

Secondary Hypertension, Issues in Diagnosis and Treatment



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KEYWORDS

- Secondary • Essential • Hyperaldosteronism • Renovascular disease • Sleep apnea
- Intrinsic kidney disease

KEY POINTS

- Resistant hypertension is more common than previously thought.
- Recent published guidelines shed new light on how to manage blood pressure and how to categorize it.
- Although essential hypertension remains the most common form of hypertension, several other entities and causes should be considered (eg, white coat hypertension, medication nonadherence, salt/alcohol abuse).
- The most common forms of resistant hypertension are obstructive sleep apnea, renal artery stenosis, primary hyperaldosteronism, and intrinsic renal disease.
- Nonpharmacologic therapies show promise but are not yet standard of care.

INTRODUCTION

Myocardial infarctions, heart failure, stroke, and noncardiac outcomes, such as end-stage renal disease, are the hallmarks of hypertension. By far the most common cardiac risk factor, hypertension outnumbers all of the remaining risk factors combined, with a prevalence of hypertension and prehypertension of 31% and 30%, respectively, in American adults.¹ Furthermore, the prevalence of hypertension with an initial episode of myocardial infarction, cerebrovascular disease, and congestive heart failure is 69%, 77%, and 74%, respectively.² Its economic impact in the United States is staggering, costing \$47.5 billion for treatment and \$3.5 billion in lost productivity annually.³

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The definition of hypertension has undergone some modification in the wake of the newly reported findings of the Eighth Joint National Committee (JNC 8) released in late 2013, and expands on the definitions established in the JNC 7. The European Society of Hypertension (ESH) and the European Society of Cardiology (ESC) add to this by assigning a risk class to various levels of blood pressure (BP) (Tables 1 and 2). These updated hypertensive standards impact the interpretation of secondary hypertension (SH).⁴⁻⁶

INCIDENCE/PREVALENCE

The incidence of SH is unknown but may be as high as 10% in newly diagnosed hypertensive patients. Persell⁷ estimates the prevalence to be 12.8% among those treated with antihypertensive medications. Furthermore, inadequate treatment or poor BP control from nonadherence with both pharmacologic and nonpharmacologic therapy may lead to overdiagnosing resistant hypertension.⁸

DISEASE DESCRIPTIONS

Several defined forms of hypertension exist:

- Essential (primary) hypertension (EH): most common. Lacks a specific known causative medical condition or disease. Genetics, poor diet, lack of exercise, and obesity are usual aggravating factors.⁹
- White coat hypertension (isolated clinic or office hypertension): office BP readings usually greater than 140/90 mm Hg and reliable out-of-office readings that are routinely less than 140/90 mm Hg.¹⁰
- Masked hypertension: office BP readings less than 140/90 mm Hg but ambulatory or home BP readings in the hypertensive range.¹¹
- Pseudohypertension: suggested when radial pulse remains palpable despite occlusion of the brachial artery by the cuff (Osler maneuver).¹²
- Resistant hypertension: BP 140/90 mm Hg or greater despite adherence to treatment with full doses of at least 3 antihypertensive medications, including a diuretic.⁴
- Refractory hypertension: similar to resistant hypertension but requires 4 drugs to meet the criteria, and patients generally respond poorly to mineralocorticoid antagonists.¹³

BP (mm Hg)	Category
<120/<80	Normal
SBP, 120–139 or DBP, 80–89	Prehypertension
SBP, 140–159 or DBP, 90–99	Stage I hypertension
SBP ≥160, DBP ≥100	Stage II hypertension

Abbreviations: DBP, diastolic blood pressure; SBP, systolic blood pressure.

Data from Chobanian AV, Bakris GL, Black HR, et al, National Heart, Lung, and Blood Institute Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, National High Blood Pressure Education Program Coordinating Committee. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA* 2003;289(19):2560–72.

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