

Delayed Surgical Fixation Is Associated With Increased Mortality in Patients with Distal Femur Fractures

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Purpose: Our objective was to address the conflicting evidence in the literature regarding time to surgery and its impact on outcomes for distal femoral fractures.

Methods: This is a retrospective review of the American College of Surgeons' (ACS) National Surgical Quality Improvement Program (NSQIP®) database, which collects data from 680 hospitals across the United States. The database was queried from 2010 to 2021. Case selection was done by use of ICD-9 and ICD-10 codes for native distal femoral fractures and periprosthetic distal femur fractures, along with CPT codes for surgical fixation of the distal femur, total knee arthroplasty, and revision knee arthroplasty. Preoperative, operative, and postoperative factors were compared for patients undergoing surgery on hospital day 0 or 1 ($HD \leq 1$) to patients undergoing surgery after hospital day 1 ($HD > 1$). Primary outcome measure was 30-day mortality. χ^2 and logistic regression were used for univariable and multivariable analyses, respectively.

Results: A total of 6857 cases was identified (mean age: 71.5 years). Of them, 84.5% underwent surgery on $HD \leq 1$, and 15.5% on $HD > 1$. The mortality rate was 1.37% and 3.26%, respectively. Patients who underwent surgical fixation of distal femoral fracture on $HD \leq 1$ had a 40% risk reduction compared to fixation on $HD > 1$ (odds ratio [OR] 0.587; $p = 0.031$). A multivariable analysis revealed that presence of dyspnea (OR 4.338, $p = 0.005$), preoperative blood transfusion (OR 2.32, $p = 0.001$), and bleeding disorder (OR 1.727, $p = 0.03$) were associated with increased mortality at 30 days on multivariable analysis, while younger age (OR 0.216; $p = 0.001$) had a protective effect.

Conclusion: Delayed surgical fixation is associated with increased 30-day mortality for patients with distal femoral fractures. Further studies will help determine if the increased mortality is caused by the delay itself or by other confounding variables not identified in this study that may be associated with the reason for the delay.