Total Joint Arthroplasty Outcomes in Patients with Multiple Myeloma and Monoclonal Gammopathy of Undetermined Significance

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INTRODUCTION:
Multiple myeloma (MM) and monoclonal gammopathy of undetermined significance (MGUS) are hematologic plasma cell disorders associated with skeletal fragility and potential surgical complexity. The purpose of this study was to evaluate outcomes of patients with a history of MM or MGUS undergoing hip and knee total joint arthroplasty (TJA), with a particular focus on postoperative complications and the need for secondary procedures.
METHODS:
A retrospective analysis was conducted of MM and MGUS patients who underwent TJA at our tertiary academic institution from 2005 to 2023. Included patients had a history of MM or MGUS prior to undergoing primary or secondary TJA, with a minimum of 1-year postoperative follow-up. Data collected included demographics, surgical details, postoperative complications, revision rates, and functional outcomes. Statistical analysis included Kaplan-Meier survivorship, univariate and multivariate logistic regressions, and competing risk analyses.
RESULTS:
A total of 79 patients (MM: n=50; MGUS: n=29) were included. Mean follow-up for MM and MGUS patients was 5.16 ± 4.12 years and 5.35 ± 2.41 years, respectively. 20.3% of patients required secondary procedures (MM: 20.0%, MGUS: 20.7%). Kaplan-Meier analysis revealed similar overall survivorship and time to revision between groups (Figures 1&2). Multivariate analysis identified avascular necrosis (p=0.010) and pathologic fracture (p=0.015) as independent predictors of postoperative complications. MM versus MGUS diagnosis was not significantly associated with revision risk (p=0.163). Both cohorts experienced significant postoperative pain reduction (MM: p<0.001; MGUS: p=0.009), and MM patients showed improved strength (p<0.001), while MGUS patients did not (p=0.35).
DISCUSSION AND CONCLUSION: TJA remains a viable option for patients with MM and MGUS who have degenerative joint disease. Avascular necrosis and pathologic fracture may predict postoperative complications and need for revision surgery. Elevated revision rates, particularly among MGUS patients, warrant further investigation.

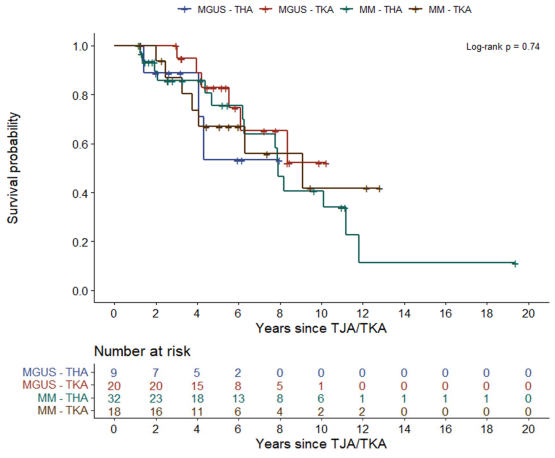

Figure 1: Kaplan-Meier curve for overall survival analysis. For individuals who passed away date of death is used, otherwise the date of final evaluation is reported.

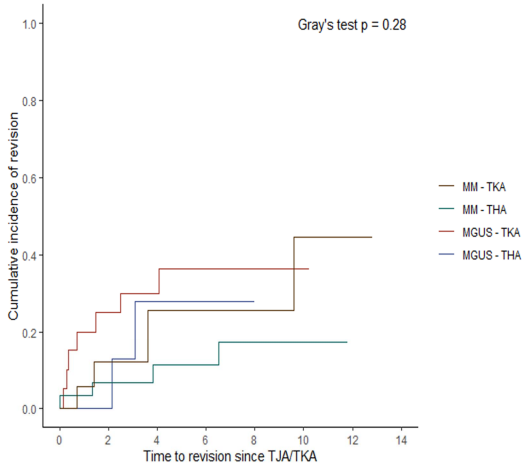

Figure 2: Kaplan-Meier curve for time to revision surgery.