

## **Predictors of Failure of Two-Stage Revision in Periprosthetic Knee Infection: A Retrospective Cohort Study with a Minimum Two-Year Follow Up**

Lorenzo Mosconi, Luca Cavagnaro, Filippo Ferrari, Stefano Tornago

**INTRODUCTION:** Despite the standardization of two-stage knee revision protocols, a high percentage of failures still occurs. Identifying predictors of failure is necessary to determine appropriate management and counsel for patients with a periprosthetic knee infection. This study aimed to identify risk factors predicting the failure, to describe implant survival, and to report the mid-term clinical outcomes of patients undergoing two-stage revision for periprosthetic knee infection.

**METHODS:** Data of patients who underwent two-stage knee revision from 2012 to 2016 were analyzed, and 108 patients were included. The mean follow up was  $52.9 \pm 15.6$  months. Logistic regression was conducted to identify predictors of treatment failure. Kaplan-Meier curves were generated to assess implant survival. Preoperative outcomes were compared to those registered at the final follow up.

**RESULTS:** Difficult-to-treat infections (OR = 4.2, 95% CI 1.2-14.5,  $p = 0.025$ ), the number of previous surgeries (OR = 1.8, 95% CI 1.2-2.6,  $p = 0.005$ ), and the level of tibial bone defect (OR = 2.3, 95% CI 1.1-4.7,  $p = 0.027$ ) significantly predicted the failure of two-stage knee revision. Survivorship of implants was significantly lower for patients presenting these risk factors ( $p < 0.05$ ). Mean Knee Society Score and Oxford Knee Score improved from  $49.0 \pm 12.0$  to  $80.2 \pm 13.6$  and from  $22.2 \pm 4.9$  to  $36.1 \pm 6.0$  points, respectively.

**DISCUSSION AND CONCLUSION:** Difficult-to-treat pathogens, number of previous surgeries, and the level of tibial bone defect were independent risk factors of two-stage knee revision failure. Overall, the two-stage protocol provided a good survival rate and functional outcome.