Total Knee Replacement or Open Reduction and Internal Fixation for Geriatric Distal Femur Fractures

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INTRODUCTION: Distal femur fractures are severe injuries, particularly in the geriatric population. Conventional open reduction and internal fixation (ORIF) approaches are challenging in this older demographic, and may result in poor outcomes. Alternatively, total knee arthroplasty (TKA) may be used, potentially improving outcomes. The aim of this study is to compare ORIF and TKA in the setting of geriatric distal femur fractures.

METHODS: This retrospective cohort study utilized the National Readmissions Database, years 2016-2019. Patients over the age of 65 with distal femur fractures treated via ORIF or TKA were identified via ICD-10 codes. Multivariate regression was performed to assess outcomes while negative binomial regression was performed to assess 30-day readmission and reoperation. Quasi-Poisson regression was performed to assess length of stay (LOS) and total charges. Demographics and comorbidities, measured via Elixhauser comorbidity index, were controlled for in our analysis.

RESULTS: A total of 34,189 patients were identified. 32,289 (94.4%) underwent ORIF while 1,900 (5.6%) underwent TKA. The mean age was 78.6 years. Patients undergoing TKA had increased medical (Odds Ratio (OR) 1.056; p=0.031) and surgical complications (OR 1.404; p<0.001), including joint infections (OR 3.113; p<0.001). They also had increased odds of 30-day readmission (OR 1.423; p<0.001), reoperation (OR 2.547; p<0.001), longer LOS (OR 1.256; p<0.001), and greater total charges (OR 1.953; p<0.001).

DISCUSSION AND CONCLUSION: TKA is associated with worse outcomes compared to ORIF in the setting of geriatric distal femur fractures. Not only is it associated with increased complications, but also readmission, reoperation, and longer hospital stays. Importantly, despite the worse outcomes, total charges were significantly greater for these patients, indicating it is less cost effective than ORIF as well.