

Implementation of Discharge Criteria Facilitates Same-Day Discharge After Single-Level Lateral Interbody Fusion

Arpan A Patel BS; Jakub Godzik MD MSc; Corey Tyler Walker MD; Cory Hartman MD, MBA; Jay D. Turner MD, PhD; Juan S. Uribe MD

University of Arizona College of Medicine - Phoenix, Phoenix, Arizona. Barrow Neurological Institute, Phoenix, Arizona



Introduction

Increasing evidence suggests safety of outpatient lateral interbody fusion (LLIF). Recently, our institution adopted “same-day” discharge criteria for patients undergoing a single level LLIF. The purpose of this exploratory study was to demonstrate the feasibility and safety of same-day surgery for single level LLIF procedures.

Methods

Consecutive patients undergoing single level LLIF for a variety of indications were identified. Criteria for same day discharge were single level LLIF procedure without additional hardware, controlled post-operative pain and nausea, and no intra-operative complications. Patients being discharged “same day” (same as operative day) were identified retrospectively. Patients were analyzed for factors that may have contributed to outpatient versus inpatient hospital course.

Results

9 patients were discharged same-day, while 5 were admitted for at least 22 hours. Average time until discharge for the same-day group was 2 hours and 41 minutes. Admitted patients were discharged on average 54.6 hours after admission. 10 criteria associated with the pre-operative and operative course were analyzed. Notable differences between the cohorts include shorter operative time in the same-day group (1.17 hours vs 0.9 hours, p=0.054), and lower BMI (33.48 vs 28.9, p=0.16). Within the inpatient cohort, 4 patients were admitted due to significant post-operative pain, with one patient having both significant pain and nausea requiring additional management. One patient was primarily admitted for lack of social support preventing same-day discharge. No patient experienced an adverse intra-operative or peri-operative complication.

Table 1			
	Single Level Inpatient (n=5)	Single Level Same Day (n=9)	
Parameter	Mean ± Std	Mean ± Std	p-value
Age	66.2 ± 9.52	63 ± 10.31	0.58
Male	2	6	
Female	3	3	
BMI	33.48 ± 5.85	28.89 ± 5.26	0.16
Percent with prior spinal surgery	0.80	0.89	
Percent with prior abdominal surgery	0.80	0.44	
Pre-Op HgB	13.98 ±1.90	14.47 ± 1.81	0.64
Pre-Op Daily Morphine Equivalent	13.8 ± 25.93	34.44 ± 83.34	0.51
ASA	2.2 ± .48	2.67 ± 1.73	0.84
Number of Comorbidities	3.0 ± .71	2.67 ± 1.73	0.69
EBL	10.4 ± 7.3	15 ± 7.08	0.27
Operative Time	1.17 ± .29	0.90 ± .18	0.05
Time in PACU	5.53 ± 3.11	2.68 ± .71	0.11
Average Hours Inpatient	54.60	-	
Percent experiencing significant post-operative pain	.80	0.00	
Average PACU Discharge Time	4:41 pm	2:35 pm	
Percent with pre-op weakness on physical exam	0.60	0.44	
Pre-Op ODI	36.8 ± 18.09	47.56 ± 16.55	0.28
6 Month f/u ODI	24 ± 11.43	38.67 ± 19.38	0.21

Demographic information and analysis of the 10 criteria associated with pre-operative and operative course

Table 2		
Level of Fusion	Single Level Inpatient (n=5)	Single Level Same Day (n=9)
L1-2	1	0
L2-3	0	1
L3-4	3	6
L4-5	1	2

Location of the single-level interbody fusions

Conclusions

Same-day discharge appears to be a feasible, safe, and effective approach for patients undergoing a single level lateral lumbar interbody fusion. While we were unable to determine any statistically significant pre-operative or intra-operative factor that may have contributed to patients requiring post-operative admission, we believe larger-scale analysis will be valuable in establishing criteria for planned outpatient LLIF and reducing surgical costs.

References

- Ahmadian A, Bach K, Bolinger B, et al. Stand-alone minimally invasive lateral lumbar interbody fusion: Multicenter clinical outcomes. J Clin Neurosci. 2015;22(4):740-746.
- Chin KR, Pencle FJ, Coombs AV, et al. Lateral lumbar interbody fusion in ambulatory surgery centers: Patient selection and outcome measures compared with an inhospital cohort. Spine (Phila Pa 1976). 2016;41(8):686-692.
- Sivaganesan A, Hirsch B, Phillips FM, McGirt MJ. Spine surgery in the ambulatory surgery center setting: Value-based advancement or safety liability? Neurosurgery. 2018.
- Smith WD, Wohns RN, Christian G, Rodgers EJ, Rodgers WB. Outpatient minimally invasive lumbar interbody: Fusion predictive factors and clinical results. Spine (Phila Pa 1976). 2016;41 Suppl 8:S106-22.