Hypertension: Just the Facts

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Since the seventh report of the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure was published, more people than ever are being classified as hypertensive. More than 58 million Americans, 29% of the adult population, have hypertension. An additional 45 million, or 22%, have prehypertension. Most patients are unaware of the condition because it largely is asymptomatic; in addition, only a minority of patients are controlled adequately. More than 90% of hypertension is idiopathic (primary or essential hypertension), whereas 25% is the result of other identifiable causes (secondary hypertension) (National Institutes of Health [NIH], 2004).

NIH defined the following for people aged 18 and older
1. Normal blood pressure: less than 120 mmHg systolic and less than 80 mmHg diastolic
2. Prehypertension: 120–139 mmHg systolic and/or 80–89 mmHg diastolic
3. Stage 1 hypertension: 140–159 mmHg systolic and/or 90–99 mmHg diastolic
4. Stage 2 hypertension: more than 160 mmHg systolic and/or more than 100 mmHg diastolic

Blood pressure is maintained by continuous regulation of cardiac output and is stimulated or suppressed by the autonomic nervous system, humoral influences, and systemic vascular resistance (SVR). SVR takes place in the heart, pre- and postcapillary venules, and the kidneys. The overall regulation of those sites also is influenced by the renin-angiotensin-aldosterone system (NIH, 2004; Winokur, 2000).

The pathogenesis of hypertension is multifactorial and includes many modifiable risk factors such as smoking, obesity, caffeine intake, excessive alcohol intake, excessive salt intake, and use of nonsteroidal anti-inflammatory drugs. African Americans and older adults are especially sensitive to salt intake. Nonmodifiable risk factors include increasing age, male gender, and African American race (NIH, 2004; Winokur, 2000).

The four goals of evaluation for hypertension are (a) identify lifestyle factors contributing to elevated blood pressure and higher risk for cardiovascular disease, (b) assess associated modifiable cardiovascular risk factors, (c) assess for target organ disease, and (d) determine whether a secondary cause exists for blood pressure elevation (NIH, 2004).

Assessment of patients with hypertension should include (NIH, 2004)
- Verification of blood pressure in both arms with correct technique, with confirmation on more than one occasion, unless blood pressure meets criteria for urgency in treatment
- Height and weight
- Physical examination of head, eyes, ears, nose, and throat, including funduscopic examination for target organ disease, noting arteriovenous nicking, arteriolar narrowing, hemorrhages, papilledema, and exudates
- Physical examination of the neck with notation of carotid bruits, thyroid enlargement, and distended jugular veins
- Physical examination of the cardiovascular and pulmonary systems, noting increased or irregular rate, clicks, murmurs, the presence of S3 or S4, or rales
- Physical examination of the neurologic system to evaluate for any defects
- Physical examination of the abdomen for the presence of aortic or renal bruits, masses, abnormal aortic pulsation, or hepatomegaly
- Physical examination of the extremities for evidence of peripheral vascular disease with decreased or absent pulses or edema
- Laboratory evaluation, including complete blood count, fasting complete metabolic profile, thyroid-stimulating hormone, lipid profile, and possibly uric acid
- Radiologic evaluation, including electrocardiogram, echocardiogram, and chest x-ray.

When evaluating patients with cancer in particular, be aware that paraneoplastic syndrome can be a cause of hypertension. Many medications that patients with cancer may take also can precipitate
hypertension, such as steroids, nonsteroidal anti-inflammatory drugs, cough suppressants, cyclosporine, erythropoietin, some chemotherapy agents, and pain medications. Always remember to ask about over-the-counter medications and herbal or complementary therapy use (NIH, 2004).

Treatment for hypertension depends on a number of factors, including comorbid conditions, race, and level of hypertension. See Figure 1 for a decision-making tree to assist providers in choosing the correct treatment regimen and Figure 2 for a hypertension treatment highlights chart.

When patients have cancer, many of their medical problems are relegated to the bottom of the problem list by patients and providers. Patients may have tendencies not to visit their primary care providers as often during cancer treatment for a variety of reasons. Therefore, oncology

ACE—angiotension-converting enzyme; ARB—angiotension receptor blocker; CCB—calcium channel blocker; CHF—congestive heart failure; MI—myocardial infarction

**Figure 1. Hypertension Algorithm**

*Note. Based on information from National Institutes of Health, 2004; Primary Care Update, 2003.*
• Angiotension-converting enzyme inhibitors, angiotension receptor blockers, and beta blockers may be less effective in African Americans.

• Angiotension receptor blockers may reduce albuminuria and slow progression of diabetic nephropathy.

• Calcium channel blockers, except amlodipine and felodipine, should be used cautiously in patients with congestive heart failure because of their negative inotropic effects.

• Diuretics reduce mortality, may increase the risk of new-onset diabetes, and may cause hyperkalemia, hyponatremia, and hypomagnesemia.

• Alpha adrenergic blockers frequently cause postural hypotension.

• Beta blockers should be used for patients who are post-myocardial infarction and those who have angina or migraines.

• Older adult patients may show response with smaller doses of medication.

• Remember to ask about herbal and over-the-counter preparations that may impact hypertension negatively.

• Angiotensin-converting enzyme inhibitors, alpha blockers, or calcium channel blockers may be good choices for patients with hyperlipidemia.

• If patients do not respond to appropriate therapy, consider white-coat syndrome, patient compliance, secondary hypertension, or drug-drug interactions.

**Figure 2. Clinical Highlights for Treatment of Hypertension**

*Note.* Based on information from National Institutes of Health, 2004.

Authors should be cognizant of the latest guidelines for treating hypertension and institute them as appropriate.

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**References**
