

The Implementation of an Early Discharge Joint Replacement Program at a Veterans Affairs Hospital

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INTRODUCTION:

The Veterans Affairs health system is a large provider of total joint arthroplasty (TJA) in the United States healthcare system. With an aging population and following general national trends, there has been a considerable uptrend of both hip and knee arthroplasty. This increase has had a direct impact on the healthcare dollars spent nationally. Length of inpatient hospitalization has been directly correlated with increasing healthcare cost. Early discharge joint arthroplasty protocols have become a major surgical paradigm, but this protocol has not routinely been attempted in the Veterans Affairs (VA) Healthcare system. The primary objective of this study is to demonstrate the feasibility of a comprehensive early discharge joint (EDJ) protocol, including same day discharges (SDD), at a VA hospital. Primary outcomes evaluated are length of stay (LOS) and discharge location. Secondary outcomes include operative time, postoperative complications, readmissions, and 30-day emergency room (ER) visits. We hypothesize a decrease in LOS and increased discharge home without major increases in complications, readmission, or ER visits compared to previous management protocols.

METHODS:

A retrospective review of patients undergoing primary total joint arthroplasty performed from January 1, 2017 to December 31, 2018 (prior to initiation of EDJ program) was compared to patients undergoing primary total joint arthroplasty performed from January 1, 2020 to December 31, 2021 (after the initiation of EDJ). The comprehensive EDJ program involved stricter indications for surgery, extensive preoperative education and expectations counseling, a dedicated physical therapy team to work with patients on the day of surgery, and improved patient flow from the operating room to the floor. The two cohorts were subdivided into total knee and total hip arthroplasties completed under the control or EDJ program protocol. Patients' demographics, medical comorbidities, discharge disposition, surgery information (side, surgeon, length of surgery), and 30 and 90-day postoperative complications were collected. Differences between LOS, surgical time (from incision to "end of case"), 30-day complication rates, 90-day complication rates, discharge disposition, surgical site infections (SSI), and ER visits were assessed with paired T-tests.

RESULTS: A total of 203 control cases (101 TKA, 3 UKA, 99 THA) were compared to 267 cases (165 TKA, 7 UKA, 95 THA) in the EDJ group. There were no significant differences between the two cohorts in respect to age, gender, or medical comorbidities. The mean LOS reduced from 4.38 in the control cohort to 0.75 days with EDJ ($p < 0.001$), with 890 total inpatient days in the control group compared to just 200 total inpatient days with EDJ. At a cost of \$6,656/day per VA reports, the program saved over \$4.5 million in the span of 2 years. Ninety-two patients (34.5%) in EDJ were SDD compared to 0 in the control group. In the control group, 47.8% were discharged to rehabilitation centers compared to only 4.5% with EDJ ($p < 0.001$). The 30-day complication rate was 10.3% in the control group compared to 5.6% with EDJ ($p = 0.028$). ER visits did not significantly change (8.9% control vs. 9.3% EDJ). Operative time for TKAs was reduced from 162.5 minutes in the control to 86 minutes in the EDJ group ($p < 0.001$). Operative time for THAs was reduced from 143 minutes in the control to 103 minutes in the EDJ group ($p < 0.001$). Between the two surgeries, 16,582 minutes of operative time was saved over 2 years, and when assuming an average cost of \$31/minute in operating room time, resulted in cost savings of approximately \$514,000. Refer to table 1 for summary of results.

DISCUSSION AND CONCLUSION:

Overall LOS and complication rates were reduced in the comprehensive arthroplasty group, exemplifying the viability of such a protocol in the Veteran Affairs healthcare system. In addition, we demonstrate here there were no increased risks accompanied with early discharge to home. With the concentration on reducing the expenditure of healthcare dollars, this treatment model can be applied to Veteran Affairs hospitals nationally to efficiently utilize funds.

	Age	Gender	Diabetes	Smoker	BMI	LOS	DC Location
Primary Before	63.06(45-91)	178 M /25 F	36 (17.7%)	51(25.1%)	30.96	4.38	Home - 52.2% Rehab - 47.8%
Primary After	63.13(39-83)	220 M 46 F	64 (24%)	64 (24.0%)	30.61	0.75	Home - 95.5% Rehab - 4.5%
Primary Knees Before	64.03(47-80)	80 M 20 F	20 (19.8%)	16(15.8%)	32.57	4.61	Home - 47.5% Rehab - 52.5%
Primary Knees After	62.47 (41-83)	127 M 37 F	47 (28.5%)	21(12.7%)	31.21	0.73	Home (95.8%) Rehab (4.2%)
Primary Hips Before	62.31(45-91)	93 M 5F	16(16.3%)	34 (34.7%)	29.27	4.23	Home - 58.2% Rehab - 41.8%
Primary Hip After	64.86(39-77)	88 M 7 F	15(15.8%)	16(16.8%)	29.45	0.8	Home (94.7%) Rehab (5.3%)