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Contemporary Distal Femoral Replacements for Periprosthetic TKA Femoral Fractures

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Introduction: There is a paucity of data on the outcomes of contemporary distal femoral replacements (DFRs) in patients with total knee arthroplasty (TKA) periprosthetic fractures. We sought to characterize their outcomes, analyzing 1) survivorship free from revision and aseptic loosening, 2) risk factors for early revision, and 3) complications.

Methods: We retrospectively identified 43 patients (9 after revision TKA, 34 after primary TKA) that underwent DFR for a periprosthetic femur fracture from 2010-2017 at a single institution. Mean age was 75 years and 35 patients (81%) were female. Mean follow-up was 4 years. Femoral fixation included: 38 cemented stems (88%), 5 cementless stems (12%), and no adjunctive metaphyseal fixation. Survivorship free from revision and aseptic loosening was characterized by the Kaplan-Meier method. Cox proportional regression was utilized to analyze risk factors for re-revision.

Results: Survivorship free from any re-revision at 5 years in the primary and revision cohort was 91% and 32%, respectively. DFR after revision TKA had a 4.3-fold lower re-revision-free survival compared to DFR after primary TKA ($p=0.04$). Survivorship free from re-revision for aseptic loosening at 5 years in the primary and revision cohort was 94% and 71%, respectively. Cementless femoral stem fixation had a significantly higher risk for aseptic loosening ($HR=12.2$, $p=0.007$). DFRs in prior primary TKAs with cemented femoral fixation ($n=33$ patients) had a 97% 5-year survivorship free from any revision. Five patients (12%) sustained perioperative medical complications, but no patients died within 1 year.

Conclusions: DFRs with cemented femoral fixation for periprosthetic femur fractures in primary TKAs have a 5-year re-revision-free survival of 97%. DFRs for periprosthetic femur fractures around revision TKAs had a 4-fold increased risk of re-revision compared to those performed in fractures around primary TKAs. Cementless femoral stems had a 12-fold increased risk for aseptic loosening compared to cemented fixation.

Notes
