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Letters to the Editor

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To the Editor:

In a recent editorial,[1] Feldman and Padwal cautioned against blanket application of new hypertension guidelines based on the **S**ystolic Blood **Pr**essure **In**tervention **T**rial (SPRINT), urging individualized therapy in the frail elderly. This caution is well founded. They mentioned that in the elderly, β-blockers are not recommended as first-line therapy. To better understand the concern, it is worth considering issues not mentioned.

An important article from the **A**therosclerosis **Ri**sk in **C**ommunities (ARIC) trial helps to explain why β-blockers might actually be harmful in elderly patients with stiff arteries.[2] The article described the mechanism that probably explains the J curve in hypertension: There was an increased coronary risk among patients with diastolic pressures < 60 mm Hg, because most coronary perfusion is diastolic. The same is true of cerebral perfusion. The participants at increased risk from low diastolic pressures were observed to have wider pulse pressures[2]; ie, they had stiff arteries.

Because β-blockers reduce heart rate, they increase stroke volume, and a higher stroke volume propelled into a stiff aorta widens pulse pressure, resulting in a lower diastolic pressure for any given systolic pressure. The problem will be magnified by an exclusive focus on systolic blood pressure targets based on SPRINT. Because most elderly patients have systolic hypertension, treating systolic pressures to a target of 120 mm Hg will result in low diastolic pressures among those with wide pulse pressures; this could be dangerous in patients whose true diastolic pressure is substantially lower than the cuff pressure.

In 1978, colleagues and I reported[3] that among patients > 60 years who had diastolic pressures > 100 mm Hg but no hypertensive end-organ disease, half had a cuff diastolic pressure that was 30 mm Hg or more higher than the intra-arterial pressure. I called this "pseudohypertension," because I was focusing on the diastolic pressure of 90 mm Hg then regarded as an indication for treatment of hypertension. A better name is cuff artifact. I estimated that $\sim$ 4% of elderly patients in my clinic population had pseudohypertension, but with much lower targets resulting from the SPRINT trial, it will be many more. We found that mean arterial pressure calculated from cuff pressures more closely approximated intra-arterial pressures.

Part of individualizing therapy for frail elderly patients with high cuff pressures should be the recognition that their true blood pressure may be much lower than it seems. This probably accounts for much of the J curve.[4] If an elderly patient complains of hypotensive symptoms with cuff pressures that do not seem hypotensive, the intra-arterial pressure should be measured.

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Disclosures

The author has no conflicts of interest to disclose.

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