

## **Success Rates of 2-Stage Revision for Total Hip Arthroplasty Prosthetic Joint Infection at a Specialty Referral Center**

Nicholas Tubin, Hesham Abdelbary<sup>1</sup>, George A Grammatopoulos<sup>1</sup>, Paul E Beaulé<sup>2</sup>, Simon Garceau

<sup>1</sup>The Ottawa Hospital, <sup>2</sup>The Ottawa Hospital General Campus

**INTRODUCTION:** Two stage revision arthroplasty is the gold standard for the treatment of chronic prosthetic joint infections (PJI) following total hip arthroplasty (THA). Currently, there is limited literature highlighting the results of specialty PJI referral centers treating “the worst of the worst”. As such, we sought to report on the results of our specialty referral center. Moreover, we sought to identify factors associated with two stage revision failure in THA PJI.

**METHODS:** Sixty-seven patients with minimum 2-year follow-up having undergone two stage revision for THA PJI at our institution between 2007 and 2021 were identified: Mean age of 70 (SD: 11.9); 37 (SD: 55.2) males; 30 (SD: 44.8) females, mean BMI: 29.9 (SD: 6.4). 21% PJIs had virulent organisms defined as: polymicrobial/Fungal, MRSA, enterococcus & gram –ve species. Treatment failure was based on the Tier 1 International Consensus Meeting definition of infection control. Independent Student T-test was used to compare means and Mann-Whitney U test was used to compare medians. Chi-square test or Fisher's Exact test was used to examine the differences between categorical variables.

**RESULTS:** Overall success rate was 57% (38/67) at a mean follow-up was 8.6 years [SD = 4.3]. Virulence of the causative microorganisms was associated with treatment failure ( $p = 0.038$ ) with only a 35% success rate. There were no demographic parameters associated with treatment outcome. Time from primary replacement to failure, and time between 1<sup>st</sup> stage and 2<sup>nd</sup> stage reimplantation was not associated with treatment outcome. Type of spacer along with the specific antibiotics added to cement were not associated with treatment outcome.

**DISCUSSION AND CONCLUSION:** Two Stage revision arthroplasty remains a lengthy and morbid treatment option. The results of this study suggest that success rates at specialty PJI referral centers treating the “worst of the worst” may be lower than what is reported in the literature and should be further analyzed. Such elevated failure rates highlight the urgent need for enhancement of regional PJI delivery of care.