# Frailty is More Predictive of Mortality than Age in Patient with Hip Fractures

Abigail E Sagona[1], Arvind Gabriel Von Keudell, Carlos Ortega, Liqin Wang, Faith Selzer[1], Li Zhou
[1]Brigham and Women's Hospital

INTRODUCTION:

The Frailty Index (FI) is one of the many diagnostic tools that can help clinicians predict patient's outcome post-operatively and is scored between 0.1 and 1.0. We investigated the relationship between FI and two-year mortality and one-year re-admission in geriatric patients undergoing surgery for a hip fracture.

METHODS: We identified patients who were ≥65 years old, underwent surgical repair of a femoral neck or intertrochanteric hip fracture between May 2018 and August 2020 at the Brigham and Women's Hospital, Boston, MA. Demographic and clinical data were extracted from the electronic health record and verified by chart review. FI scores were grouped into: Non-Frail/Pre-Frail (FI <0.21), Frail (0.21≤FI<0.45), and Severely Frail (FI > 0.45). Statistical analyses were performed using the chi-square and Fisher's exact tests for categorical variables and t-tests (parametric) and Kruskal-Wallis (non-parametric) tests for continuous variables. One-year (re-hospitalization) and two-year (survival) event rates were calculated using the Kaplan–Meier approach, and comparisons of survival curves were performed using the log-rank test.

RESULTS: We identified 316 patients with hip fractures who underwent surgical repair and had a frailty index score assigned. The mean age was 83.8 years (standard deviation [SD] 7.9). Patients were predominantly white (88.0%) and female (69.9%). Femoral neck fractures accounted for 129 (40.8%) of cases and intertrochanteric fractures accounted for the remainder (n=187,59.2%). The mean FI score was 0.33 (SD 0.14). The one-year readmission was significantly different (p<0.004) as was the two-year survival (p<0.001) between the groups. Even with adjustment for age and important comorbid conditions, the severity level of frailty was significantly associated with mortality and the need for hospital readmission (figure 1). Furthermore, being classified as frail or severely frail was more strongly associated with mortality than age (HR 1.29 per 5 years, 95% confidence intervals 1.11-1.49).

DISCUSSION AND CONCLUSION: We found that higher FI is significantly associated with mortality and hospital readmission in the first year following hip surgery. These results suggest that FI has a role in identifying higher risk surgical candidates and guiding clinical decision making.