Active and Passive Cigarette Smoking and

Acute Lung Injury Following Severe Blunt Trauma: Online Supplementary Materials

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Supplementary Methods: Eligible and Excluded Patients

During the time period of the study, a total of 1090 patients were screened for eligibility. 833 of these subjects were not eligible for the study by virtue of not being severely injured enough to require ICU admission. Of the remaining 257 patients, 75 were not included in this analysis by virtue of having penetrating trauma, and 29 subjects were excluded due to insufficient plasma volume to measure cotinine. Four additional subjects died in the emergency department or operating room before the necessary data to adjudicate ALI (chest radiograph and/or PaO2:FiO2 ratio) were obtained, and 5 were missing key data (primarily chest radiographs that radiology had misplaced). The remaining 144 patients formed the study sample.

Table S1: Comparison of Demographic and Clinical Characteristics of Patients Stratified by Cotinine Levels

Characteristic	No exposure to low level exposure (cotinine < 0.19 ng/ml) (n=54)	Moderate to heavy passive smoke exposure (cotinine 0.19-3.08 ng/ml) (n=26)	Active smoking (cotinine > 3.08 ng/ml) (n=64)	p-value
Age, mean ± SD	61 ± 20	45 ± 18	39 ± 15	<0.0001
Female gender	25 (46%)	3 (12%)	10 (16%)	<0.001
Private insurance	33 (62%)	3 (13%)	17 (28%)	<0.001*
Race				
White	33 (61%)	15 (58%)	37 (58%)	0.22
African-American	2 (4%)	4 (15%)	12 (19%)	
Asian-American	17 (32%)	6 (23%)	12 (19%)	
Latino ethnicity	11 (21%)	6 (24%)	11 (18%)	0.76
Traumatic brain injury	41 (76%)	18 (69%)	40 (63%)	0.29
History of alcohol abuse	3 (6%)	12 (46%)	19 (30%)	0.001
History of alcohol abuse, alcohol withdrawal, alcoholic cirrhosis, high score on AUDIT, or high blood alcohol level	6 (11%)	12 (46%)	25 (39%)	0.001
History of active illicit drug use	1 (2%)	3 (12%)	15 (23%)	0.002
History of active smoking	2 (4%)	3 (12%)	38 (59%)	<0.001
History of asthma	2 (4%)	3 (13%)	4 (7%)	0.40
History of COPD	0 (0%)	0 (0%)	2 (3%)	0.30
Injury severity score, mean ± SD	27 ± 15	31 ± 15	28 ± 16	0.62
Chest component of injury score, mean ± SD	1.3 ± 1.8	1.7 ± 1.8	1.3 ± 1.8	0.62
Units pRBC transfused in first 24h, median (IQR)	0 (0, 6)	2 (0, 5)	1 (0, 5)	0.60
Units FFP transfused in first 24h, median (IQR)	0 (0, 3)	0 (0, 2)	0 (0, 4)	0.63
Units platelets transfused in first 24h, median (IQR)	0 (0, 0)	0 (0, 0)	0, (0, 0)	0.64
Day of ALI, median (IQR)	1 (0, 4)	1 (0, 2)	2 (1, 4)	0.23

Abbreviations: ALI = acute lung injury; IQR = interquartile range; SD = standard deviation; AUDIT = Alcohol Use Disorders Identification Test; COPD = chronic obstructive pulmonary disease; pRBC = packed red blood cells; FFP = fresh frozen plasma

* p-value for comparison overall of types of insurance

Table S2: Full Multivariate Regression Model of Factors Associated with the Development of Acute Lung Injury

Predictor	Odds Ratio for Developing ALI (95% CI)	p-value
Moderate to heavy passive smoke exposure (cotinine 0.19-3.08 ng/ml)	3.82 (0.94, 15.5)	0.06
Active smoking (cotinine > 3.08 ng/ml)	2.72 (0.82, 8.98)	0.10
Injury severity score, per one-point increase	1.05 (1.02, 1.08)	0.003
Black race*	1.23 (0.31, 4.87)	0.76
Native American race*	2.16 (0.10, 44.8)	0.62
White race*	2.09 (0.72, 6.06)	0.17
Age	0.99 (0.97, 1.02)	0.50
Female gender	0.59 (0.21, 1.64)	0.31
Medicare**	0.76 (0.18, 3.30)	0.72
No insurance**	0.53 (0.16, 1.75)	0.30
Private insurance**	0.95 (0.30, 3.07)	0.94
Alcohol abuse	0.67 (0.26, 1.76)	0.42

* Comparator race = Asian-American
** Comparator insurance status = Medi-Cal (equivalent to Medicaid)

Supplemental Figure Legend:

Figure S1: Locally-weighted scatterplot smoothed curve (Lowess) of the proportion of patients developing acute lung injury as a function of the plasma cotinine. X-axis is log-scale.