

Patient Frailty is Correlated with Increased Adverse Events and Costs after Revision Knee Arthroplasty

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INTRODUCTION: Frail patients identified using the Hospital Frailty Risk Score (HFRS) have been associated with increased adverse events and healthcare burden after various orthopaedic procedures. However, the HFRS has not been studied in patients requiring revision total knee arthroplasty (rTKA). This study investigates the correlation between the HFRS and postoperative outcomes and costs after rTKA.

METHODS: In this retrospective cohort study, we used the Nationwide Readmissions Database to identify patients discharged after rTKA from January 2017 to November 2019. The three most frequently reported diagnosis codes for rTKA were then selected: mechanical loosening, infection, and dislocation. We used the HFRS to calculate each patient's frailty status. We compared 30-day readmission rates, length of stay (LOS), and hospitalization costs between frail and non-frail patients, using multivariate and binomial regression analysis to normalize our sample.

RESULTS: We identified 47,347 rTKA patients including 25,177 patients for mechanical loosening, 12,712 for infection, and 9,458 for dislocation. Frail patients had higher rates of 30-day readmission (8.7% vs. 3.9% for dislocation, 7.8% vs. 3.7% for loosening, 13.5% vs. 8.1% for infection; $p < .01$), longer LOS (4.9 vs. 2.4 days for dislocation, 4.1 vs. 2.4 days for loosening, 8.1 vs. 4.4 days for infection; $p < .01$), and greater hospital cost (\$29,790 vs. \$24,164 for dislocation, \$32,082 vs. \$27,582 for loosening, \$32,898 vs. \$28,115 for infection; $p < .01$). Frail rTKA patients for loosening had higher 30-day complication (6.8% vs. 2.9%, $p < .01$) and reoperation rates (1.8% vs. 1.2%, $p = .01$). Frail patients for infection had higher 30-day complication rates (14.0% vs. 8.3%, $p < .01$). Frail patients for dislocations had higher 30-day complication (8.0% vs. 3.5%, $p < .01$) and reoperation rates (3.2% vs. 1.6%, $p < .01$).

DISCUSSION AND CONCLUSION: Our analysis suggests that the HFRS may screen for frail patients at higher risk for adverse events and increased healthcare costs after rTKA. Further research is needed to better understand causation and possible methods to mitigate complications and costs within this frail population.