

Safe Use of Cefazolin in Severe Penicillin Allergy Patients Undergoing Hip and Knee Arthroplasty

Aneesh V Samineni, Jonathan M Stern, Tim J Lindquist, Colin A McNamara, Victor H Hernandez, Michele R D'Apuzzo

INTRODUCTION: Cefazolin is the recommended perioperative antibiotic for total hip (THA) and knee arthroplasty (TKA) due to its good bone penetration and broad-spectrum efficacy. However, patients labeled with severe penicillin allergy (SPA) are often denied cefazolin due to concerns about cross-reactivity, despite limited evidence supporting this practice. This study prospectively evaluated the safety of cefazolin use in patients with SPA undergoing THA/TKA.

METHODS: Between 2022 to 2025, 1,437 THA and TKA procedures were performed at our institution. We prospectively enrolled 36 patients (2.5%) with a documented severe penicillin allergy (mean age 66.2 years; 69.4% women). Patients completed a preoperative questionnaire detailing allergy duration, exposure source, and reaction types. All patients were screened for MRSA and excluded if positive due to the addition of Vancomycin preoperatively. Standard protocols included perioperative cefazolin administration, with intraoperative and 6-hour postoperative monitoring for allergic reactions (e.g., anaphylaxis, rash). Secondary endpoints included surgical site infection (SSI) and prosthetic joint infection (PJI). Descriptive statistics were used for the analysis.

RESULTS:

A total 5 patients (15.6%) had documented penicillin allergies confirmed by skin testing. Questionnaire results showed allergies lasted a mean of 37 years, with exposure sources being penicillin (65%), unknown (23%), and other antibiotics (12%). Reaction types included severe skin rash (56%), dyspnea (53%), body swelling (50%), face swelling (22%) severe pruritus (44%), wheezing (25%) and anaphylaxis (8%). Most patients (75%) reported 2 to 4 of these reactions. No intraoperative or postoperative allergic reactions occurred with cefazolin. One patient developed SSI (2.8%) and one PJI (2.8%) within 90 days.

DISCUSSION AND CONCLUSION: Cefazolin appears safe for patients with severe penicillin allergy undergoing THA/TKA, with no allergic reactions observed. These findings challenge routine cephalosporin avoidance in this population and support de-labeling protocols to optimize antibiotic prophylaxis and reduce SSI risk. Larger studies are needed to confirm these results.