Patient Satisfaction And Clinical Outcomes Utilizing a Patient Care Coordination Team To Support Same Day Discharge Following Shoulder Arthroplasty

Lee, Yulia BS[1], Murthi, Anand MD[2], Wright, Melissa MD[3]

[1] Georgetown University School Of Medicine, Washington D.C.
[2] Department of Orthopedic Surgery, MedStar Union Memorial Hospital, Baltimore, MD
[3] Department of Orthopedic Surgery, Washington University School of Medicine, St. Louis, MO

Introduction:
The presence of a patient care coordination (PaCC) team has been shown to reduce the length of hospital stay and direct costs for total hip and knee replacement patients by coordinating successful same day discharge. However, there is no prior literature on the impact of a PaCC team on satisfaction and outcomes following shoulder arthroplasty. As the utilization of shoulder arthroplasty continues to rise, there is a need for research on what benefit a care coordination program may have for shoulder arthroplasty specifically. The aim of this study was therefore to examine the impact of a PaCC team on clinical outcomes and patient satisfaction following shoulder arthroplasty at one tertiary referral institution.

Material & Methods:
This is a single-center retrospective study of all primary total shoulder arthroplasties (anatomic and reverse) performed between July 2021 and April 2023 with one of three fellowship trained shoulder and elbow surgeons. All patients undergoing shoulder arthroplasty were automatically enrolled in the hospital PaCC program and assigned to a specific coordinator. All patients included had at least 90 day follow up. For analysis, the data was categorized into four subgroups: 1) successful planned same day discharge (SS), 2) failed planned same day discharge (SX), 3) successful planned next day discharge (NN), and 4) failed planned next day discharge (NX). Same day discharge was defined as discharge on the day of surgery from the recovery room. Next day discharge was defined as discharge on the day following surgery after a one-night stay in the hospital. The presence of diabetes, hypertension, or chronic kidney disease was combined into a single comorbidity score for the analysis. 90-day readmission and reoperations were recorded for all subjects. Patient satisfaction was determined through an electronic survey.

Results:
A total of 497 patients and 515 total shoulder arthroplasty cases were included for analysis. There were 291 females, and the average age was 69.3 years (9.1). There were 388 successful same day discharge, 32 failed same day discharge, 61 successful planned next day discharge, and 23 failed planned next day discharge (Table 1). There was a significantly higher ratio of female patients in groups anticipated to be discharged next day or failed to be discharged on the same day compared to those successfully discharged on the same day (75% SX, 75.4% NN, 73.9% NX vs. 50.8% SS, $p < 0.001$). The median BMI was higher in groups that failed to be discharged on anticipated dates (29.2 [25.8, 33.9] SS vs. 34.5 [29.6, 41.4] SX, 29.6 [24.2, 35.4] NN vs. 31.7 [28.5, 35.1] NX, $p = 0.007$). The presence of an active mental health disorder was also higher in the groups of patients that failed to be discharged on their anticipated dates (29.6% SS vs 31.2% SX, 39.3% NN vs 56.5% NX, $p = 0.035$) (Table 2). Reoperation rates were significantly higher in the group of patients that failed next day discharge and lowest in the group of patients that were successfully discharged same day (13% NX vs. 3.3% NN vs. 3.1% SX vs. 1.5% SS, $p = 0.016$). In terms of satisfaction, 93.44% of patients described their experience with the PaCC team as good or excellent. Patient satisfaction did not significantly vary between discharge groups.

Discussion:
This study is the first to report on the use of a PaCC program for shoulder arthroplasty patients. While there was an overall high rate of successful planned same day discharge, female-identifying patients, patients with a higher BMI, and patients with at least one active mental health disorder may be at higher risk of failing to discharge as planned. Regardless of anticipated discharge date, a delay from the discharge plan was associated with a higher risk of future reoperation. While the reasons are likely multifactorial, the recognition of this association may impact postoperative care and monitoring. Most patients participating in the PaCC program were satisfied with their experience regardless of the success of their discharge plan. Continuing to work with shoulder arthroplasty patients through the PaCC program to identify specific barriers to successful discharge and provide personalized care is paramount to ensuring timely and safe discharge, particularly as hospitals and practices move towards more outpatient shoulder arthroplasty.

Table 1. Discharge Groups Summary

Variable	Overall	Same Day Success (SS)	Same Day Failure (SX)	Next Day Success (NN)	Next Day Failure (NX)
n	515	388	32	61	23
Length of Stay n (%)					
0	390 (75.9)	388 (100.0)	0 (0.0)	0 (0.0)	1 (4.3)
1	85 (16.5)	0 (0.0)	24 (75.0)	61 (100.0)	0 (0.0)
2	19 (3.7)	0 (0.0)	2 (6.2)	0 (0.0)	13 (56.5)
3	12 (2.3)	0 (0.0)	3 (9.4)	0 (0.0)	6 (26.1)
4	5 (1.0)	0 (0.0)	2 (6.2)	0 (0.0)	2 (8.7)
5	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
6	2 (0.4)	0 (0.0)	1 (3.1)	0 (0.0)	1 (4.3)
7	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
8	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
9	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Table 2. Patient demographics and comorbidities

Variable	Overall	Same Day Success (SS)	Same Day Failure (SX)	Next Day Success (NN)	Next Day Failure (NX)	p-value
n (%)						
Patient Demographics						
Age, median [IQR]	70.0 [64.0, 75.0]	70.0 [63.8, 75.0]	70.0 [59.8, 77.0]	71.0 [66.0, 76.0]	72.0 [67.0, 77.0]	0.232
mean (SD)	69.3 (9.1)	68.9 (9.0)	68.9 (10.2)	71.0 (9.4)	72.4 (9.8)	
Sex = F (%)	291 (56.5)	197 (50.8)	24 (75.0)	46 (75.4)	17 (73.9)	**<0.001**
Race (%)						0.375
African American	79 (15.3)	49 (12.6)	9 (28.1)	15 (24.6)	3 (13.0)	
White	423 (82.1)	327 (84.3)	22 (68.8)	46 (75.4)	20 (87.0)	
Asian	1 (0.2)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	
American Indian or Alaska Native	3 (0.6)	3 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	
Native Hawaiian or Other Pacific Islander	1 (0.2)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	
Multicultural	1 (0.2)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	
Other/Unknown	7 (1.4)	6 (1.5)	1 (3.1)	0 (0.0)	0 (0.0)	
Comorbidities						
BMI, median [IQR]	30.1 [25.9, 35.0]	29.2 [25.8, 33.9]	34.5 [29.6, 41.4]	29.6 [24.2, 35.4]	31.7 [28.5, 35.1]	**0.007**
mean (SD)	31.0 (7.0)	30.4 (6.5)	35.4 (8.9)	30.8 (8.0)	32.2 (6.8)	
Smoking (%)						0.259
Active	46 (8.9)	36 (9.3)	5 (15.6)	4 (6.6)	1 (4.3)	
Active Mental Health Disorder	166 (32.3)	115 (29.6)	10 (31.2)	24 (39.3)	13 (56.5)	**0.035**
Comorbidity Score, median [IQR]	1.0 [0.0, 2.0]	1.0 [0.0, 2.0]	1.0 [1.0, 2.0]	1.0 [0.0, 2.0]	1.0 [1.0, 2.0]	0.188
mean (SD)	1.1 (0.9)	1.0 (0.9)	1.2 (0.8)	1.1 (0.9)	1.5 (1.1)	

Values in bold signify significant p-values