

HOSPITAL PHYSICIAN®

ENDOCRINOLOGY BOARD REVIEW MANUAL

STATEMENT OF EDITORIAL PURPOSE

The *Hospital Physician Endocrinology Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in endocrinology. Each quarterly manual reviews a topic essential to the current practice of endocrinology.

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Cardiovascular Risk Factors: Hypertension

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Cardiovascular Risk Factors: Hypertension

Paul R. Conlin, MD

INTRODUCTION

Hypertension affects nearly 1 in 3 individuals aged 35 to 64 years in the United States.¹ A substantial number of individuals are unaware that they have hypertension, and an even larger number has high-normal blood pressure and is at risk for developing hypertension. This situation threatens to grow far worse as the population ages unless effective, population-based efforts to lower blood pressure are undertaken.

The National High Blood Pressure Education Program has advocated measures to increase awareness about hypertension and to enhance prevention, detection, and treatment of high blood pressure in the U.S. population. To achieve these goals and provide guidance based on recent published evidence, a Joint National Committee (JNC) has been convened approximately every 4 to 5 years since 1972. The most recent report of this expert panel (JNC 7) was issued in 2003, the primary findings of which are summarized in **Table 1**.² The European Society of Hypertension,³ British Hypertension Society,⁴ and Canadian Hypertension Education Program⁵⁻⁷ also have issued recent guidelines that arrived at similar conclusions.

In this manual, 2 patients are used to frame a discussion of current recommendations for classifying blood pressure, evaluating patients newly diagnosed with hypertension, and preventing and treating high blood pressure. Although the case patients present with additional cardiovascular risk factors, the clinical management is focused on addressing the patient's blood pressure risk.

BLOOD PRESSURE AND CARDIOVASCULAR RISK

Observations from epidemiologic studies show a continuous, independent, and predictive relationship between systolic and diastolic blood pressures and risk for cardiovascular disease. As blood pressure rises, so does the chance of developing stroke, myocardial infarction, heart failure, coronary heart disease (CHD), and end-stage renal disease.

A large proportion of cardiovascular disease occurs in individuals whose blood pressure is above optimal levels but not so high as to be diagnosed as hypertension.⁸ The risk for cardiovascular events is determined by the blood pressure level and the presence or absence of risk factors and target organ damage. Although the absolute risk for cardiovascular disease as a consequence of hypertension varies in different populations around the world, the relative risk does not—hypertension doubles the risk of death from CHD.^{9,10} Individuals who carry the highest risk for cardiovascular events are those with manifestations of target organ damage, diabetes mellitus, or isolated systolic hypertension.^{11,12}

The primary goal of antihypertensive therapy is to reduce the complications of hypertension. However, while many more individuals are aware that they have hypertension, the percentage of patients who are adequately controlled (ie, with blood pressure < 140/90 mm Hg) is still disturbingly low (< 30%). A large portion of the population has yet to achieve the benefits from more aggressive blood pressure lowering, particularly when risk factors for cardiovascular disease are present. This public health problem is not merely an issue of access to care. Indeed, most patients with uncontrolled hypertension are actively enrolled in care with a physician and have medical insurance.⁹ Thus, physicians need to be more aggressive in identifying patients at risk and treating to appropriate target levels of blood pressure that are associated with significant risk reduction.

HYPERTENSION DIAGNOSIS AND EVALUATION

CASE 1 PRESENTATION

A 38-year-old African American woman is seen by an endocrinologist for subclinical hypothyroidism.

History

Three months ago, as part of a routine health screening, the patient was found to have a modestly elevated thyroid-stimulating hormone level of 5.5 $\mu\text{U}/\text{mL}$ (normal, 0.5–5.0 $\mu\text{U}/\text{mL}$) with a free thyroxine level of 1.1 ng/dL (normal, 0.8–1.8 ng/dL). The patient is