

Trial of Vancomycin and Cefazolin as Surgical Prophylaxis in Arthroplasty, Peel, T. N., et. al., *The New England Journal of Medicine*, Volume 389, Issue 16, 1488-1498, Oct. 19, 2023

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Level of Evidence: 1

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Joint arthroplasty has become some of the most prevalent and meaningful surgical procedures to orthopaedic surgeons, with knee and hip joint arthroplasty alone projected to exceed 2.7 million annually in the US by 2030. Along that same course, infection post-operatively can be devastating, with inpatient costs surpassing \$28,000 per infection in the United States. The current recommendations for joint replacement prophylactic antibiotics include a first- or second-generation cephalosporin, such as cefazolin. Still, this may not prevent infection caused by methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-resistant *S. epidermidis*, two highly reported pathogens in joint arthroplasty infection. Adding vancomycin prophylactically can provide a greater deal of protection from these organisms, however the benefits are not well-reported. The purpose of this study was to assess if adding vancomycin to cefazolin for joint arthroplasty prophylaxis better prevents infection than by using cefazolin alone.

Among 4113 participants:

- Surgical site infection occurred in 91/2044 (4.5%) patients in vancomycin + cefazolin group
- Surgical site infection occurred in 72/2069 (3.5%) patients in cefazolin alone group

Knee arthroplasty:

- Surgical site infection occurred in 63/1109 (5.7%) patients in vancomycin + cefazolin group
- Surgical site infection occurred in 42/1124 (3.7%) patients in cefazolin alone group

Hip arthroplasty:

- Surgical site infection occurred in 28/920 (3.0%) patients in vancomycin + cefazolin group
- Surgical site infection occurred in 29/930 (3.1%) patients in cefazolin alone group

Shoulder arthroplasty:

- Surgical site infection occurred in 0/15 (0%) patients in vancomycin + cefazolin group
- Surgical site infection occurred in 1/15 (7%) patients in cefazolin alone group

In this double-blinded, multicenter, superiority, placebo-controlled experimental research design, there is no evidence to support that adding vancomycin to cefazolin for surgical prophylaxis when undergoing a joint arthroplasty prevents infection any more than to having cefazolin given alone.

This study is unique since logic would dictate that adding another antibiotic prophylactically before joint arthroplasty would further prevent infection. Despite the significant sample size, not only was there no statistical significance to support this, but there was an overall lower rate of infection in the cefazolin only group among all participants.



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