Long-Term Results of Two-stage Exchange for PJI Following TKA: Low Rates of Failure in 463 Knees at 10 years

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INTRODUCTION:
Recent data suggests similar reinfection rates between two-stage and one-stage exchange arthroplasties for infected total knee arthroplasties (TKAs) in the short-term. However, those data are limited in follow-up and analysis of aseptic failures. The purpose of this study was to assess long-term results of two-stage exchange for TKAs in one of the largest series to date.
METHODS:
We identified 463 infected TKAs treated with two-stage exchange from 1991-2021 at a single institution. Mean age at reimplantation was 68 years, 49% were female, and mean BMI was 32 kg/m^2. PJI diagnosis was based on the 2011 MSIS criteria. Cumulative incidences of reinfection and revision with death as a competing risk were calculated. Mean follow up was 8 years.
RESULTS: The cumulative incidence of reinfection was 6% at 1 year, 14% at 5 years, and 19% at 10 years. Factors predictive of reinfection included elevated BMI (HR 1.3 for every 5-point increase, $p<0.001$), McPherson host grade C (HR 2.3, $p=0.03$), previous revision surgery (HR 2.1, $p=0.002$), and AORI type-3 bone loss (HR 4.6, $p=0.01$). The cumulative incidence of aseptic revision was 1% at 1 year, 5% at 5 years, and 9% at 10 years. The cumulative incidence of any revision was 7% at 1 year, 18% at 5 years, and 26% at 10 years. The most common indications for revision were recurrent PJI (63%), aseptic loosening (22%), instability (6%), and other mechanical failures (5%). Mean KSS improved from 48 to 69 at 2 years ($p<0.001$).
DISCUSSION AND CONCLUSION:
In this series of 463 two-stage exchange for infected TKAs, the cumulative risk of reinfection was less than 20% and cumulative risk of aseptic revision was less than 10% at 10 years. Poor host status, particularly obesity, was predictive of reinfection. These long-term outcomes must be weighed when considering a paradigm shift to one-stage exchange.