

Incidence of Undiagnosed Diabetes during Total Joint Arthroplasty

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INTRODUCTION:

Despite overall excellent clinical results after total joint arthroplasty (TJA), diabetes is associated with increased complications. Patients scheduled to undergo TJA may often have no preoperative knowledge / documentation of a diagnosis of diabetes or may have uncontrolled diabetes, ultimately discovering this during pre-admission testing. This often results in endocrinology workup and surgical cancellation/delay. We sought to investigate the incidence of undiagnosed and uncontrolled diabetes in patients who underwent TJA.

METHODS:

A retrospective, cohort study was conducted between 1/1/2016 and 4/30/2021. Patients who underwent primary total hip and knee arthroplasty were excluded if surgery was bilateral, non-elective, or tumor-related. Hemoglobin A1c (HbA1c) values were collected from any prior testing that was present in the patient's chart as well as from the pre-admission testing visit. Uncontrolled diabetes was defined as HbA1c ≥ 7.7 ¹. Multivariate analysis was conducted on baseline and demographic characteristics, diabetes diagnosis, comorbidities, preoperative HbA1c levels, complications, and operative course.

RESULTS:

A total of 743 patients (69.7% TKA and 30.3% THA) were included in the study (Table 1). Some 8.2% (61) of all patients with no prior diagnosis of diabetes undergoing elective joint replacement were newly diagnosed at time of surgery (Table 2). In total, 4.4% (33) of patients were found to have uncontrolled diabetes with a HbA1c ≥ 7.7 at time of surgery. Patients with a HbA1c ≥ 7.7 had a significantly higher rate of complications (24.4% vs. 11.6%) (p=0.03)(Figure 1). Seventy-seven (10.4%) had their surgery cancelled due to their HbA1c values. Those who had their surgery initially cancelled had a higher rate of overall complications at time of eventual surgery as well (24.7% vs. 10.7%) (p<0.01). When looking at infection rates, those who had their initial surgery cancelled had higher rates of infection (10.4% vs. 3.0%)(p<0.01). Patients with newly diagnosed diabetes also had higher reoperation rates (18.0% vs. 7.6%) (p<0.01).

DISCUSSION AND CONCLUSION:

There is a significant incidence of undiagnosed/newly diagnosed diabetes and poorly controlled diabetes in patients undergoing primary TJA. These patients are at increased risk of surgical cancellations, complications, and reoperations. Awareness of this among arthroplasty surgeons will help guide preoperative optimization and improve postoperative patient outcomes, while also mitigating unforeseen surgery cancellations.

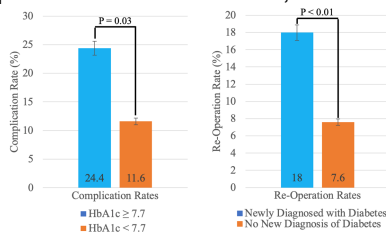


Figure 1. Complication and Re-Operation Rates.

Age at Time of Surgery (Years +/- SD)	63.55 +/- 10.89
Sex	
Male	256 (34.45%)
Female	487 (65.55%)
BMI (Mean +/- SD)	32.03 +/- 6.18
Race	
White	181 (24.36%)
Black	403 (54.24%)
Other	159 (21.40%)
Ethnicity	
Hispanic	149 (20.05%)
Non-Hispanic	594 (79.95%)
Prior Diagnosis of Diabetes	
Yes	245 (32.97%)
No	498 (67.03%)
Current Tobacco User	
Yes	153 (20.59%)
No	590 (79.41%)

Prior History of Diabetes	
Yes	238 (32.03%)
No	505 (67.97%)
New Diagnosis of Diabetes	
Yes	61 (8.21%)
No	682 (91.79%)
HbA1c at Initially Scheduled Surgery (Mean +/- SD)	6.07 +/- 0.85
≥ 6.5	177 (23.82%)
≥ 7.7	33 (4.44%)
HbA1c Before Completed Surgery (Mean +/- SD)	6.04 +/- 0.75
≥ 6.5	168 (22.61%)
≥ 7.7	22 (2.96%)