Americans, elderly persons, men, and those living in the south-eastern United States.^{1,2}

From 1976 to 1991, the National Health and Nutrition Examination Survey (NHANES) showed a 73% increase in awareness of hypertension and a 55% increase in treatment, which may account for a dramatic reduction in coronary heart disease (CHD) and stroke (the first and third leading causes of death in the United States) during the study period.¹ Health statistics during the past decade, however, have been less encouraging: age-adjusted rates of stroke incidence have risen, and age-adjusted incidence of CHD has reached a plateau.² The incidence of end-stage renal disease and congestive heart failure (CHF), both attributable to longstanding hypertension, have been rising steadily. Hypertension remains a major modifiable risk factor for CHD. Yet despite our understanding of its pathophysiology and the availability of effective treatment strategies, nearly 75% of adults treated for hypertension do not achieve the target blood pressure (BP) of 140/90 mm Hg recommended in the Sixth Report of the Joint National Commission on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-VI).³

This is the first of a 2-part article on hypertension, which describes the diagnosis and treatment of primary hypertension. The second part will describe clinical trials on hypertension as well as present several case patients to illustrate and highlight essential features about hypertension (see “Case Studies in Primary Hypertension” in *Hospital Physician Cardiology Board Review Manual*, Volume 9, Part 1).

II. DEFINITION

The definition of hypertension is arbitrary and based on normal BP variability. A deviation from the mean in the normal bell-shaped distribution curve of BP measurement, as determined from population studies, determines whether an individual has hypertension. Although no particular BP level triggers hypertension complications, definitions and guidelines are necessary for treatment and risk stratification.

Hypertension develops as either a primary or a secondary disorder. Primary hypertension, also referred to as *idiopathic* or *essential hypertension*, is systemic arterial hypertension of unknown cause. Comprising roughly 95% of all hypertension cases, primary hypertension is a heterogeneous disorder and (although no specific etiology has been identified) is associated with genetic factors as well as aging, alcohol consumption, sodium intake, sedentary lifestyle, obesity, insulin resistance, stress, inappropriate renin secretion, inadequate dietary intake of calcium and potassium, and tobacco use.

Secondary hypertension is defined as systemic arterial hypertension with a known cause and accounts for 5% of all hypertension cases. Unlike primary hypertension, the secondary disorder can potentially be reversed or cured. For example, patients with renal artery stenosis can undergo surgical revascularization or percutaneous angioplasty and stenting; thus, it is important to identify a cause of hypertension (Table 1).⁴ Because of the low prevalence of secondary hypertension, screening should be undertaken only when the clinical suspicion for a secondary cause is high. Secondary hypertension should be suspected when patients present at a young age, have poor response to drug therapy (usually requiring multiple medications), previously have been well controlled and then have increasing BP, have stage 3 hypertension, and have sudden onset or paroxysmal hypertension. Each of the secondary forms of hypertension has other distinctive characteristics that may suggest its presence, and heightened suspicion may come from the history and physical examination. Findings may include: the presence