

# Association between prosthetic joint infection and mortality following hip and knee replacement

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## INTRODUCTION:

Prosthetic joint infection (PJI) remains a dreaded and unpredictable complication after total hip and knee arthroplasty (THA and TKA, respectively). In addition to causing significant morbidity, PJI may contribute to long-term mortality risk. Thus, the objective of this study was to determine the long-term mortality risk associated with PJI after hip and knee arthroplasty.

## METHODS:

This study was a population-based retrospective cohort study of consecutive adult patients (> age 18 years) in Ontario, Canada who underwent primary elective arthroplasty for arthritis between April 1, 2002 and March 31, 2021. The main outcome was death within ten years of index joint reeplacement. Outcomes were compared for propensity-score matched groups (PJI versus no-PJI), using survival analyses. Patients who died within one year of surgery were excluded to avoid immortal-time bias. Outcomes were assessed for the entire study cohort, and separately for the THA and TKA populations.

## RESULTS:

A total 414,588 patients had a joint replacement during the study period (mean [SD] age 67 years [10.3]; 243,854 women (58.8%)), including 175,432 (42.3%) hips and 239,156 (57.7%) knees. Of these, 1,972 patients (0.47%) underwent surgery for a PJI within one year of their primary procedure. After matching, patients who had an infection in the first year had a significantly higher ten-year mortality rate (170 [8.9%] vs 23 [1.2%]; absolute risk difference (RD) 7.70% [95% Confidence interval (CI) 6.33%-9.07%]; HR 7.68 [95% CI 4.97-11.88]). The ten-year mortality risk after PJI was significant in both the hip (96 [11.5%] vs 21 [2.5%]; absolute RD 8.99% [95% CI 6.58%-11.41%]; HR 4.77 [95% CI 2.97-7.66]) and knee cohorts (86 [7.1%] vs 19 [1.6%]; absolute RD 5.45% [95% CI 3.82%-7.09%]; HR 4.66 [95% CI 2.84-7.65]).

## DISCUSSION AND CONCLUSION:

Prosthetic joint infection within a year of surgery is associated with nearly an eight-fold increased ten-year risk of mortality. The findings of this study underscore the importance of prioritized efforts relating to the prevention, diagnosis, and treatment of PJIs.

