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BLOOD PRESSURE AND MORTALITY IN VERY OLD PEOPLE

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To the Editor:

In a small population-based cohort study of 348 adults aged 85 and older, Molander et al. showed that systolic blood pressure (SBP) less than 120 mmHg was significantly associated with mortality, after adjusting for age, sex, activities of daily living, Mini-Mental State Examination score, atrial fibrillation, and diabetes mellitus, and concluded that optimal SBP for this age group could be greater than 140 mmHg.(1) Although the authors noted the limitations to their study, we have concerns about the conclusions and their potential clinical implications.

First, blood pressure in a subgroup of very old adults, particularly with heart failure, could be a reflection of failing physiological systems. Although a remote high blood pressure is a well-known risk factor for heart failure(2) and cardiovascular events,(3,4) lower blood pressure paradoxically portends poorer prognosis in patients with heart failure. (5,6) Thus, the study sample appears to have included at least two distinct groups of very old adults—a group with heart failure, in which lower blood pressure is a marker of failing cardiovascular system and is associated with higher mortality, and a group without heart failure, in which high blood pressure might remain as a risk factor for cardiovascular morbidity and mortality. Such differential effect of blood pressure should be examined before the authors' conclusions are propagated in clinical practice. In addition, the authors did not measure blood pressure serially over the follow-up period. This would assess whether those with declining blood pressure are midway in their trajectory to death.

Second, there were alarming differences in functional status and comorbidities between those with SBP less than 120 mmHg and those with SBP above 160 mmHg. In particular, dementia and heart failure were three times as prevalent in the former group as in the latter group. Although the authors attempted to control for confounders using multivariable regression, the stepwise selection did not include biologically plausible confounders, such as heart failure and dementia. Furthermore, mortality with dementia and lower blood pressure in heart failure patients remains high beyond the first year,(5–7) and excluding deaths within the first year does not eliminate this effect completely.

Finally, the authors did not address survival bias, which plagues observational studies on blood pressure in very old people. In the Second National Health and Nutrition Examination Survey Mortality Study, those who had fatal stroke were older and more likely to be male and had higher blood pressure than those who did not.(8) This might have biased the study results by

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selectively including older adults who survived the effects of high blood pressure and are still robust until age 85 in the group with SBP above 160 mmHg, as reflected in Table 2.

Taking these into account, we are concerned that the findings from this observational study may mislead clinicians into not treating high blood pressure in many older adults who are likely to benefit from blood pressure reduction. The benefit of antihypertensive treatment in those aged 80 and was recently demonstrated in the Hypertension in the Very Elderly Trial.⁽⁹⁾ What this study by Molander et al. really tells us is that those with SBP less than 120 mmHg have extensive comorbidities and poor prognosis and therefore require comprehensive geriatric-oriented evaluations for reasons for their low blood pressure to maximize their function.

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