Outpatient vs. Inpatient Designation in Total Hip Arthroplasty: Can We Predict Who Will Require Hospitalization?

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INTRODUCTION:

Following removal of total hip arthroplasty (THA) from the inpatient only (IPO) list, arthroplasty surgeons face increased pressure to perform procedures on an outpatient (OP) basis. This has led to challenges in postoperative management. The purpose of the present study was to 1) evaluate patients booked for THA as OP who required conversion to inpatient (IP) status postoperatively and compare them against patients who were booked and remained OP; and 2) identify which factors were predictive of conversion from OP to IP status.

METHODS:

This was a retrospective review of all patients who underwent primary THA between January 2020 and April 2022. All patients were initially designated for OP surgery at their preoperative office visit, and were further stratified based on whether they were converted to IP status postoperatively or not. Perioperative variables were assessed for significance using multiple regression analysis while controlling for all covariates. Binary logistic regression determined predictors of conversion from OP to IP status.

RESULTS:

Of the 1,937 patients, 372 (19.2%) designated as OP stayed two midnights or longer. Patients within the IP group had significantly higher facility discharge rate (IP: 13.2% vs OP: 0.4%; p<0.001) and 90-day readmission rate (IP: 4.0% vs OP: 1.7%; p=0.024). Patients 65 years of age and older (p<0.001) and patients discharged from the operating room after noon (p<0.001) were twice as likely to require conversion to IP designation. Being the first case of the day (p<0.001) and being married (p<0.001) were protective against conversion.

DISCUSSION AND CONCLUSION:

Patients requiring conversion to IP status had significantly higher facility discharge and 90-day readmission rates. Several variables were identified that could help determine appropriate status at the time of surgical booking and ultimately avoid insurance claim denials.

Age (years, 200) 6-59 ± 6.12 (6.91 ± 9.17 (4.00) 6.55 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.00) 6.00 (6.91 ± 9.17 (4.0		Outpatient Only (n=1565)	Outpatient to Inpatient (n=372)	P-Value
Mole 7-19 (45.9%) 125 (33.6%) Fermio 546 (\$4.5%) 247 (\$6.4%) 247 (\$6.4%) \$7.000 (Age (years, ± SD)	64.95 ± 8.12	68.91 ± 9.17	< 0.001
Famous B46 [54,18] 247 [56,48] 247 [56,48] Fast Cate 7-78 [50,68] 12 [21,259] -0,001 Rece White 12 [15,17,64] 255 [71,26] 0.008 Rece White 12 [15,17,64] 255 [71,26] 12 [15,18] 12 [10,18]	Sex			< 0.001
First Case Roce Roce Roce 120 (20 Apr.) 1215 (77.6%) 120 (27.1%)	Male	719 (45.9%)	125 (33.6%)	
Retail Ministry	Female	846 (54.1%)	247 (66.4%)	
## 1115 (77.64) 256 (71.24) ## 1215 (77.64) 256 (71.24) ## 1215 (77.64) 256 (71.24) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) 5 (13.34) ## 1215 (70.64) ## 121	First Case	789 (50.4%)	122 (32.8%)	< 0.001
Block or African American April	Race			0.028
Asion 51 C 20% 5 (3.3%) Other 189 (3.5%) 48 (2.2%) Mortred Status Single 486 (31.1%) 159 (4.2.7%) Mortred Status Single 486 (31.1%) 159 (4.2.7%) Mortred 524 (53.0%) 174 (46.5%) Ovorced 155 (9.5%) 39 (1.0.5%) Smoking Status Invest Status Single 189 (3.2.%) 128 (52.3%) 0.227 Smoking Status Single 189 (3.2.%) 128 (52.3%) 128 (52.3%) 0.227 Single 189 (3.2.%) 128 (52.3%) 1	White	1215 (77.6%)	265 (71.2%)	
Other 149 (5.5%) 48 (12.3%) 0.001 Melmin Status 5.000 145 (12.5%) 1.000	Black or African American	170 (10.9%)	54 (14.5%)	
Marinal Status Single 486 [11:36] 159 (42:76) Married 924 (59:76) 174 (46:80) Divorced 155 (99:96) 39 (10:54) Smoking Status New Stroker New Stroker New Stroker New Stroker New Stroker 100 [12:70] 128 (13:28) 129 (13:28) Surgical Time (Invited Stroker) 128 (13:28) 129 (13:28) Surgical Time (Invited Stroker) 128 (13:28) 129 (13:2	Asian	31 (2.0%)	5 (1.3%)	
Sorgie	Other	149 (9.5%)	48 (12.9%)	
Married 924 (5.0 m) 174 (46.8 m)	Marital Status			0.001
Disease 155 (8.9%) 39 (10.5%) 0.727	Single	486 (31.1%)	159 (42.7%)	
Smoking Status	Married	924 (59.0%)	174 (46.8%)	
Never-Snotour B82 (55.38) 189 (32.38) Former Snotour C 183 (55.38) 149 (32.38) Former Snotour C 185.78) 144 (35.38) Current Snotour S (56.58) 267 (70.8) Sumpled Time (Immines, 2001 10.79) 25.07 139.7 ±31.0 40.001 BM (lag/m², 2001 1284 ± 5.38 30.22 ± 6.21 40.001 GB (Dathorage Before Notour 7.79 (46.58) 137 ± 0.00 40.001 Before Notour 7.79 (46.58) 104 (28.08)	Divorced	155 (9.9%)	39 (10.5%)	
Former Smoker Cod (58.7%) 144 (59.8%) Current Smoker 96 (61.8%) 26 (70.9%) Surgical Time (immixes, 500) 107.99 ± 25.07 119.77 ± 21.10 <0.001 Bitt (lay/m*, 5.00) 28.84 ± 538 36.22 ± 21 <0.0001 CO (50) 0.38 ± 1.64 13.77 ± 0.30 <0.001 OR Datchorge Before Noon 759 (46.5%) 104 (28.0%)	Smoking Status			0.727
Current Finoler 98 (6.1%) \$20 (70%) \$30mpion! Time (Imminut, \$5) 10 1972; 21.10 4.0001 888 (Raym'r, \$50) 28.84 (5.84) 28.84 (5.84) 30.022; 6.61 4.0001 08 (Bischange 88fort Noon 75 (4.5%) 104 (28.0%)	Never Smaker	863 (55.1%)	198 (53.2%)	
Surgical Fine (minutes, ±00) 107.99 ±25.07 1197.1±11.00 <0.001 Bit (kg/m², ±00) 28.84±5.58 30.22±5.11 <0.001 CC (±50) 0.38 ±154 137±2.03 0.001 OR Discharge 40.001 Bif (kg/m², ±00) 104 (28.0%) 104 (28.0%)	Former Smaker	606 (38.7%)	148 (39.8%)	
BMI (kg/m², ±50) 28.84 ± 5.88 30.22 ± 6.21 40.001 CCI (±50) 0.98 ± 1.64 1.37 ± 2.03 0.001 OR Discharge 8 e/ore Noon 759 (48.5%) 104 (28.0%)	Current Smoker	96 (6.1%)	26 (7.0%)	
CCI (± SD) 0.98 ± 1.64 1.37 ± 2.03 0.001 OR Discharge Before Naon 759 (48.5%) 1.04 (28.0%)	Surgical Time (minutes, ± SD)	107.99 ± 25.07	119.71 ± 31.10	< 0.001
OR Discharge Befare Noon 759 (48.5%) 104 (28.0%)	BMI $(kg/m^2, \pm SD)$	28.84 ± 5.58	30.22 ± 6.21	< 0.001
Before Naon 759 (48.5%) 104 (28.0%)	CCI (+ SD)	0.98 + 1.64	1.37 + 2.03	0.001
	OR Discharge			< 0.001
After Noon 806 (\$1.5%) 268 (72.0%)	Before Noon	759 (48.5%)	104 (28.0%)	
	After Noon	806 (51.5%)	268 (72.0%)	

	Outpatient Only (n=1565)	Outpatient to Inpatient (n=372)	P-Value
Length of Stay (days, ± SD)	0.90 ± 1.04	2.77 ± 1.62	< 0.001
Facility Discharge	0.4%	13.2%	< 0.001
90-Day Readmission Rate	1.7%	4.0%	0.024
1 Year Revision Rate	1.3%	2.2%	0.299

	P-Value	Odds Ratio	Confidence Interval
Age 65 and Older	< 0.001	2.018	1.589 to 2.563
Female Sex	< 0.001	1.679	1.325 to 2.128
OR Discharge Past Noon	<0.001	2.427	1.895 to 3.107
First Case	<0.001	0.480	0.378 to 0.609
Race			
Black or African American	0.027	1.456	1.043 to 2.033
Asian	0.535	0.740	0.285 to 1.920
Other	0.030	1.477	1.039 to 2.099
Marital Status			
Married	<0.001	0.576	0.452 to 0.733
Divarced	0.192	0.769	0.519 to 1.141
BMI > 30	0.001	1.448	1.154 to 1.818
CCI > 4	0.013	1.628	1.107 to 2.396