

Practice Guidelines

AHA/ACC/ASH Release Guideline on the Treatment of Hypertension and CAD

Key Points for Practice

- A blood pressure target of less than 140/90 mm Hg is recommended in most patients with CAD and hypertension.
- A target of 130/80 mm Hg is reasonable in selected patients with CAD, including those with previous MI, stroke, or CAD risk equivalents.
- Recommended medications for patients with hypertension and chronic stable angina include beta blockers (in those with a history of MI), ACE inhibitors or ARBs, and thiazide or thiazide-like diuretics.
- Medications with evidence that they reduce risks in patients with ACS include beta blockers, ACE inhibitors or ARBs, and possibly aldosterone antagonists.

From the AFP Editors

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A collection of Practice Guidelines published in *AFP* is available at <http://www.aafp.org/afp/practguide>.

The American Heart Association (AHA), American College of Cardiology (ACC), and American Society of Hypertension (ASH) have released a guideline on the management of hypertension in patients with coronary artery disease (CAD). It updates a previous AHA guideline to reflect newer data.

There is a strong association between hypertension and CAD. This guideline uses the best available evidence to make recommendations about blood pressure reduction and the management of CAD and its varying manifestations.

Recommendations

BLOOD PRESSURE GOALS

In patients with CAD and hypertension, a blood pressure target of less than 140/90 mm Hg is reasonable for the secondary prevention of cardiovascular events. A lower target of 130/80 mm Hg may be acceptable in some of these patients with previous myocardial infarction (MI), stroke, or transient ischemic attack, or CAD risk equivalents (carotid artery disease, peripheral artery disease, abdominal aortic aneurysm).

In patients who have CAD with evidence of myocardial ischemia and elevated diastolic blood pressure, blood pressure should

be lowered slowly. Clinicians should be cautious when lowering diastolic blood pressure to less than 60 mm Hg in patients with diabetes mellitus or who are older than 60 years. In older patients with hypertension and wide pulse pressures, lowering systolic blood pressure can lead to very low (less than 60 mm Hg) diastolic blood pressure. If this occurs, the clinician should be prompted to assess for troubling signs or symptoms, especially from myocardial ischemia.

MANAGEMENT OF HYPERTENSION IN PATIENTS WITH CAD AND STABLE ANGINA

The management of symptomatic CAD, particularly angina pectoris, focuses on relieving the angina and preventing the progression of CAD and development of coronary events. The recommended pharmacologic regimen for patients with hypertension and chronic stable angina includes beta blockers (in those with a history of MI), angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs), and thiazide or thiazide-like diuretics. This regimen should also be considered in the absence of prior MI, left ventricular systolic dysfunction, diabetes, or proteinuric chronic kidney disease. If needed, a nondihydropyridine calcium channel blocker (diltiazem or verapamil) may be substituted for the beta blocker in patients without left ventricular dysfunction. However, combining a beta blocker with a nondihydropyridine calcium channel blocker increases risk of significant bradycardias and heart failure in patients with hypertension and symptomatic CAD.

If the hypertension or angina is not controlled with the initial regimen, a long-acting dihydropyridine calcium channel blocker can be added. There are no contraindications for the use of antiplatelets or anti-coagulants in patients with hypertension. ►

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However, in patients with uncontrolled severe hypertension who are taking these medications, blood pressure should be lowered immediately to reduce the risk of hemorrhagic stroke.

MANAGEMENT OF HYPERTENSION IN PATIENTS WITH ACS

Most patients with acute coronary syndrome (ACS) respond well to standard treatment regimens to control hypertension. Medications with evidence that they reduce risks in patients with ACS include beta blockers, ACE inhibitors or ARBs, and possibly aldosterone antagonists. Nitrates are also useful. Caution should be taken to avoid hypotension.

If there are no contraindications to beta blockers, the initial therapy for hypertension in patients with ACS should be an oral short-acting beta₁-selective beta blocker without intrinsic sympathomimetic activity (metoprolol [Lopressor] or bisoprolol [Zebeta]). Therapy should begin within 24 hours of presentation. An intravenous beta blocker (esmolol [Brevibloc]) can be considered if the patient has severe hypertension or ongoing ischemia. Beta-blocker therapy should be delayed in patients who are hemodynamically unstable or who have decompensated heart failure. A nondihydropyridine calcium channel blocker (diltiazem or verapamil) may be substituted for the beta blocker in patients with ongoing ischemia and no left ventricular dysfunction, and a long-acting dihydropyridine calcium channel blocker can be added if hypertension and angina are not controlled with initial treatment.

Nitrates should be considered to lower blood pressure or relieve ongoing ischemia or pulmonary congestion. Sublingual or intravenous nitroglycerin is preferred for initial therapy, and can be transitioned to a longer-acting preparation if needed. Nitrates should be avoided in patients with suspected right ventricular infarction or who are hemodynamically unstable.

An ACE inhibitor or ARB should be added if the patient has an anterior MI or diabetes, hypertension persists, or there is evidence of left ventricular dysfunction or heart failure. An ACE inhibitor is first-line therapy for lower-risk patients.

Aldosterone antagonists are indicated in patients already taking a beta blocker and ACE inhibitor after an MI, and have left ventricular dysfunction and heart failure or diabetes. Serum potassium levels should be monitored, and the medications should be avoided in patients with elevated serum creatinine levels.

Loop diuretics are preferred over thiazide and thiazide-like diuretics in patients with ACS and heart failure, or in patients with chronic kidney disease and an estimated glomerular filtration rate less than 30 mL

per minute. If persistent hypertension is not controlled with a beta blocker, ACE inhibitor, and aldosterone antagonist, a thiazide or thiazide-like diuretic may be added selectively.

A blood pressure target of 140/90 mm Hg is reasonable in hemodynamically stable patients with ACS, and a target of 130/80 mm Hg is appropriate at the time of hospital discharge. Blood pressure should be lowered slowly and without decreasing the diastolic blood pressure to less than 60 mm Hg.

MANAGEMENT OF HYPERTENSION IN PATIENTS WITH HEART FAILURE OF ISCHEMIC ORIGIN

Patients with hypertension and heart failure should be treated with an ACE inhibitor or ARB, beta blocker, and aldosterone receptor antagonist. ACE inhibitors and the ARB candesartan (Atacand) or valsartan (Diovan) are equally effective. In patients with hypertension and heart failure with preserved ejection fraction, the goal is to control systolic and diastolic hypertension.

The aldosterone receptor antagonists spironolactone and eplerenone (Inspra) should be added in patients with heart failure and reduced ejection fraction (less than 40%). They may be substituted for a thiazide diuretic in patients requiring a potassium-sparing agent. Serum potassium should be monitored if an aldosterone receptor antagonist is used with an ACE inhibitor or an ARB, or if the patient has renal insufficiency. Aldosterone receptor antagonists should be avoided in men with a serum creatinine level of 2.5 mg per dL (221 µmol per L) or more, in women with a serum creatinine level of 2 mg per dL (177 µmol per L) or more, and in patients with a serum potassium level of 5 mEq per L (5 mmol per L) or more. Spironolactone or eplerenone may be used with a thiazide or thiazide-like diuretic, particularly if the patient has resistant hypertension.

Hydralazine and isosorbide dinitrate should be added to the diuretic, ACE inhibitor or ARB, and beta-blocker regimen in black patients with New York Heart Association class III or IV heart failure and a reduced ejection fraction.

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