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ONE MINUTE CONSULT
BRIEF ANSWERS TO SPECIFIC CLINICAL QUESTIONS

Q: Hypertension in older adults: What is the target blood pressure?

A: We should aim for a standard office systolic pressure lower than 130 mm Hg in most adults age 65 and older if the patient can take multiple antihypertensive medications and be followed closely for adverse effects.

This recommendation is part of the 2017 hypertension guideline from the American College of Cardiology and American Heart Association.[1] This new guideline advocates drug treatment of hypertension to a target less than 130/80 mm Hg for patients of all ages for secondary prevention of cardiovascular disease, and for primary prevention in those at high risk (ie, an estimated 10-year risk of atherosclerotic cardiovascular disease of 10% or higher). The target blood pressure for those at lower risk is less than 140/90 mm Hg.

There are multiple tools to estimate the 10-year risk. All tools incorporate major predictors such as age, blood pressure, cholesterol profile, and other markers, depending on the tool. Although risk increases with age, the tools are inaccurate once the patient is approximately 80 years of age.

The recommendation for older adults omits a target diastolic pressure, since treating elevated systolic pressure has more data supporting it than treating elevated diastolic blood pressure in older people. These recommendations apply only to older adults who can walk and are living in the community, not in an institution, and includes the subset of older adults who have mild cognitive impairment and frailty. The goals of treatment should be patient-centered.

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DATA BEHIND THE GUIDELINE: THE SPRINT TRIAL

The Systolic Blood Pressure Intervention Trial (SPRINT)[2] enrolled 9,361 patients who, to enter, had to be at least 50 years old (the mean age was 67.9), have a systolic blood pressure of 130 to 180 mm Hg (the mean was 139.7 mm Hg), and be at risk of cardiovascular disease due to chronic kidney disease, clinical or subclinical cardiovascular disease, a 10-year Framingham risk score of at least 15%, or age 75 or older. They had few comorbidities, and patients with diabetes mellitus or prior stroke were excluded. The objective was to see if intensive blood pressure treatment reduced the incidence of adverse cardiovascular outcomes compared with standard control.

The participants were randomized to either an intensive treatment goal of systolic pressure less than 120 mm Hg or a standard treatment goal of less than 140 mm Hg. Investigators chose drugs and doses according to their clinical judgment. The study protocol called for blood pressure measurement using an unattended automated cuff, which probably resulted in systolic pressure readings 5 to 10 mm Hg lower than with typical methods used in the office.[3]

The intensive treatment group achieved a mean systolic pressure of 121.5 mm Hg, which required an average of 3 drugs. In contrast, the standard treatment group achieved a systolic pressure of 136.2 mm Hg, which required an average of 1.9 drugs.

Due to an absolute risk reduction in cardiovascular events and mortality, SPRINT was discontinued early after a median follow-up of 3.3 years. In the entire cohort, 61 patients needed to be treated intensively to prevent 1 cardiovascular event, and 90 needed to be treated intensively to prevent 1 death.[2]

Blood pressure targets from 2017 ACC/AHA guidelines:

- **< 140/90 if at low risk**
- **< 130/80 if at high risk**
- **< 130 systolic if age ≥ 65**

Favorable outcomes in the oldest subgroup

The oldest patients in the SPRINT trial tolerated the intensive treatment as well as the youngest.[2,4]

Exploratory analysis of the subgroup of patients age 75 and older, who constituted 28% of the patients in the trial, demonstrated significant benefit from intensive treatment. In this subgroup, 27 patients needed to be treated aggressively (compared with standard treatment) to prevent 1 cardiovascular event, and 41 needed to be treated intensively to prevent 1 death.[4] The lower numbers needing to be treated in the older subgroup than in the overall trial reflect the higher absolute risk in this older population.

Serious adverse events were more common with intensive treatment than with standard treatment in the subgroup of older patients who were frail.[4] Emergency department visits or serious adverse events were more likely when gait speed (a measure of frailty) was missing from the medical record in the intensive treatment group compared with the standard treatment group. Hyponatremia (serum sodium level < 130 mmol/L) was more likely in the intensively treated group than in the standard treatment group. Although the rate of falls was higher in the oldest subgroup than in the overall SPRINT population, within this subgroup the rate of injurious falls resulting in an emergency department visit was lower with intensive treatment than with standard treatment (11.6% vs 14.1%, $P = .04$).[4]

Lower numbers needed to treat in the oldest patients reflect higher risk

Most of the oldest patients scored below the nominal cutoff for normal (26 points)[5] on the 30-point Montreal Cognitive Assessment, and about one-quarter scored below 19, which may be consistent with a major neurocognitive disorder.[6]

The SPRINT investigators validated a frailty scale in the study patients and found that the most frail benefited from intensive blood pressure control, as did the slowest walkers.

SPRINT results do not apply to very frail, sick patients

For older patients with hypertension, a high burden of comorbidity, and a limited life expectancy, the 2017 guidelines defer treatment decisions to clinical judgment and patient preference.

There have been no randomized trials of blood pressure management for older adults with substantial comorbidities or dementia. The "frail" older adults in the SPRINT trial were still living in the community, without dementia. The intensively treated frail older adults had more serious adverse events than with standard treatment. Those who were documented as being unable to walk at the time of enrollment also had more serious adverse events. Institutionalized older adults and nonambulatory adults in the community would likely have even higher rates of serious adverse events with intensive treatment than the SPRINT patients, and there is concern for excessive adverse effects from intensive blood pressure control in more debilitated older patients.

DOES TREATING HIGH BLOOD PRESSURE PREVENT FRAILTY OR DEMENTIA?

Aging without frailty is an important goal of geriatric care and is likely related to cardiovascular health.[7] An older adult who becomes slower physically or mentally, with diminished strength and energy, is less likely to be able to live independently.

Would treating systolic blood pressure to a target of 120 to 130 mm Hg reduce the risk of prefrailty or frailty? Unfortunately, the 3-year SPRINT follow-up of the adults age 75 and older did not show any effect of intensive treatment on gait speed or mobility limitation.[8] It is possible that the early termination of the study limited outcomes.

Regarding cognition, the new guidelines say that lowering blood pressure in adults with hypertension to prevent cognitive decline and dementia is reasonable, giving it a class IIa (moderate) recommendation, but they do not offer a particular blood pressure target.

Two systematic reviews of randomized placebo-controlled trials[9,10] suggested that pharmacologic treatment of hypertension reduces the progression of cognitive impairment. The trials did not use an intensive treatment goal.

The impact of intensive treatment of hypertension (to a target of 120–130 mm Hg) on the development or progression of cognitive impairment is not known at this time. The SPRINT Memory and Cognition in De-

creased Hypertension analysis may shed light on the effect of intensive treatment of blood pressure on the incidence of dementia, although the early termination of SPRINT may limit its conclusions as well.

GOALS SHOULD BE PATIENT-CENTERED

The new hypertension guideline gives clinicians 2 things to think about when treating hypertensive, ambulatory, noninstitutionalized, nondemented older adults, including those age 75 and older:

- Older adults tolerate intensive blood pressure treatment as well as standard treatment. In particular, the fall rate is not increased and may even be less with intensive treatment.
- Older adults have better cardiovascular outcomes with blood pressure less than 130 mm Hg than with higher levels.

Adherence to the new guidelines would require many older adults without significant multimorbidity to take 3 drugs and undergo more frequent monitoring. This burden may align with the goals of care for many older adults. However, data do not exist to prove a benefit from intensive blood pressure control in debilitated elderly patients, and there may be harm. Lowering the medication burden may be a more important goal than lowering the pressure for this population. Blood pressure targets and hypertension management should reflect patient-centered goals of care.

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