

February 26, 2019

Concerns about Extended Oral Antibiotic Prophylaxis

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We read with interest the paper by Inabathula et al. on the finding of reduced periprosthetic joint infections (PJI) after extending oral antibiotic prophylaxis to 7 days postoperatively in high-risk patients. However, we have a few concerns about the procedures applied in their retrospective cohort.

First, the authors did not specify the choice, dose, or timing of the start of infusion of their preoperative antibiotic prophylaxis. Given high rates of methicillin-resistant *Staphylococcus aureus* (MRSA) in the US, a likely candidate would be vancomycin, which needs to be applied at a prolonged infusion rate (usually at least 60 minutes per gram of vancomycin) in order to prevent infusion reactions. (1) In view of the high median BMI of patients in the high-risk groups, high vancomycin doses and accordingly long perfusion times would be required for efficacy, (2) but the authors state that intravenous administration of antibiotics took place “within an hour before surgery.” This would lead to inadequate vancomycin tissue levels at the time of incision, particularly in obese patients, if vancomycin dosing and timing were suboptimal.

Recently, a follow-up of 90 days, as used in this study, for surveillance for implant-associated infections has been adopted by the CDC and European Centre for Disease Prevention and Control. However, there is an ongoing controversy about the optimal surveillance duration, as lower infection rates are reported in shorter follow-ups. (3,4) Moreover, one could assume that by extending prophylaxis, infections could be shifted to less virulent, low-grade types that usually manifest within 2 years after implantation, and that may be missed by a shorter follow-up. (5,6) In this case, retrospective 90-day follow-up could underestimate the infection rate in the prolonged prophylaxis group. (5,7,8)

Furthermore, we are curious how meticulously nonorthopaedic antibiotic complications, including *Clostridium difficile*-associated colitis and other antibiotic side effects, were identified in orthopaedic practices outside of the study conditions. These may have been missed particularly if they were treated by general practitioners. Overall, decreases in health care-associated infections have been reported in US hospitals in recent years. (9)

Similar to the message in the accompanying editorial by Khatod, (10) we are concerned about the collateral damage of prolonged antibiotic application relating to side effects, costs, and—most importantly—selection for antibiotic resistance and perturbation of the microbiota. Short-time benefits for a few may be easily outbalanced by more disturbing long-term effects for both the individual patient and for population health if this strategy were to be widely adopted.

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Conflict of Interest: None Declared