Paper #50

Periprosthetic Femur Fracture Risk: Influenced by Stem Choice, Not Surgical Approach

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Introduction: Periprosthetic femur fracture (PFF) remains a common reason for failure following total hip arthroplasty (THA). For over 10 years, our institution has performed both anterior (AA) and posterior (PA) approaches for primary THA with multiple stem designs. The aim of this study is to determine the 90-days relative risk of PFF in regards to approach and stem design.

Methods: A retrospective review of our institutional database was performed on all patients undergoing primary THA from 2007-2018 using AA or PA approaches. Five surgeons performing 6,309 THAs (AA=4510; PA=1799) using single-wedge taper (n=2417) or fit-and-fill (n=3892) stems were included. PFF occurring within 90-days of the index procedure were analyzed. Differences in PFF rates, fracture location, stem type, and treatment method were assessed. Comparisons were made using a Cox Regression analysis..

Results: The 90-days revision rate for fracture was 0.3%. Clinically significant fractures requiring cerclage cabling, stem change, revision, or ORIF occurred in 1.0% of patients (intraoperative=0.7%; postoperative=0.3%). No increased risk of PFF was found based on approach (p=0.42), sex (p=0.12), or surgeon (p=0.38). Single wedge taper stem designs were 4.8 times more likely to result in PFF than fit-and-fill stems (p<0.01). Collared stems were 4.4 times less likely to result in PFF than non-collared stems (p<0.01). Age over 65 and BMI under 25 were risk factors for PFF (p=0.03).

Conclusions: Our single-center experience demonstrates that risk of periprosthetic fracture within one year of surgery is significantly lower with collared stems and fit-and-fill designs. Age over 65 and BMI below 25 nearly double PFF risk.

Notes