Open Reduction and Internal Fixation Results in Lower Periprosthetic Joint Infections Compared to Revision Arthroplasty for Periprosthetic Fractures of the Hip

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INTRODUCTION:
Postoperative periprosthetic femur fractures after total hip arthroplasty (THA) result in serious morbidity. While the treatment algorithm for well-fixed stems is straightforward, the decision to fix or revise a Vancouver B2 fracture may vary based on surgeon. The purpose of this study was to examine the associated risks of these treatment options and determine the rates of complications following open reduction and internal fixation (ORIF) vs revision arthroplasty for the treatment of proximal periprosthetic femur fractures.
METHODS: A retrospective review of the TriNetX database (TriNetX, Cambridge, MA) was performed by querying all patients diagnosed with a proximal periprosthetic femur fracture between 2004 and 2024 and separating into cohorts based on treatment with ORIF (7,231) or revision arthroplasty (2,861). The ORIF and revision arthroplasty cohorts were successfully propensity score matched based on age at time of surgery, sex, body mass index (BMI), weight, and Charlson Comorbidty Index. Outcomes of interest included surgical site infection, aseptic loosening, instability, mortality, and reoperation over a 1-year follow-up period.
RESULTS: Patients treated with ORIF were at decreased odds of overall complications compared to those treated with revision arthroplasty (OR 0.64, CI 0.57-0.73). The ORIF cohort experienced decreased odds of infection (OR 0.70, CI 0.54-0.92), aseptic loosening (OR 0.37, CI 0.28-0.50), instability events (OR 0.36, CI 0.29-0.45), and need for reoperation (OR 0.76, CI 0.61-0.96). Notably, there was no difference between patients treated with ORIF or revision arthroplasty in mortality (OR 0.95, CI 0.79-1.13).
DISCUSSION AND CONCLUSION:
For postoperative periprosthetic fracture in THA, patients treated with ORIF had significantly lower odds of surgical site infection, aseptic loosening, instability and all-cause reoperation. No difference in mortality was observed between the groups. The suggested lower complication risk with ORIF may help contribute to the decision-making process in the surgical treatment of periprosthetic proximal femur fractures.