



Paper #27

## **Delaying Reimplantation following Resection Arthroplasty Does Not Improve Subsequent Outcome**

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**Introduction:** In North America, the preferred surgical treatment of chronic periprosthetic joint infection (PJI) is two-stage exchange arthroplasty. Although reimplantation usually occurs 6-8 weeks after the resection arthroplasty, the optimal timing for reimplantation is unknown. This study aims to determine if the timing between the first and second stages of a two-stage exchange influences the rate of infection control.

**Methods:** We used data from two high volume centers to identify all PJI cases treated with two-stage exchange arthroplasty between 2002 and 2012. The time between resection and reimplantation was determined. Failure was defined as the need for further surgical interventions for treatment of PJI. Multivariate logistic regression and Cox proportional hazard test were used to determine predictors of subsequent failure of the prosthesis due to infection.

**Results:** The final cohort consisted of 433 patients. Mean duration of follow up from the time of reimplantation was  $2.4 \pm 1.9$  years. Ninety-seven patients (22.4%) developed a recurrent infection. Logistic regression analysis indicated that PJI of the knee ( $p = 0.02$ ; Odds Ratio (OR) = 2.08), need for an interim spacer exchange ( $p < 0.001$ ; OR = 12.21), and polymicrobial PJI ( $p = 0.008$ ; OR = 9.48) but not the time to reimplantation were predictors of failure. The Cox proportional hazards model showed that higher BMI ( $p = 0.01$ ; OR = 1.04), PJI of the knee ( $p = 0.009$ ; OR = 1.95) and interim spacer exchange ( $p < 0.001$ ; OR = 2.56) were predictors of failure at any time.

**Conclusion:** It is a commonly held belief that reimplantation for patients with "severe" infection should be delayed. Based on our findings, it appears that the timing between first and second stage does not influence the outcome of two-stage exchange arthroplasty. Conversely, PJI of the knee, polymicrobial PJI, the need for a spacer exchange and higher BMI were associated with a higher risk of failure.

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