Under Pressure: Symptomatic Pulmonary Hypertension Is a Predictor of Poor Outcome Following Hip Fracture

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Purpose: Pulmonary hypertension (PHTN) is associated with increased morbidity and mortality in noncardiac surgery and elective surgery. This population of patients has a low physiological reserve and is prone to cardiac arrest as a result. This study aims to identify the impact that PHTN has on outcomes among geriatric hip fracture patients.

Methods: A 3:1 propensity-score-matched retrospective case (PHTN) – control (no PHTN [N]) study of hip fracture patients from 2014-2022 was performed. Patients were matched utilizing propensity score matching of a validated geriatric trauma risk assessment tool (STTGMA). All patients were reviewed for hospital quality measures and outcomes. Comparative univariable and multivariable analyses were conducted between the 2 matched cohorts. A sub analysis of patients with PHTN stratified patients based on the severity of their PHTN as measured by pulmonary artery systolic pressure (PASP) utilizing preoperative transthoracic echocardiogram (TTE). The cutoffs for mild (36-45 mm Hg), moderate (46-60 mm Hg), and severe (>60 mm Hg) were chosen per literature. Comparative analyses were conducted between the 3 PHTN severity level cohorts to determine differences among outcomes.

Results: PHTN patients (n = 67) experienced a higher rate of inpatient, 30-day, and 1-year mortality, major complications, and 90-day readmissions as compared to the N cohort (n = 201). PHTN patients with a PASP >60 experienced a significantly higher rate of major complications, need for ICU, longer admission length, and worse 1-year functional outcomes. Pulmonary hypertension was found to be independently associated with a 3.5× higher rate of 30-day mortality (P = 0.016), 2.7× higher rate of 1-year mortality (P = 0.008), 2.5× higher rate of a major inpatient complication (P = 0.028), and 1.2× higher rate of 90-day readmission (P = 0.044)

Conclusion: Patients who had a prior diagnosis of pulmonary hypertension before sustaining their hip fracture experienced significantly worse inpatient and post-discharge outcomes. Those with a PASP >60 mm Hg had worse outcomes within the PHTN cohort. Providers must recognize these at-risk patients at the time of arrival to adjust care planning accordingly.