

Frail Elderly May Need Higher Blood Pressure

Sue Hughes

July 17, 2012 (Corvallis, Oregon) — Elderly frail individuals, who can be identified using a simple walk test, may benefit from higher blood pressure than the rest of the population, a new study suggests.

The study, published online July 16, 2012 in the *Annals of Internal Medicine*, was conducted by a team led by **Dr Michelle Odden** (Oregon State University, Corvallis) [1].

The researchers used a walk test as a measure of health in an elderly population and investigated how blood pressure related to mortality in those with different walking speeds.

"Our results suggest that the frail elderly, defined as those that did not complete a walk test, may do better with higher blood pressures," Odden commented to **heartwire**.

She explained that the literature on blood pressure and mortality in older adults is mixed: "In general, in studies in the oldest old (over 80 years) poor outcomes have often been associated with very high and very low blood pressures."

Focus on Physiological Age

"Our study expanded on the research available so far. We hypothesized that it is not chronological age but physiological age that matters when we are thinking about blood pressure. We aimed to verify physiological age by walking speed. We found that those who did not complete the test were in worse health and had a higher mortality rate than the other two groups, that is, they were the most frail. And in this group, there was an unexpected association between higher blood pressure and a lower mortality rate."

Odden speculated that some elderly people may do better with slightly higher blood pressures. "As people age, the blood vessels get stiffer. It may be that under these conditions they need a higher blood pressure to keep blood pumping to the vital organs."

She noted that lower blood pressures may be an indicator of poor health, and to try and exclude this from affecting the results, the researchers conducted a sensitivity analysis that only included deaths after the first year. The same trends were seen in that analysis.

Three Take-Home Messages

Odden said she had three main take-home messages:

Older adults are a heterogeneous group that includes both healthy and frail individuals, so something more than just age needs to be considered when evaluating them.

Their data supports reducing blood pressure to guideline targets in the healthy elderly.

We need to further explore the optimal blood pressure in older frail people.

She noted that the frail elderly are an understudied group, partly because of safety concerns. "We need more studies in these individuals on the effects of antihypertensive medication. If placebo-controlled studies are too difficult to do, we need to look carefully at the available observational data."

Odden pointed out that at present hypertension guidelines don't distinguish by age or frailty, with a universal target blood pressure of 140/90 mm Hg. "We didn't look at optimal levels or whether frail elderly should have different targets. This is something that could be addressed in future."

She added: "Our results need to be confirmed, but I believe the walk test is a powerful measure of overall health. It incorporates measures of multiple systems: vision, cardiovascular, musculoskeletal, and balance. It is also very inexpensive, a significant advantage given the state of our healthcare system."

The study included 2340 persons 65 years and older from **National Health and Nutrition Examination Survey (NHANES)**. Mortality data were linked to death certificates in the national death index. Walking speed was measured over a 6-m walk and classified as faster (0.8 m/s), slower, or incomplete. There were 589 deaths recorded. Results showed that faster walkers with systolic blood pressure over 140 mm Hg had a greater adjusted risk of death compared with those with lower blood pressures. Among slower walkers, neither elevated systolic nor diastolic blood pressure was associated with mortality. In participants who did not complete the walk test, both elevated systolic and diastolic blood pressures were strongly associated with a lower risk of death.

Hazard Ratio of Death Associated With Raised Blood Pressure According to Walk Speed

Walk speed	HR (95% CI) vs lower blood pressures
Fast	1.35 (1.03–1.77)
Slow	1.12 (0.87–1.45)
Incomplete	0.38 (0.23–0.62) (systolic) 0.10 (0.01–0.81) (diastolic)

In an accompanying editorial [2], geriatrician **Dr James Goodwin** (Sealy Center on Aging, Galveston, TX) sums up the available literature on hypertension in the elderly as follows: "The older the population, the smaller is the proportion of robust individuals. Many robust, very old individuals have hypertension. Antihypertensive treatment in those individuals is beneficial. Frail older individuals are less likely to have hypertension, and treating those who do may produce bad outcomes."

Goodwin welcomes the results of the current study, saying there is no such thing as an "average octogenarian," and there are increasing calls for individualizing the approach to hypertension in older patients.

He says the walk test, which is "as easily accomplished as recording a temperature or blood pressure," will allow clinicians to categorize older individuals into those in whom high blood pressure is clearly associated with bad outcomes vs those in whom the relationship is unclear or reversed.

The authors report no conflicts of interest.

References

1. Odden MC, Peralta CA, Haan MH, Covinsky KE. Rethinking the association of high blood pressure with mortality in elderly adults. The impact of frailty. *Arch Intern Med* 2012; DOI: doi:10.1001/archinternmed.2012.2555. Available here.
2. Goodwin J S. Gait speed. An important vital sign in old age. *Arch Intern Med* 2012; DOI: 10.1001/archinternmed.2012.2642. Available here.