## Paper #24

## No Optimal Antibiotic-Free Period Prior to Reimplantation for Periprosthetic Joint Infection

**Notes** 

**Timothy L. Tan, MD**, Michael Kheir, MD, Jaiben George, MBBS, Carlos A. Higuera, MD, Antonia F. Chen, MD, MBA, Javad Parvizi, MD

Introduction: Two-stage exchange arthroplasty is the gold standard for management of periprosthetic joint infection (PJI) in the United States. An antibiotic-free period is often advocated by some surgeons prior to reimplantation, as this period serves as a clinical proxy of infection control by allowing surgeons to evaluate if there is any clinical worsening while the patient is off antibiotics. However, there is currently no conclusive evidence supporting the utility or duration of this common practice. Thus, the purpose of this study was to determine the utility and optimal duration of the antibiotic-free period prior to reimplantation.

**Methods:** The electronic infection databases of two institutions was retrospectively reviewed to identify 409 patients from 2000 to 2014. Total joint arthroplasties that met the Musculoskeletal Infection Society criteria for PJI, had less than a 60-day antibiotic-free period, and had a minimum of one-year follow-up were included. The following variables were collected: age, body mass index, gender, Charlson comorbidities, surgical and antibiotic treatment, antibiotic holiday duration, microorganisms, and other relevant information Treatment success was defined according to the Delphi consensus criteria. A multivariate analysis was performed.

**Results:** The duration of the antibiotic-free period was not significantly associated with reinfection following reimplantation (odds ratio [OR] 0.94 per week, p=0.38) after controlling for potential confounders, such as joint involvement, gender, institution, and comorbidities. However, the duration of spacer implantation was significantly associated with reinfection (OR 1.05 per week, p=0.002). Of the patients that failed treatment, 41.5% (39/94) failed on antibiotics while 58.5% (55/94) failed during the antibiotic holiday period at a mean of 26.1 days.

**Conclusion:** The duration of an antibiotic-free period does not appear to significantly affect the PJI rate after reimplantation; however, the study demonstrates that many patients fail during the antibiotic holiday period.