

## **A High Rate of Early Septic and Mid-Term Aseptic Failure of Contemporary Rotating Hinge Revision Total Knee Arthroplasty**

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**INTRODUCTION:** The purpose of this study was to determine implant survivorship and functional outcomes after revision total knee arthroplasty (TKA) using contemporary rotating-hinge knee implants.

**METHODS:** This retrospective study included 115 revision TKAs using rotating hinges from 2014-2018 for treatment of instability (30%), reimplantation after periprosthetic joint infection (PJI) (29%), aseptic loosening (22%), arthrofibrosis (12%), periprosthetic fracture (3%), osteolysis (3%), and femoral component fracture (1%). The study group included 70 females (61%), mean body mass index was 32 kg/m<sup>2</sup>, and mean age was 67 years. Minimum follow up was 2 years. Kaplan-Meier analysis and Cox proportional hazard models were to estimate survivorship.

**RESULTS:** Overall rerevision rate was 20% (23/115) at an average of 18 months postoperatively. Rerevision was performed for PJI (14, 12%), aseptic loosening (4, 3%), arthrofibrosis (2, 2%), malalignment (1, 1%), femoral stem fracture (1, 1%), hinge mechanism disruption (1, 1%). All 4 rerevisions for aseptic loosening had cemented femoral stems without cone fixation in a previously instrumented femoral canal, and 2 were eventually revised to a distal femoral replacement (DFR). At 2 and 5 years, survivorship free from all-cause rerevision was 86% and 64%, and survivorship free from revision for aseptic loosening was 100% and 87%. Hinge implantation for the indication of PJI was associated with increased risk of all-cause rerevision (hazard ratio [HR]=2.4, p=0.046). Sex, age, ASA class, use of cone/sleeve were not significantly associated with all-cause revision or revision for aseptic loosening (p>0.05). Mean KOOS JR increased from 43 preoperatively to 60 at 1-year follow up.

**DISCUSSION AND CONCLUSION:** In this complex patient cohort, there were relatively poor 2-year survivorship free of any rerevision (including PJI in 12%) and 5-year survivorship free from revision for aseptic loosening. There should be a goal to mitigate complications, namely PJI and aseptic loosening, including considering liberal use of metaphyseal cones.