

Serious mental illness prolongs hospital admission following lung cancer resection

Objective: Serious mental illness (SMI) is associated with increased complications and worse outcomes in a variety of diseases; however, SMI as a risk factor in thoracic surgery patients is incompletely understood. We hypothesized that comorbid SMI would impact mortality and morbidity following lung cancer resection.

Methods: We identified 501 patients at our institution who underwent anatomic lung cancer resection, including segmentectomy, lobectomy, bilobectomy, and pneumonectomy. Patients with comorbid SMI were identified using natural language processing (NLP)-assisted chart review and stratified into mood, anxiety and psychosis disorders. The primary outcome was a composite of postoperative complications. We analyzed the risk-adjusted impact of SMI on composite morbidity and mortality and LOS using multivariable logistic regression and Poisson regression analysis, respectively.

Results: Patients with SMI were younger, more frequently female and more likely to have a smoking history ($p < 0.05$, Table 1). Among identified patients, 186 (37.1%) had comorbid serious mental illness which were predominantly mood disorders (168/186, 90.3%). Overall, 116 patients (23.1%) had the primary outcome of composite postoperative mortality or morbidity. Following multivariable risk adjustment, patients with and without SMI did not have significantly different morbidity and mortality [odds ratio (OR) 1.36, 95% confidence interval (CI) 0.86-2.15]. Individually, mood disorders (OR 1.23, 95% CI 0.70-2.14), anxiety disorders (OR 1.11, 95% CI 0.58-2.10) and psychosis disorders (OR 1.70, 95% CI 0.60-4.54) did not significantly contribute to postoperative morbidity or mortality. Mean length of stay was longer in patients with SMI (7.16 days) than in patients without SMI (5.91 days). After adjusting for type of procedure and other covariates, LOS was significantly longer among patients with SMI (risk ratio 1.22, 95% CI 1.13-1.31). SMI was not associated with the extent of resection performed.

Conclusions: SMI is a risk factor for poor postoperative outcomes. In a 7.5-year period from a single academic institution, patients undergoing lung cancer resection had high rates of SMI and patients with SMI had significantly longer admissions. Future work should design and test interventions to optimize perioperative and post-discharge care for patients with SMI.

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Table 1: Serious mental illness baseline patient characteristics

	No SMI (n=315)	SMI (n=186)	p-value
Age	68 (60-73)	64.5 (58.25-71)	0.02
Female	155 (49.4)	116 (62.4)	0.006
BMI	26.4 (23.4-30.4)	27.2 (23.8-32.5)	0.11
Current smoker	92 (29.3)	63 (33.9)	0.33
Past smoker	167 (53.2)	105 (56.5)	0.54
Any smoking history	259 (82.5)	168 (90.3)	0.02
Hypertension	211 (67.2)	131 (70.4)	0.51
Diabetes	58 (18.5)	49 (26.3)	0.05
Coronary artery disease	49 (15.6)	34 (18.3)	0.51
Peripheral vascular disease	20 (11.0)	11 (10.4)	1
Pneumonectomy	15 (4.8)	9 (4.8)	1
Bilobectomy	16 (5.1)	3 (1.6)	0.08
Lobectomy	266 (84.7)	164 (88.2)	0.35
Segmentectomy	17 (5.4)	10 (5.4)	1
FEV1 (Predicted, %)	81 (68-97)	81 (67-94)	0.42

Values are median (interquartile range) or n (%)

BMI, body mass index; SMI, serious mental illness; FEV1, forced expiratory volume in 1 second.