The AAHKS Clinical Research Award

Extended Oral Antibiotics Prevent PJI in High-Risk Cases: 3,855 Patients with 1-Year Follow-Up

Michael M. Kheir, MD, Julian E. Dilley, MD, Mary Ziemba-Davis, BA, R. Michael Meneghini, MD

Introduction: Surgical and host factors predispose patients to periprosthetic joint infection (PJI) following primary total knee (TKA) and hip (THA) arthroplasty. While surgical factors are modifiable, host factors can be challenging and there are limited data demonstrating that preoperative optimization decreases risk of PJI. This study expanded the follow-up period and sample size of our prior study demonstrating that extended oral antibiotic prophylaxis reduces 90-day infection rates in high-risk patients.

Methods: 3,855 consecutive primary TKAs and THAs performed 2011-2019 at a suburban academic hospital with modern perioperative and infection-prevention protocols were retrospectively reviewed. Beginning January 2015, a 7-day oral antibiotic prophylaxis protocol was implemented after discharge for patients at high risk for PJI. Percentage of high-risk patients diagnosed with PJI within 1 year were compared between groups that did and did not receive extended antibiotic prophylaxis. Univariate and logistic regression analyses were performed; $p \leq 0.05$ statistically significance.

Results: Overall 1-year infection rates were 0.85% (after TKA) and 2.26% (after THA). High-risk patients with extended antibiotic prophylaxis had a significantly lower rate of PJI compared to high-risk patients without extended antibiotic prophylaxis (0.89% vs. 2.64%, respectively; $p<0.001$). There was no difference in the infection rate between high-risk patients who received antibiotics and low-risk patients (0.89% vs. 1.29%, respectively; $p=0.348$) with numbers available.

Conclusions: Extended postoperative oral antibiotic prophylaxis for 7 days led to a statistically significant and clinically meaningful reduction in 1-year infection rates of patients at high risk for infection. In fact, the PJI rate in high-risk patients who received antibiotics was less than the rate seen in low-risk patients. Thus, extended oral antibiotic prophylaxis may be a simple measure to effectively counteract poor host factors. Moreover, the findings of this study may mitigate the incentive to “cherry pick” patients in outcome-based reimbursement models. Further study with a multi-center randomized control trial is needed to further validate this protocol.

Notes