

No Improvement In Infection Or Complication Rate With Extended Oral Antibiotic Prophylaxis After Primary Total Joint Arthroplasty

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INTRODUCTION: Prosthetic joint infection (PJI) is one of the most concerning complications of total joint arthroplasty (TJA), leading to significantly increased morbidity, mortality, reoperation rate and cost. Extended oral antibiotic prophylaxis (EOA) has recently attracted interest as a measure to prevent PJI among high-risk patients. However, the efficacy of EOA is uncertain with conflicting data and the risks of additional complications from increased antibiotic use have been poorly characterized. A retrospective cohort study was conducted to evaluate these aspects of EOA in both total hip arthroplasty (THA) and total knee arthroplasty (TKA).

METHODS: All adult patients who underwent primary TJA between 2015 and 2025 were abstracted from an institutional database. EOA protocol was a 7-day course of oral antibiotics (cephalosporin or trimethoprim-sulfamethoxazole [Bactrim]) directly following surgery given based on surgeon judgement of high PJI risk. TJA patients were extracted into two cohorts corresponding to whether they did or didn't receive EOA. The cohorts were matched 1:4 on the basis of age, sex and comorbidity (using Elixhauser Comorbidity Index) to address potential treatment bias. The incidence rate of PJI along with various other complications was assessed with univariate and multivariable analysis with Bonferroni correction $p < 0.004$ applied.

RESULTS:

A total of 3,615 (1,603 THA; 2,012 TKA) patients were included following the inclusion criteria and matching. 723 (288 THA; 435 TKA) of these patients were in the EOA cohort while 2,892 (1,315 THA; 1,577 TKA) patients were not.

The 90-day PJI rate was 1.9% and 1.4% for the EOA and non-EOA cohort respectively ($p=0.355$), while the 1-yr PJI rate was 2.6% and 2.4% respectively ($p=0.765$) (Figure 1). EOA remained not a significant independent predictor of PJI after multivariate logistic regression controlling for TJA type in addition to age, sex and comorbidity ($p=0.612$). The odds of all 90-day postoperative adverse events studied did not differ significantly between cohorts. These included: wound dehiscence, surgical site infection, C. diff colitis, diarrhea, acute kidney injury, pneumonia, urinary tract infection, hematoma, deep vein thrombosis, pulmonary embolism and myocardial infarction ($p > 0.01$ for all).

DISCUSSION AND CONCLUSION:

Extended oral antibiotic prophylaxis was not associated with lower PJI likelihood in this retrospective cohort study. While adverse events were not found to be elevated, advantage was also not demonstrated. Given the lack of benefit displayed, further investigation is needed to clarify the efficacy of EOA and if specific risk factors influence which patient populations benefit.

Figure 1. 1 Year Survival From PJI Among EOA and non-EOA Cohorts

