

# **One-Stage Versus Two-Stage Exchange Revision Knee Arthroplasty for Chronic Periprosthetic Joint Infection**

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## **INTRODUCTION:**

The standard of care for chronic periprosthetic joint infection (PJI) following total knee arthroplasty (TKA) is the two-stage exchange revision knee arthroplasty. Recent small retrospective studies suggest that one-stage revision TKA has comparable outcomes to the two-stage procedure. The purpose of this study was to compare the surgical outcomes and complications between one- and two-stage exchange for chronic PJI following TKA using a large national database.

## **METHODS:**

The PearlDiver Mariner database was queried for patients who underwent one- and two-stage revision knee arthroplasty using a combination of Current Procedural Terminology and International Classification of Disease codes. Outcome measures included incidence of re-revision at 90 days, 1 year, and 2 years; hospital readmission, deep vein thrombosis, blood transfusion, pulmonary embolism, and acute kidney injury at 90 days; and arthrodesis and amputation at 2 years. Logistic regression analyses were performed to determine predictors of re-revision within 2 years.

## **RESULTS:**

A total of 13,735 patients were identified who underwent a single-stage exchange revision and 8,532 patients who underwent a two-stage exchange for chronic PJI after primary TKA. Significantly fewer patients in the single-stage group underwent re-revision at all tested time points, including at 90 days (6.2% vs 7.7%, OR 0.80,  $P < 0.0001$ ), 1 year (12.1% vs 13.8%, OR 0.86,  $P = 0.0002$ ), and 2 years (14.6% vs 17.3%, OR 0.82,  $P < 0.0001$ ). Single stage had lower incidence of amputation (0.9% vs 2.1%, OR 0.42,  $P < 0.0001$ ) and arthrodesis (0.9% vs 2.1%, OR 0.42,  $P < 0.0001$ ) at 2 years. At 90 days, the single-stage group had lower incidence of blood transfusion (2.9% vs 12.8%, OR 0.20,  $P < 0.0001$ ) and acute kidney injury (6.9% vs 8.5%, OR 0.80,  $P < 0.0001$ ).

## **DISCUSSION AND CONCLUSION:**

Single-stage exchange revision knee arthroplasty for chronic PJI resulted in fewer complications and failures than two-stage exchange revision and, therefore, should be considered an appropriate alternative in the properly identified patient.