THE EFFICACY OF CEFAZOLIN VS NON-CEPHALOSPORIN ALTERNATIVES IN PERIPROSTHETIC JOINT INFFECTION PREVENTION AFTER HIP AND KNEE ARTHROPLASTY

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INTRODUCTION: Periprosthetic joint infection (PJI) remains a challenging complication of total hip and knee arthroplasty (THA and TKA, respectively). Current guidelines recommend the use of first generation cephalosporins for prophylactic antibiotic coverage. Recent literature suggests that non-cephalosporin alternatives increase the likelihood of PJI compared to cefazolin. However, there are currently no meta-analyses comparing the two. The purpose of this meta-analysis was to compare PJI rates in patients who received cefazolin or non-cephalosporin prophylaxis following total joint arthroplasty.

METHODS: Multiple databases were queried for literature comparing the clinical outcomes between patients treated with cefazolin prophylaxis and those treated with non-cephalosporin prophylaxis. The primary outcome was PJI rates. A random effects model was used to compare the relative risk of PJI in the two pooled cohorts.

RESULTS: Twelve studies with a total of 2,300,059 patients were included, with 2,121,706 (92.3%) treated with cefazolin antibiotics and 178,353 (7.7%) treated with non-cephalosporin antibiotics. Patients treated with cefazolin were 45% less likely to develop a PJI (rate = 0.24%) relative to vancomycin (with/without clindamycin) treated patients (rate = 0.42%, p = 0.004) among all TJA cases. The cefazolin group was also 34% less likely to develop a PJI (rate = 0.26%) relative to patients treated with all non-cephalosporin antibiotics (rate = 0.40%, p = 0.004). When comparing cefazolin to clindamycin alone there was no significant risk reduction of PJI. Further studies are needed to assess variability due to high heterogeneity in effect sizes across the meta-analysis (I^2 = 88%, Tau 0.20), likely from differences within this large study population.

DISCUSSION AND CONCLUSION: Cefazolin is associated with a significantly lower rate of PJI following total joint arthroplasty when compared to all non-cephalosporin antibiotics and specifically vancomycin with/without clindamycin. The heterogeneity suggests that randomized clinical trials are needed to further evaluate this question.