ABSTRACT

Background: Hospital readmissions among Medicare recipients result in significant clinical and economic burden, creating a need for strategies to reduce returns within 30 days. Orthostatic hypotension (OH) often complicates care among patients treated for hypertension, as healthcare providers navigate the benefits and risks of adjusting medications to achieve blood pressure goals. Whether the presence of OH is a significant risk factor for 30-day readmissions among patients treated for hypertension is not clearly established. We sought to determine if the presence of OH, specifically neurogenic OH versus non-neurogenic OH), is associated with 30-day hospital readmissions among patients treated for hypertension. Identifying additional patient-specific factors that are associated with increased risk of readmission can better inform clinical models and allow for more accurate risk stratification and the development of targeted interventions to reduce the current readmission burden.

Methods: We utilized an aggregated, anonymous dataset of patients between the ages of 55 and 89 enrolled in the 2015 SPRINT trial to evaluate the association between orthostatic hypotension subtypes and 30-day readmission rates. Patients treated with beta blockers were excluded from the trial. Baseline measures of blood pressure (BP), sitting and standing, were evaluated for enrolled patients. Patients with a systolic BP drop of ≥ 20mm Hg or a diastolic drop of ≥ 10mm Hg were identified as having OH. We used a calculated ratio of Δ (change) in sit-to-stand HR / Δ in sit-to-stand systolic BP to identify neurogenic (ratio < 0.5) or non-neurogenic OH (ratio of ≥ 0.5).

Results: A total of 4050 patients were included in the final analysis, 308 (7.6%) of which were identified as having OH (156 with neurogenic OH; 152 with non-neurogenic OH). Neurogenic OH was identified as a significant independent predictor of 30-day readmission or ER visits. Patients with the neurogenic subtype experienced a 67.3% increased risk of return compared to those without OH (OR 1.673; 95% CI 1.088-2.493; p=0.015). While non-neurogenic OH showed a similar trend (OR 1.646), the results were not statistically significant (p=0.367). Older age was also associated with higher readmission risk (p=0.001).

Conclusions: The presence of OH, in particular neurogenic OH among older patients, was significantly associated with 30-day hospital or ER readmission. This suggests that screening for OH with sitting and standing BP measurements and inclusion of OH in risk models may be of benefit to include in hospital discharge protocols.