

Differences in Risk Factors for Non-Home Discharge Across Number of Levels Fused in Anterior Cervical Discectomy and Fusion

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Disclosures

- ▶ Author disclosure information can be found at: <https://disclosure.aaos.org/>

Introduction

- ▶ Anterior cervical discectomy and fusion (ACDF) is among the most frequently performed spine surgeries within the United States
- ▶ Studies have identified that non-home discharge (NHD) following ACDF is associated with worse outcomes and adverse events
- ▶ The literature is limited with regard to risk factors for NHD following ACDF, especially for 3- or 4-level cases
- ▶ Purpose: To identify and compare risk factors for NHD in patients undergoing one/two-level ACDF versus three/four-level ACDF

Methods

- ▶ Study Population: 2,227 elective ACDFs performed between 2008-2019 at an urban, academic tertiary medical center
- ▶ Inclusion Criteria: CPT codes 22551, 22552, and 22554; Age ≥ 18
- ▶ Exclusion Criteria: posterior surgical approach and surgeries performed for cervical trauma, fracture, infection, or tumor
- ▶ Groups: 1/2-level ACDF vs. 3/4-level ACDF
- ▶ Outcomes: patient demographics, perioperative characteristics, and rates of NHD
- ▶ Analysis: Univariate chi-square analysis and multivariate logistic regression to determine risk factors

Results- Demographics/Rates of NHD

N = 2,227	1 and 2-level ACDFs (n= 1,871)	3 and 4-level ACDFs (n= 356)	p-value
AGE	51.56 (0.27)	56.46 (0.57)	<0.001
SEX			
Female	945 (50.5)	188 (52.8)	0.460
RACE			0.001
White	1045 (55.9)	181 (50.8)	
Black	191 (10.2)	39 (11.0)	
Asian	147 (7.9)	51 (14.3)	
Other	488 (26.1)	85 (23.9)	
BMI	28.08 (0.13)	28.1 (0.33)	0.940
PAYER STATUS			<0.001
Private Insurance	1058 (56.5)	186 (52.2)	
Medicare	316 (16.9)	96 (27.0)	
Medicaid	202 (10.8)	44 (12.4)	
Other	295 (15.8)	30 (8.4)	

- ▶ No difference in NHD rates between 1/2-level (2.6%) and 3-4 (3.5%) level groups (p=0.450)

Results- Multivariate Analyses (1/2-level ACDF group)

1-2 Level ACDF Multivariate Analysis: Odds of Non-Home Discharge Across Demographic and Surgical Care Pattern Variables

	OR (95% CI)	p-value
Age (year)	1.019 (0.989 - 1.050)	0.211
ASA > 2	2.294 (1.187 - 4.433)	0.013
All-cause complications	3.439 (1.437 - 8.230)	0.006
Diabetes	1.295 (0.609 - 2.752)	0.502
Hypertension	0.604 (0.307 - 1.189)	0.144
White Ethnicity	0.627 (0.336 - 1.169)	0.142
Medicare Insurance	6.101 (2.845 - 13.082)	<0.001
2-Level ACDF	0.547 (0.284 - 1.052)	0.071
Estimated Blood Loss (mL)	1.001 (0.998 - 1.004)	0.369
Length of Surgery (min)	0.999 (0.985 - 1.013)	0.842
Length of Anesthesia (min)	1.007 (0.996 - 1.018)	0.191

Results- Multivariate Analyses (3/4-level ACDF group)

3-4 Level ACDF Multivariate Analysis: Odds of Non-Home Discharge Across Demographic and Surgical Care Pattern Variables

	OR (95% CI)	p-value
Age (year)	1.082 (1.007 - 1.163)	0.032
ASA > 2	5.597 (1.122 - 27.929)	0.036
All-cause complications	3.038 (0.370 - 24.936)	0.301
Dysphagia	1.018 (0.066 - 15.813)	0.990
Diabetes	1.094 (0.221 - 5.416)	0.913
Hypertension	0.749 (0.191 - 2.934)	0.678
White Ethnicity	0.439 (0.097 - 1.988)	0.285
Medicare Insurance	3.273 (0.727 - 14.732)	0.122
4-Level ACDF	1.541 (0.211 - 11.264)	0.670
Estimated Blood Loss (mL)	1.003 (1.000 - 1.006)	0.081
Length of Surgery (min)	0.973 (0.947 - 0.999)	0.042
Length of Anesthesia (min)	1.021 (1.002 - 1.04)	0.032

Conclusions

- ▶ High ASA status (ASA > 2) is associated with increased risk of NHD regardless of number of levels fused during ACDF
- ▶ Additional Risk Factors
 - For 1-2 level ACDF: All-cause complications and Medicare insurance status
 - For 3-4 level ACDF: Age, length of anesthesia
- ▶ Given that NHD is associated with increased costs and adverse events, the risk factors for NHD identified above can help inform the preoperative planning process, predict resource utilization, and guide discharge decision-making.