

Besides Delay, What Else Increases Mortality Following Hip Fracture Surgery?

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Purpose: Hip fractures in the elderly are common and account for a significant burden on the health-care system. Despite remarkable advances in orthopaedic implants and understanding of these fractures, the mortality rate following hip fracture surgery still remains unsatisfactorily high. The purpose of this study was to identify and report additional perioperative and patient-specific risk factors that may be associated with increased mortality following hip fracture surgery.

Methods: A retrospective review was performed at a Level II trauma center identifying patients who were admitted for hip fracture from March 2017 to November 2019. 297 patients were included for analysis over a 2-year study period. The majority were female (63.2%) with a mean age of 79 years. Operative fractures analyzed included 121 femoral neck, 143 intertrochanteric, and 33 subtrochanteric femur fractures. Statistical analysis was performed using SPSS version 25, and included bivariate and multivariate Cox regression analyses.

Results: Increased time to surgery (>50 hours) was associated with significantly increased mortality at 30 and 90 days ($P = 0.03, 0.046$). Other factors found to significantly increase mortality at 30 and 90 days were patient age over 80 years ($P = 0.01, 0.02$), ejection fraction <60% ($P = 0.03, 0.03$), and general anesthesia ($P = 0.042$). Additionally, having experienced a postoperative complication significantly increased mortality risk while inpatient, and at 30 and 90 days postoperatively ($P = 0.001, 0.002, 0.009$). Factors found to have no significant impact on patient mortality were gender, race, fracture pattern or location, length of stay, American Society of Anesthesiologists (ASA) classification, fixation by fellowship-trained trauma surgeon, fixation construct (short intramedullary nail [IMN], long IMN, hemiarthroplasty, total hip arthroplasty), duration of surgery, or need for perioperative transfusion.

Conclusion: This study confirms the association between delay to surgery for hip fracture fixation and increased risk of 30- and 90-day mortality, underscoring the importance of early operative fixation and mobilization. Other factors significantly associated with increased risk of mortality are older patient age, diminished ejection fraction, general anesthesia, and postoperative complications including arrhythmia, pneumonia, fever of unknown origin, ileus, heart failure exacerbation, encephalopathy, and alcohol withdrawal.