

Short-Interval Two-Stage Revision Arthroplasty: Comparable Outcomes to Conventional Two-Stage Surgery

Juan David Lizcano¹, Ryan Sutton, Andrew Fraval, Sean Christopher Clark², Paul Maxwell Courtney, Scot Brown³

¹Rothman Orthopaedic Institute, ²Tulane University School of Medicine, ³Rothman Institute

INTRODUCTION:

While two-stage exchange revision arthroplasty remains the standard treatment for chronic periprosthetic joint infection (PJI), the optimal interval between stages is not well defined. The purpose of this study was to compare the outcomes of patients undergoing two-stage revision with short-interval (5-7 days) versus conventional interval (2-3 months) for PJI with similar indications.

METHODS:

We reviewed a series of 107 patients that underwent two-stage revision total hip (THA) or knee arthroplasty (TKA) for chronic PJI between September 2017 and March 2022 at a single institution. Patients in the short-interval group remained an inpatient on antibiotics between stages and were treated with a minimum of 6 weeks of antibiotics following the second stage. The primary outcome was the Musculoskeletal Infection Society definition of being PJI-free at one-year follow up, and we also compared revision rates, complications, and salvage procedures between those undergoing short-interval (n=48) versus conventional two-stage (n=59).

RESULTS: Although more draining sinuses ($p<0.001$) and polymicrobial infections were identified in conventional two-stage ($p=0.034$) patients, demographics and comorbidities were similar between the groups ($p>0.05$). There was also no difference in the length of stay or in-hospital complications ($p>0.05$). The mean follow up was 2 ± 0.97 years. There was no difference in patients who were PJI-free at one year (78% vs. 83%, $p=0.628$), PJI-related re-revisions (19% vs. 15%, $p=0.118$), or salvage procedures (15% vs. 6%, $p=0.142$) between the conventional and short-stage groups. A subgroup analysis found no difference in outcomes between THA and TKA patients.

DISCUSSION AND CONCLUSION:

With comparable success rates to a conventional 2–3 month interval, a short interval of 5-7 days for a two-stage revision is an option for patients with chronic PJI. While further longer-term study is needed for a shorter interval between stages, it is an option for patients who may desire to be treated in one hospitalization.