Preferences of Cefazolin use Amongst Orthopaedic Surgeons and Anesthesia Healthcare Providers

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INTRODUCTION: Cefazolin has been established as the preferred antibiotic for perioperative prophylaxis in total joint arthroplasty (TJA). However, misconceptions about penicillin cross-reactivity and penicillin allergy prevalence often result in unnecessary substitution with alternative agents such as clindamycin or vancomycin, potentially increasing the risk for prosthetic joint infection (PJI). Prior studies have shown that patients with severe penicillin allergies can tolerate cefazolin, and current guidelines advocate for the use of cefazolin in these patients. We hypothesized that orthopaedic surgeons, anesthesiologists, and CRNAs frequently avoid cefazolin in penicillin-allergic patients due to misconceptions regarding cross-reactivity and perceived efficacy of alternative agents.

METHODS: A cross-sectional survey study was sent to six academic hospitals, two community hospitals, and one orthopaedic private practice. The 22-item survey assessed provider antibiotic selection, knowledge of penicillin allergies, and cefazolin cross-reactivity. The survey was distributed to orthopaedic surgeons, anesthesiologists, and CRNAs and was open for two months. Response patterns were analyzed across groups descriptively and comparatively.

RESULTS: Of 128 respondents, in cases of unspecified penicillin allergy during general orthopaedic procedures, 5.88% of anesthesiologists and CRNAs used alternative agents, and orthopaedic surgeons were less likely to use cefazolin (11.63% switched to alternatives). For patients with anaphylactic penicillin allergies, a notable shift toward alternative antibiotics was observed across all groups, with 49.02% of anesthesiologists, 58.82% of CRNAs, and 60.47% of orthopaedic surgeons deferring to alternatives. For arthroplasty cases, 5.9% of anesthesiologists, 14.7% of CRNAs, and 11.6% of orthopaedic surgeons stated that they would avoid cefazolin in patients with unspecified penicillin allergies undergoing THA, with similar rates for TKA. For anaphylactic allergies, avoidance rates increased (THA: 47.1% anesthesiology, 58.8% CRNA, 58.1% orthopaedics; TKA: 51.0%, 58.8%, 60.4% respectively). When asked about antibiotic efficacy, 37.3% of anesthesiologists, 61.8% of CRNAs, and 41.9% of orthopaedic surgeons stated that clindamycin and vancomycin were equally effective as cefazolin. Over 60% of providers overestimated the prevalence of self-reported penicillin allergy, and over 30% of providers overestimated the cross-reactivity rate between penicillin and cefazolin. No statistically significant differences were observed between groups.

DISCUSSION AND CONCLUSION: Despite guidelines endorsing cefazolin in penicillin-allergic patients, substantial avoidance and knowledge gaps persisted across specialties. These findings highlight the need for targeted education to align perioperative antibiotic selection with best practices, potentially reducing PJI risk and improving TJA outcomes.