

The Difference in Risk of Peri-Implant Fracture Utilizing Long Versus Short Cephalomedullary Nailing for Geriatric Patients with Intertrochanteric Femur Fractures

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Purpose: This study was undertaken to compare the postoperative peri-implant fracture rates between intertrochanteric femur fractures treated with either a long or short cephalomedullary nail.

Methods: This retrospective cohort study was conducted at a Level I trauma center in patients admitted between January 2005 and April 2014. All included patients were at least 65 years of age and sustained an intertrochanteric femur fracture that was treated with either a long or short cephalomedullary nail. Patients were excluded if they sustained a pathologic fracture, had previous surgery on the ipsilateral hip, or had follow-up <3 months.

Results: There were 1068 Intertrochanteric femur fractures in patients at least 65 years of age who were identified by the trauma registry. 175 patients were excluded, leaving 893 patients for review. Patients were treated with 600 (67.2%) short and 293 (32.8%) long cephalomedullary nails, at the treating surgeon's discretion. No significant differences were found in baseline demographics, medical comorbidities, or ISS between the 2 cohorts. There were also no significant differences between any of the primary or secondary end points including: hospital length of stay (7.1 vs 6.8, $P = 0.407$), mortality (1.3% vs 2.7%, $P = 0.139$), overall reoperation rate (5.2% vs 3.8%, $P = 0.240$), and reoperation rate secondary to peri-implant fracture (1.2% vs 0.7%, $P = 0.726$).

Conclusion: There is no difference in risk of postoperative peri-implant fracture in intertrochanteric femur fractures treated with either a long or short cephalomedullary nail. For intertrochanteric femur fractures without subtrochanteric extension, a short cephalomedullary nail can be used without increased risk of peri-implant fracture. Additionally, given preexisting data concerning cost savings and shorter operative time with less blood loss, short cephalomedullary nails should be utilized for unstable intertrochanteric femur fractures without subtrochanteric extension.