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Predictors of stroke and coma after neurosurgery: an ACS-NSQIP analysis (vol 93, pg 299, 2016)

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Corrigendum to: "Predictors of Stroke and Coma After Neurosurgery: An ACS-NSQIP Analysis" [World Neurosurg. 93 (2016) 299-305]

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The authors regret that the data used to prepare the above paper contains inaccuracies. During post-submission review of our accepted manuscript, we discovered that the American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) database issued a data update reporting a coding

error for the post-operative coma outcome variable from 2011 onward. For this reason, the coma data presented in this manuscript should be disregarded. Below are the updated data tables.

The authors would like to apologize for any inconvenience caused.

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Table 1. Demographics and Prior Medical History of NSQIP Neurosurgical Patients

	Total (n = 94,546)	No Stroke (n=94,006)	Stroke (n=540)	P Value
Gender, no. (%)				
Female	46439 (49.1)	46155 (49.1)	284 (52.6)	0.110
Male	48107 (50.9)	47851 (50.9)	256 (47.4)	
Demographics & Past Medical History, no. (%)				
Inpatient	77386 (81.9)	76852 (81.8)	534 (98.9)	< 0.001
Outpatient	17235 (18.2)	17229 (18.3)	6 (1.11)	< 0.001
Diabetes mellitus with oral agents or insulin	5886 (6.23)	5831 (6.20)	55 (10.2)	< 0.001
Current smoker within one year	22802 (24.1)	22665 (24.1)	137 (25.4)	0.482
Dyspnea	5458 (5.77)	5416 (5.76)	42 (7.78)	0.056
DNR status	142 (0.150)	140 (0.149)	2 (0.370)	0.281
Functionally Dependent Prior to Surgery	5432 (5.75)	5344 (5.68)	88 (16.3)	< 0.001
Ventilator dependent	1245 (1.32)	1187 (1.26)	58 (10.7)	< 0.001
History of severe COPD	4059 (4.29)	4024 (4.28)	35 (6.48)	0.015
Current pneumonia	89 (0.0941)	88 (0.0936)	1 (0.185)	0.483
Ascites	46 (0.0487)	45 (0.0479)	1 (0.185)	0.232
Esophageal Varices	13 (0.0137)	13 (0.0138)	0 (0)	1.000
Congestive heart failure in 30 days before surgery	368 (0.389)	365 (0.388)	3 (0.556)	0.472
History of myocardial infarction in past 6 months	94 (0.0994)	92 (0.0979)	2 (0.370)	0.153
Previous PCI	1761 (1.86)	1744 (1.86)	17 (3.15)	0.251
Continues				

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Table 1. Continued

	Total (n = 94,546)	No Stroke (n=94,006)	Stroke (n=540)	P Value
Previous cardiac surgery	1396 (1.48)	1384 (1.47)	12 (2.22)	0.524
History of angina in past 1 month	170 (0.180)	168 (0.179)	2 (0.370)	0.358
Hypertension requiring medication	44718 (47.3)	44401 (47.2)	317 (58.7)	< 0.001
History of revascularization/amputation for peripheral vascular disease	346 (0.366)	342 (0.364)	4 (0.741)	0.329
Rest pain/gangrene	56 (0.0592)	55 (0.0585)	1 (0.185)	0.340
Acute renal failure	127 (0.134)	124 (0.132)	3 (0.556)	0.037
Currently on dialysis (preoperative)	371 (0.392)	366 (0.389)	5 (0.926)	0.063
Impaired sensorium	1297 (1.37)	1252 (1.33)	45 (8.33)	< 0.001
Hemiplegia	1425 (1.51)	1382 (1.47)	43 (7.96)	< 0.001
History of TIA	854 (0.903)	838 (0.891)	16 (2.96)	0.001
CVA/Stroke with neurological deficit	1427 (1.51)	1374 (1.46)	53 (9.81)	< 0.001
CVA/Stroke with no neurological deficit	681 (0.720)	668 (0.711)	13 (2.41)	0.002
Tumor involving CNS	3738 (3.95)	3657 (3.89)	81 (15.0)	< 0.001
Paraplegia	1277 (1.35)	1269 (1.35)	8 (1.48)	0.867
Quadriplegia	277 (0.293)	276 (0.294)	1 (0.185)	0.727
Disseminated cancer	3993 (4.22)	3959 (4.21)	34 (6.30)	0.020
Open wound/wound infection	1224 (1.29)	1208 (1.29)	16 (2.96)	0.003
Steroid use for chronic condition	5702 (6.03)	5645 (6.00)	57 (10.6)	< 0.001
>10% loss body weight in last 6 months	885 (0.936)	872 (0.928)	13 (2.41)	0.002
Bleeding disorders	2494 (2.64)	2442 (2.60)	52 (9.63)	< 0.001
Transfusion >4 units PRBCs in past 72 hours	344 (0.364)	337 (0.358)	7 (1.30)	0.004
Chemotherapy for malignancy within 30 days	413 (0.437)	405 (0.431)	8 (1.48)	0.012
Radiotherapy for malignancy in last 90 days	225 (0.238)	222 (0.236)	3 (0.556)	0.23
Systemic sepsis	1911 (2.02)	1864 (1.98)	47 (8.70)	< 0.001
Pregnancy	9 (0.00952)	9 (0.00957)	0 (0)	1.000
Prior Operation within 30 days	982 (1.04)	974 (1.04)	8 (1.48)	0.700

CNS, central nervous system, COPD, chronic obstructive pulmonary disease, CVA, cerebrovascular accident, DNR, do not resuscitate, NSQIP, National Surgical Quality Improvement Program, PCI, percutaneous coronary intervention, PRBC, packed red blood cells, TIA, transient ischemic attack.

Table 2. Rate of Stroke Among NSQIP Neurosurgical Operations from 2006 to 2013

Neurological Complication	Total	2006	2007	2008	2009	2010	2011	2012	2013	P Value
Stroke/CVA (No., %)	540 (0.6)	8 (1.2)	9 (0.7)	28 (0.8)	37 (0.6)	58 (0.7)	121 (0.7)	120 (0.5)	159 (0.5)	0.013

CVA, cerebrovascular accident, NSQIP, National Surgical Quality Improvement Program.

Table 3. Logistic Regression Identifying Risk Factors for Developing Stroke Post-Neurosurgery

Characteristic	Odds Ratio (OR)	95% CI	P Value
Male Sex	0.797	0.615–1.032	0.086
Outpatient Status	0.073	0.018–0.297	< 0.001
Diabetes	1.499	1.030–2.182	0.035
Ventilator Dependence	1.622	0.956–2.753	0.073
History of COPD	1.729	1.077–2.776	0.023
Current pneumonia	0.406	0.053–3.089	0.384
Impaired sensorium	1.987	1.313–3.008	0.001
Hemiparesis	1.514	1.009–2.271	0.045
CVA/Stroke with neurological deficit	3.040	2.017–4.581	< 0.001
CVA/Stroke without neurological deficit	2.238	1.191–4.203	0.012
Tumor involving CNS	3.159	2.367–4.218	< 0.001
Bleeding Disorder	2.044	1.317–3.173	0.001

CNS, central nervous system, COPD, chronic obstructive pulmonary disease, CVA, cerebrovascular accident, OR, odds ratio.

Rate of stroke in NSQIP neurosurgical operations from 2006 to 2013

