

Maintenance of Preoperative HbA1c Optimization Post-Operatively in Total Joint Arthroplasty Patients

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INTRODUCTION: Maintaining optimal glycemic control in diabetic patients undergoing total joint arthroplasty (TJA) is crucial for reducing postoperative complications. Preoperative optimization efforts, including achieving target hemoglobin A1c (HbA1c) levels, have been associated with improved surgical outcomes. However, the sustainability of these optimized glycemic levels postoperatively remains a concern. We aim to determine if patients are able to maintain their optimized HbA1c following surgery, and their association with complications.

METHODS: Using our institution's electronic medical record, we queried our clinical database for all total hip, knee and shoulder arthroplasties, performed between 1/1/2016 and 12/31/2022. Patients were stratified by the presence of Diabetes Mellitus using ICD codes, and HbA1C values and surgical outcomes were collected.

RESULTS: There were a total of 2592 TJAs performed during this period, including 502 diabetic patients. 43.8% of patients had an HbA1C >7.5 two years prior to surgery, however this decreased to 11.6% of patients in the 3 months prior to surgery. In the postoperative period, the percentage of patients with HbA1C >7.5 increased from 10.9% at 3 months to 31.4 and 33.8% at 1 year and 2 years respectively. When comparing the patients that deoptimized and the patients that maintained optimized HbA1C levels, no significant differences were found in the rates of readmissions, reoperation, and complications.

DISCUSSION AND CONCLUSION: While many studies have shown that preoperative glycemic control is essential for optimal outcomes in total joint arthroplasty, few have looked at whether patients maintain these goals. Our data show that a significant percentage of patients have HbA1C levels that become optimized for surgery and subsequently increase following surgery. We did not find a significant difference in complications based on postoperative increases in HbA1C. Further research is needed to identify strategies that effectively support long-term maintenance of optimized HbA1c levels following total joint arthroplasty.