Is It Time to Change the Definition for Orthostatic Hypotension?

Sean Heffelfinger, MD, CMD

Falls are the bane of our existence for most of us working in long-term care. I am sure all of us frequently get approached by members of our interdisciplinary team when a patient falls and they hound us for a new intervention to stop them from falling. Besides ordering a PT evaluation and reviewing the med list, most of us will probably order a set of orthostatic blood pressures (and then probably need to educate the nurses how to properly do them).

Orthostatic hypotension has been classically defined as a decrease in blood pressure of 20 mmHg or more of systolic or 10mmHg or more of diastolic after three minutes of standing from the supine position. As we age, our baroreceptors become less sensitive and there is an increase in autonomic neurodegenerative disease. This effect leads to orthostatic hypotension affecting approximately 50% of nursing home residents and 68% of those in geriatric inpatient units.

People with orthostatic hypotension are at increased risk of coronary artery disease, heart failure, stroke, and falls. Falls are the leading cause of injury in older adults worldwide. It comes as no surprise to us that falls are one of the most common reasons for nursing home admission and one of the most frequent reasons why our long-term care residents get sent to the hospital.

There are believed to be three types of orthostatic hypotension. The classic or initial type lasts a few seconds upon standing and quickly resolves. This is considered normal in older adults and rarely leads to falls. Early onset hypotension usually has a drop of greater than 20mmHg systolic blood pressure and may last for up to one minute. This is likely the most common type to cause falls in our elderly population as it causes unrelenting dizziness leading to a fall soon after standing up. Delayed postural hypotension is a less common cause whereby the autonomic nervous system gets fatigued after about twenty minutes of standing. This can be noticed in our elderly community-dwelling women who pass out standing at the sink doing the dishes after Thanksgiving. The best way to diagnosis these puzzling falls is with tilt table testing.

There surprisingly isn't much high-quality literature concluding that orthostatic hypotension is a cause of falls. Hohtari-Kivimaki, Salminem, Vahlberg, and Kivela studied 561 Finish community-dwelling elderly and published their results in the November 2021 issue of *JAMDA*. They measured orthostatic blood pressures at 30 seconds and then three minutes after standing and looked at how many falls they had at 12 and 36 months.

The prevalence of orthostatic hypotension was 23.4% at 30 seconds and 7.3% at three minutes. The incidence of the resulting falls and of falls requiring treatment were much higher in the 30 second group than in the three minute group at 12 months. There was no difference at 36 months with falls requiring treatment.

The authors concluded that orthostatic hypotension at both 30 seconds and three minutes after standing is associated with a greater risk of falling in the next 12 months. The 30 second measurement was more reliable at detecting the risk of falls than the three minute measurement though. They suggested that our methods for performing orthostatic blood pressures should be shortened from the current three minute standard to just 30 seconds.

Is it time for us to change the way that we perform orthostatic blood pressures? This study makes a valid point to do that. Honestly, how many of us actually wait the full three minutes anyway? We thought we had been cutting corners but it turns out were just being prescient the whole time!