

## Review Article

# Recent Guidelines for Treating Hypertension

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Submitted: 16 May 2014

Accepted: 10 July 2014

Published: 12 July 2014

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**Abstract**

The American College of Cardiology Foundation/American Heart Association 2011 expert consensus document on hypertension in the elderly recommended a blood pressure less than 140/90 mm Hg in adults younger than 80 years of age at high risk for cardiovascular event. On the basis of data from the Hypertension in the Very Elderly Trial, these guidelines recommended that the systolic blood pressure should be reduced to 140-145 mm Hg if tolerated in adults aged 80 years and older. The European Society of Hypertension/European Society of Cardiology 2013 guidelines recommend lowering the systolic blood pressure (SBP) to < 140 mm Hg in patients at low to moderate cardiovascular risk, diabetics, prior stroke or transient ischemic attack, coronary heart disease, and chronic kidney disease (CKD). In older patients < 80 years with a SBP  $\geq$  160 mm Hg, the SBP should be lowered to 140-150 mm Hg with consideration of a SBP < 140 mm Hg. In patients > 80 years with a SBP  $\geq$  160 mm Hg, the SBP should be lowered to 140-150 mm Hg provided they are in good physical and mental conditions. The 2013 Eighth Joint National Committee (JNC 8) guidelines for management of hypertension recommended lowering the SBP in adults < 60 years to <140/90 mm Hg and in adults  $\geq$  60 years to <150 mm Hg if they did not have diabetes or CKD and to < 140 mm Hg if they had diabetes or CKD. The minority view from JNC 8 recommends a SBP goal in patients <80 years with hypertension without diabetes or CKD should be < 140 mm Hg

**Keywords**

- Hypertension
- Systolic blood pressure
- Stroke
- Heart failure
- Coronary heart disease
- Diabetes
- Kidney disease
- Antihypertensive drugs

**INTRODUCTION**

The American College of Cardiology Foundation/American Heart Association 2011 expert consensus document on hypertension in the elderly recommended a blood pressure less than 140/90 mm Hg in adults younger than 80 years of age at high risk for cardiovascular events [1]. On the basis of data from the Hypertension in the Very Elderly Trial [2], these guidelines state that the systolic blood pressure (SBP) should be reduced to 140-145 mm Hg if tolerated in adults aged 80 years and older [1]. The Systolic Hypertension in the Elderly Program (SHEP) also showed reduction in cardiovascular events in elderly patients including those older than 80 years whose SBP was reduced to between 140-145 mm Hg by antihypertensive drug therapy [3]. The choice of specific antihypertensive drugs such as diuretics, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, beta blockers, or calcium channel blockers depends on efficacy, tolerability, presence of specific comorbidities and cost [1]. If beta blockers are used, I would not use atenolol [4-6] but would use carvedilol, nebivolol, or bisoprolol [6]. Beta blockers should be especially used in patients with hypertension and ischemic heart disease. I coauthored these guidelines [1] and still concur with them.

A meta-analysis of 147 randomized trials including 464,000

persons with hypertension showed that except for the extra protective effect of beta blockers given after myocardial infarction and a minor additional effect of calcium channel blockers in preventing stroke, the use of beta blockers, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, diuretics, and calcium channel blockers cause a similar reduction in coronary events and stroke for a given decrease in blood pressure [7,8]. The proportionate decrease in cardiovascular events was the same or similar regardless of pretreatment blood pressure and the presence or absence of cardiovascular events [7,8].

The European Society of Hypertension/European Society of Cardiology 2013 guidelines recommend lowering the SBP to less than 140 mm Hg in patients at low to moderate cardiovascular risk, diabetics, prior stroke or transient ischemic attack, coronary heart disease, and chronic kidney disease (CKD) [9]. In older patients younger than 80 years with a SBP  $\geq$  160 mm Hg, the SBP should be lowered to 140-150 mm Hg with consideration of a SBP < 140 mm Hg. In patients older than 80 years with a SBP  $\geq$  160 mm Hg, the SBP should be lowered to 140-150 mm Hg provided they are in good physical and mental conditions.

The 2014 guidelines report from the Eighth Joint National Committee (JNC 8) on management of high blood pressure in

adults made 9 recommendations [10]. The first recommendation was to use antihypertensive drug therapy in patients aged 60 years and older without CKD or diabetes mellitus to lower the SBP to less than 150 mm Hg and the diastolic blood pressure to less than 90 mm Hg [10]. I agree with the DBP goal but disagree with the SBP goal recommendation as does a minority report from JNC 8 which recommends that the SBP goal in patients younger than 80 years with hypertension without CKD or diabetes mellitus should be less than 140 mm Hg [11].

The Reasons for Geographic and Racial Differences in Stroke (REGARDS) study is an observational study of risk factors for stroke which includes 4,181 patients aged 55 to 64 years, 3,767 patients aged 65 to 74 years, and 1,839 patients aged 75 years and older (mean age 79.3 years) [12,13]. Median follow-up was 4.5 years for first occurrence of a coronary heart disease or stroke event, 4.5 years for nonfatal myocardial infarction or coronary heart disease death, 5.7 years for stroke, and 6.0 years for all-cause mortality. The data from this study generated a hypothesis that for all patients older than 55 years, the SBP should be lower than 140 mm Hg with optimal values possibly between 120 to 139 mm Hg [12,13]. The data from this study also suggest that the lowest risk for stroke at a median follow-up of 5.7 years occurs with a SBP below 140 mm Hg in patients aged 55 to 64 years old, below 130 mm Hg in patients aged 65 to 74 years old, and below 150 mm Hg for patients aged 75 years and older [14].

Elderly persons have the lowest rates of adequate blood pressure control and the highest incidence of cardiovascular events. Blood pressure is adequately controlled in 36% of men and 28% of women between ages 60-79 years and in 38% of men and 23% of women aged 80 years and older [15]. I am very concerned that the higher SBP goal in older persons recommended by JNC 8 will lead to a higher incidence of cardiovascular events and mortality.

The second recommendation from JNC 8 was to use antihypertensive drug therapy to treat adults younger than 60 years to lower the DBP goal to less than 90 mm Hg [10]. I concur as do other guidelines [1,9].

The third recommendation from JNC 8 was to use antihypertensive drug therapy to lower the SBP goal to less than 140 mm Hg in adults younger than 60 years [10]. I concur as do other guidelines [1,9].

The fourth recommendation from JNC 8 was to use antihypertensive drug therapy to lower the blood pressure to less than 140/90 mm Hg in adults aged 18 years and older with CKD [10]. I concur as do other guidelines [1,9,16,17].

The fifth recommendation from JNC 8 was to use antihypertensive drug therapy to lower the blood pressure to less than 140/90 mm Hg in adults aged 18 years and older with diabetes mellitus [10]. I concur as do other guidelines [1,9,18].

The sixth recommendation from JNC 8 in the general nonblack population including diabetics was to use as initial antihypertensive therapy a thiazide-type diuretic, calcium channel blocker, angiotensin-converting enzyme inhibitor, or angiotensin receptor blocker [10]. A meta-analysis of 147 randomized trials including 464,000 persons with hypertension

showed that except for the extra protective effect of beta blockers given after myocardial infarction and a minor additional effect of calcium channel blockers in preventing stroke, beta blockers, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, diuretics, and calcium channel blockers cause a similar reduction in coronary events and stroke for a given reduction in blood pressure [7,8]. Beta blockers should be especially used in patients with hypertension and ischemic heart disease [1,7,8,9]. The choice of specific antihypertensive drugs used depends on efficacy, tolerability, presence of associated comorbidities, and cost [1].

The seventh recommendation from JNC 8 in the general black population including diabetics was to use as initial antihypertensive therapy a thiazide-type diuretic or calcium channel blocker [10]. The choice of specific antihypertensive drugs used depends on efficacy, tolerability, presence of associated comorbidities, and cost [1].

The eighth recommendation from JNC 8 states that in adults aged 18 years and older with CKD, initial or add-on antihypertensive drug therapy should include an angiotensin-converting enzyme inhibitor or angiotensin receptor blocker to improve renal outcomes [1]. This includes all patients with hypertension and CKD regardless of race and presence or absence of diabetes mellitus. I agree with this recommendation. Compared with amlodipine, ramipril reduced progression of CKD in African-Americans with hypertensive nephrosclerosis without diabetes mellitus and an estimated glomerular filtration rate between 20 to 65 ml/minute/1.73 m<sup>2</sup> [19].

The ninth recommendation from JNC 8 states that the main goal of antihypertensive drug treatment is to achieve and maintain the blood pressure goal [10]. I concur. If the goal blood pressure is not achieved in 1 month, increase the dose of the initial antihypertensive drug or add a second drug from one of the classes of drug listed in recommendation 6. This list should also include a beta blocker. If the goal blood pressure is still not achieved, add a third class of drug. Do not use an angiotensin-converting enzyme inhibitor plus an angiotensin receptor blocker together as you will not increase efficacy but will increase adverse effects [20]. If a fourth antihypertensive drug is needed, I would use an aldosterone antagonist. Referral to a specialist in hypertension may be necessary if the goal blood pressure cannot be achieved.

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## Cite this article

Aronow WS (2014) Recent Guidelines for Treating Hypertension. *Ann Clin Exp Hypertension* 2(2): 1011.