

The Impact of Hospital Exposures Prior to Total Knee Arthroplasty on Postoperative Outcomes

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INTRODUCTION:

The number of total knee arthroplasty (TKA) procedures is expected to grow exponentially in the upcoming years. As more TKAs are offered, there will be a growing need to identify preoperative risk factors that predispose patients to poor outcomes. The present study sought to determine if preoperative healthcare exposure had an impact on adverse outcomes following TKA.

METHODS:

This was a retrospective review of all patients who received a TKA from a single institution between June 2011 to April 2022. Patients who underwent a preoperative healthcare event (PHE) within 90 days of surgery were compared to patients with no history of PHE. Any emergency department visit or hospital admission within 90 days of surgery was included as a PHE. Patients who underwent revision TKA, non-elective TKA, and staged or same day bilateral TKA were excluded. Chi-squared analysis and independent samples t-tests were used to determine significant differences between demographic variables. All significant covariates were included in binary logistic regressions used to predict discharge disposition, 90-day readmission, and 1 year revision.

RESULTS:

Of the 10,869 patients who underwent TKA, 265 had at least one PHE. Patients who had a PHE were significantly more likely to require facility discharge (odds ratio [OR]: 1.662; p=0.001) than patients who did not have a PHE. Additionally, any PHE predisposed patients to significantly higher 90-day readmission rates (OR: 2.173; p=0.002). Patients with 2 or greater PHEs were at a significantly higher risk of 1 year revision (OR: 5.870; p=0.004) compared to patients without a PHE.

DISCUSSION AND CONCLUSION:

Our results demonstrate that PHEs put patients at significantly greater risk of facility discharge, 90-day readmission, and 1 year revision. Moving forward, consideration of elective surgery scheduling in the context of PHEs may lead to improved postoperative outcomes.

Table 1. Demographic Comparison

	No PHE (n=10604)	PHE (n=265)	P-Value
Sex			0.739
Male	3545 (33.4%)	86 (32.5%)	
Female	7059 (66.6%)	179 (67.5%)	
Age (years, ± SD)	66.20 ± 9.74	66.06 ± 10.64	0.815
Smoking Status			0.365
Never Smoker	6302 (59.4%)	146 (55.1%)	
Former Smoker	3610 (34.0%)	100 (37.7%)	
Current Smoker	692 (6.5%)	19 (7.2%)	
Race			0.349
White	5990 (56.5%)	141 (53.2%)	
Black	1997 (18.8%)	59 (22.3%)	
Other	2617 (24.7%)	65 (24.5%)	
BMI (kg/m², ± SD)	32.10 ± 6.34	31.78 ± 6.77	0.454
CCI (± SD)	1.14 ± 1.60	2.19 ± 2.47	<0.001
Surgical Time (minutes, ± SD)	100.01 ± 29.25	108.12 ± 30.93	<0.001

Table 2. Logistic Regression Demonstrating Outcomes Following TKA

	Standard Error	P-Value	Odds Ratio	Confidence Interval
Facility Discharge				
Any PHE	0.147	0.001	1.662	1.246 to 2.218
≥ 2 Events	0.402	0.304	1.511	0.688 to 3.320
90-Day Readmission				
Any PHE	0.245	0.002	2.173	1.345 to 3.511
≥ 2 Events	0.617	0.220	2.133	0.636 to 7.151
1 Year Revision				
Any PHE	0.424	0.409	1.419	0.618 to 3.256
≥ 2 Events	0.617	0.004	5.870	1.752 to 19.664