Postoperative Extended Oral Antibiotic Prophylaxis Continues to Increase in Prevalence with Questionable Improvements in One-Year Periprosthetic Joint Infection Rates

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INTRODUCTION: In an effort to reduce periprosthetic joint infection (PJI) following total hip arthroplasty (THA) and total knee arthroplasty (TKA), extended oral antibiotic prophylaxis (EOAP) has gained national popularity. However, there is conflicting literature regarding its efficacy in reducing PJI.

METHODS: The Epic Cosmos database (Epic Systems Corporation, Verona, WI, USA) was queried, which includes 299 million patients from over 1,700 hospitals and 40,000 clinics in the United States. All patients who underwent primary THA or TKA from January 1st, 2016 to April 1st, 2024, had osteoarthritis as their primary diagnosis, and were given IV Ancef pre-operatively were included. We evaluated all patients who received at least 48-hours of oral cefadroxil or cephalexin and compared them to all patients who did not receive extended oral antibiotics postoperatively. The same comparison was also performed in high-risk patients with all three of the risk factors of obesity (BMI>35), diabetes, and chronic kidney disease (CKD). The primary outcome was PJI within one-year postoperative.

RESULTS:

Overall, 872,900 patients did not receive any EOAP compared to 38,540 who received at least 48-hours of oral cefadroxil or cephalexin postoperatively. During the study period, the rate of postoperative oral cefadroxil or cephalexin increased from 0.26% to 6.03%, a 23-fold increase. When evaluating the impact of EOAP in all patients, the odds of PJI were 22% higher for patients who received EOAP (OR=1.22, 95% CI=1.12-1.31, p<0.0001). However, when evaluating the high-risk population, there was no impact of EOAP on the rate of PJI in patients with obesity, diabetes, and CKD (OR=0.95, 0.71-1.25, p=0.73).

DISCUSSION AND CONCLUSION: The use of extended oral antibiotic prophylaxis following primary THA and TKA continues to increase in popularity, especially in high-risk patients. However, this large database study fails to demonstrate improvements in one-year PJI rates with EOAP in high-risk patients with obesity, diabetes, and CKD.