

Complications and Outcomes Associated with Two-Stage Treatment of Periprosthetic Total Knee Infection

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Background and Hypothesis: Periprosthetic joint infection (PJI) is treated with implant resection, debridement, and component reimplantation after infection eradication. Treatment consists of either a single surgery or two-stage surgery with intravenous antibiotic therapy between stages. We replicated a recent study which concluded two-stage treatment is associated with high morbidity, hypothesizing that complication rates would be similar, but that morbidity is not always conclusively a consequence of two-stage treatment for PJI

Project Methods: Prospectively documented data on all primary and revision knees undergoing two-stage treatment for PJI by a single surgeon were retrospectively reviewed. Surgical complications were quantified for the interstage and post-reimplantation periods. Chi-squared tests were used to compare current findings to published findings.

Results: Patient demographics and comorbidities were equivalent in the two studies ($p \geq .137$). More complex infections characterized the current study as evidenced by significantly more polymicrobial infections ($p < .001$) and greater use of static spacers due to bone loss ($p = .002$). Nonetheless, only 1.5% of cases in the current study did not undergo component reimplantation compared to 7.8% in the comparison study ($p = .129$). There were no differences in the number of additional interstage and post-reimplantation septic surgeries ($p \geq .492$). Using a proposed system which penalizes additional operations required to eradicate infection, treatment success rates at minimum one year follow-up were 64% and 71%, respectively ($p = .473$). Without these penalties, treatment success in the current study was 95.6% (equivalent proportion not available for comparison study). All-cause mortality was statistically equivalent in the two studies (15.6 versus 7.6%, $p = .144$) but no deaths from PJI were observed in the current study (unknown for comparison study).

Potential Impact: Study findings suggest that morbidity attributed to two-stage treatment reflect the inherent complexity of this patient group, and not the two-stage treatment itself.