

The “Weekend Effect” and Total Knee Arthroplasty: Higher Cost but Lower Complications for Patients Admitted on Fridays

Abstract

Introduction

Total knee arthroplasty (TKA) is an increasingly common procedure performed to treat the pain of degenerative conditions of the knee and improve patient’s function. This study aims to explore differences in TKA costs and outcomes for weekday surgery and weekends for those patients admitted following Friday surgery.

Methods

We retrospectively analyzed data from the PINC AI Healthcare Database (2016-2022) of elective primary total knee arthroplasty (TKA) patients that were admitted (observation or inpatient) for at least one night. Surgeries related to fracture, revision, infection, or oncologic diagnoses, or same-day discharge patients were excluded. Two cohorts were defined: Friday surgeries and Monday-Thursday surgeries. We compared index stay facility cost, CMS-defined complications, and 90-day readmission between groups with univariate analysis and multivariate analysis were used to adjust for demographic and clinical characteristics

Results

We included 175,173 patients, 18,350 of whom (10.5%) had surgery on Friday. Friday patients were slightly younger (68.5 vs 69.0 years, $p<0.001$), less white (79% vs 82%, $p<0.001$), had longer LOS (3.66 days vs 3.61 days, $p=0.004$) and less Medicare (65% vs 69%, $p<0.001$), with no significant difference in ECI ($p=0.79$) and sex distribution ($p=0.19$). Univariate analysis

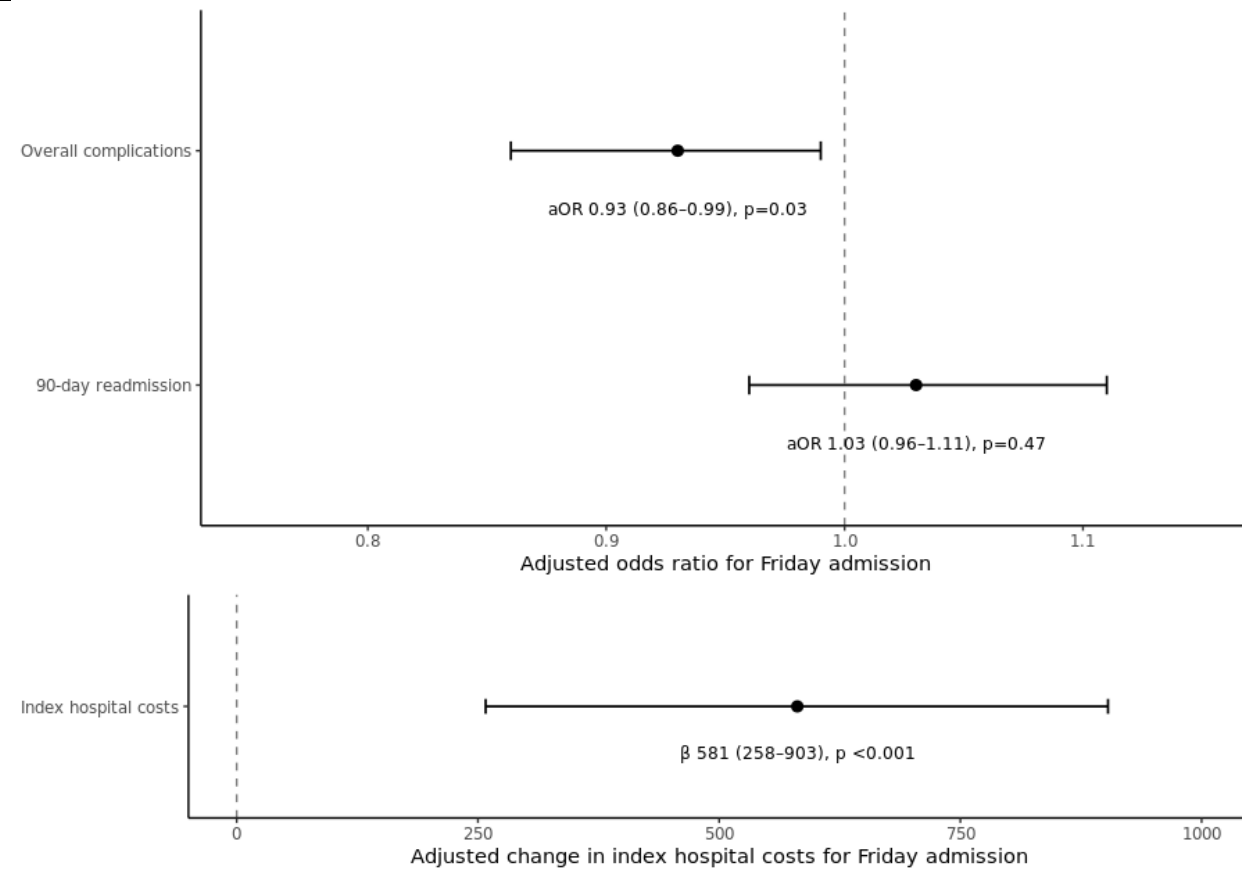
showed no significant difference in complication rate ($p=0.06$), or 90-day readmission ($p=0.06$), but revealed a greater facility index cost (\$19212.81 vs \$18483.54, $p<0.001$) in Friday patients. Multivariate analysis revealed no increased risk of 90 day readmission ($p=0.47$), however there is increased index facility cost (estimate: \$581, 95% CI: 258-903, $p<0.001$) and decreased risk for complications in Friday patients (OR 0.93, 95% CI: 0.86-0.99, $p=0.03$).

Conclusions

The current study demonstrates a 'weekend effect'; patients admitted for elective TKA on Friday have greater index stay costs, but lower risk of complications. Future work should aim to examine these weekend-related differences and their impact on postoperative care in TKA patients.

Table 1. Demographics and Characteristics by Procedure Date in Individuals Undergoing Primary Total Knee Arthroplasty (N=175,173)			
Variable	Friday (N=18,350)	Non-Friday (N=156,823)	p-value
Age in years (Mean ± SE)	68.45 (0.07)	68.98 (0.02)	<0.001
Length of Stay (Mean ± SE)	3.66 (0.02)	3.61 (0.00)	0.004
Elixhauser Comorbidity Index (Mean ± SE)	2.57 (0.01)	2.55 (0.00)	0.7901
Sex			0.19
Female	12438 (0.68)	107052 (0.68)	
Male	5912 (0.32)	49771 (0.32)	
Race			<0.001
Asian	451 (0.02)	2542 (0.02)	
Black	2168 (0.12)	17592 (0.11)	
Other	1218 (0.07)	7586 (0.05)	
White	14513 (0.79)	129103 (0.82)	
Ethnicity			<0.001
Hispanic	1140 (0.06)	7455 (0.05)	
Non-Hispanic	17210 (0.94)	149368 (0.95)	
Payer			<0.001
Medicaid	1014 (0.06)	6653 (0.04)	
Medicare	11873 (0.65)	107964 (0.69)	
Other	690 (0.04)	5182 (0.03)	
Private	4700 (0.26)	36571 (0.23)	
Uninsured	73 (0)	453 (0)	
Column data reported as number of patients (%) or mean ± standard error (SE)			

Figure 1. Multivariate Analyses for Effect of Friday Procedure Date on Overall Complications, 90 Day Readmissions, and Index Hospital Costs in Individuals Undergoing Primary Total Knee Arthroplasty (N=175,173)



*adjusted for age, sex, race, ethnicity, payer, and Elixhauser Comorbidity Index