Delay in Fixation of Geriatric Distal Femur Fractures Is Associated With Increased Mortality

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Purpose: Delayed surgery in geriatric hip fractures is associated with increased complications and mortality. The purpose of this study is to determine if delayed fixation (>2 midnights from admission) of distal femur fractures (DFFs), another common geriatric injury, is associated with increased rates of postoperative complications and mortality.

Methods: The Center for Medicare & Medicaid Services (CMS) database was queried to identify nonelective operations for fixation of isolated DFF in patients 65 years and older. Complications and mortality rates were compared between patients who underwent surgery within 2 midnights of admission (early fixation) or after 2 midnights from admission (delayed fixation). Multivariate analysis and Mahalanobis propensity matching were used to control for patient risk factors.

Results: 21,911 patients were identified with 3396 (15.5%) in the delayed surgery group. There was no difference in age (mean 80 years, P = 0.37) or sex (85% women, P = 0.47) between groups. Patients receiving delayed surgery demonstrated differences: more periprosthetic injuries (28% vs 23%, P<0.001) and more comorbidities (Charlson Comorbidity Index score of ≥2 in 60% vs 48%, P<0.001) but fewer displaced (48% vs 52%, P<0.001) and fewer open injuries (1.4% vs 2.3%, P = 0.001). Unadjusted, the delayed surgery group demonstrated higher rates of 1-year death (27% vs 20%, P<0.001), readmission (54% vs 46%, P<0.001), and complications (74% vs 64%, P<0.001). In logistic regression analysis, delayed surgery demonstrated odds ratio 1.4× for mortality at 1 year. Higher complication rates persisted after propensity matching in the delayed fixation group with a 9.7% higher rate of overall complications, a 7.7% higher rate of readmission, and a 5.5% higher rate of mortality at 1 year postoperatively (P<0.001).

Conclusion: Delayed time to fixation of geriatric DFF is independently associated with an increased rate of complications, including mortality, within 1 year postoperatively after sophisticated statistical control. This indicates that there may be a physiologic benefit to prioritizing early surgical intervention on geriatric distal femur fractures, similarly to geriatric hip fractures.