Extended Oral Antibiotic Prophylaxis for Primary Total Joint Replacement in an Ambulatory Surgery Center Setting: A Retrospective Study

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Introduction: Periprosthetic joint infection (PJI) as serious complications in total hip and knee arthroplasty (THA/TKA), associated with increased mortality, morbidity, and cost burden on the healthcare system. While prior studies have investigated the use of extended oral antibiotics (EOAs) to prevent infection in patients undergoing primary THA or TKA, there is no clear consensus. This study aims to understand the effectiveness of a 7-day EOA in reducing 3-month PJI rates following primary THA and TKA performed at a single ambulatory surgery center.

Methods: We retrospectively reviewed the infection rate for approximately 4,000 patients out of 13,593 total who underwent primary THA or TKA from 2019 to 2025, to achieve a power of 80%. Patients were excluded if they did not have a 3-month follow-up, presented with an active infection at the time of surgery, had a prior history of hip or knee joint infection, or underwent a procedure of extended duration. Patients were divided into two cohorts: those who underwent surgery prior to March 2024 (no EOA) and those after March 2024 who received 7 days of 300 mg oral cefdinir twice daily immediately postoperatively. Rates of PJI at 3 months were compared between patients who received or did not receive EOA. Fisher's exact test was performed to determine statistical significance.

Results: In a total cohort of 3,908, we analyzed 1,954 per group. For the 1,954 patients prior to EOA initiation in March 2024, the infection rate was 0.256% (5/1954). For the 1,954 patients in the EOA cohort, the infection rate was 0.256% (5/1954) ($p=1.0$). The overall infection rate was 0.38% (36/9586) pre-March 2024, without EOA, and the overall infection rate was 0.27% (11/4007) post-March 2024, with EOA ($p = 0.42$).

Discussion: Patients who received EOA after primary THA or TKA were at similar risk for infection than those who did not receive EOA. Although the EOA group had a lower percentage of infections, it did not reach statistical significance. These results may help clarify the role of extended antibiotic prophylaxis in contemporary arthroplasty practice and guide surgeon decision-making. Future research may include a sub-analysis of patients at higher risk of PJI.

Significance/Clinical Relevance: By evaluating outcomes using EOA in an ambulatory surgery center setting, this study provides evidence on whether a short postoperative antibiotic course meaningfully lowers PJI risk. Findings may inform antibiotic practices, guide perioperative protocols, and help identify patient populations most likely to benefit.