

Open Reduction and Internal Fixation Versus Distal Femoral Replacement for Treatment of Geriatric Supracondylar Femur Fractures: Analysis of Trends and Postoperative Complications

Christian Falgons, MD; Jacob Siahaan, MS; Victor J. Wu, MD; Patrick Kellam, MD; David Rodriguez; Stephen J. Warner, MD

Purpose: Supracondylar comminuted distal femur fractures present a complex problem for elderly patients and surgeons, typically accompanied by high morbidity and 1-year mortality. Surgical management is needed to address these fractures and usually consists of open reduction and internal fixation (ORIF) or distal femoral replacement (DFR) when major bone loss is apparent. Surgical techniques and implant improvements have improved the overall treatment and biologic healing of these injuries, but no consensus has been reached on the ideal treatment modality. This study provides better insight utilizing a national, larger, and more representative sample of patients to investigate complication rates associated with geriatric supracondylar femur fractures after ORIF versus DFR.

Methods: A retrospective, comparative study design was used in conjunction with a commercial administrative claims database with records of 161 million patients. The database was queried from 2010 and 2019 for patients older than 50 years using diagnosis codes for supracondylar femur fractures associated with procedural codes for ORIF and arthroplasty within 30 days. ORIF patients were tracked longitudinally for 1 year and arthroplasty patients were tracked indefinitely after the initial operation. Each cohort was separately evaluated for reoperations and revisions as a composite complication group and surgical site infection (SSI) as another.

Results: Of the 8369 patients included in the final analysis, 8084 (96.6%) underwent ORIF and 285 (3.4%) had primary arthroplasty for the acute treatment of their injury. Patients who underwent DFR had increased likelihood of SSI and reoperation when compared to patients who underwent ORIF (13.1% vs 6.4%; odds ratio [OR] 1.9 and 15.9% vs 3.2%; OR 5.8, respectively). Despite a recent increase in the amount of research on DFR as a meaningful treatment for these injuries, this analysis showed a static trend over the last 10 years in utilization of these individual treatment modalities for these injuries.

Conclusion: There exists a significant increase in short-term complication rates in geriatric patients undergoing DFR for acute supracondylar femur fractures. ORIF as the surgical treatment modality correlated with a reduced surgical burden and overall morbidity.