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Medicare Patients Who Develop Respiratory Failure During Hospitalization Have Higher Mortality Compared to Medicare Patients Admitted with Respiratory Failure

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Abstract Body

Respiratory failure that develops in patients during hospitalization may have different outcomes compared to patients admitted with respiratory failure. Using Medicare claims data, we report outcomes of patients admitted with respiratory failure compared to patients who developed respiratory failure during hospitalization.

Methods: 5% Medicare Standard Analytical Files for inpatient admissions to short term acute care hospitals from January 1, 2012 to December 31, 2014 were analyzed by The Moran Company for the Respiratory Compromise Institute. All inpatient claims had either: an ICD-9 procedure code for ventilation (ICD-9 93.90, 96.7x, 96.04) or an ICD-9 diagnosis code for acute respiratory failure (518.51, 518.52, 518.53, 518.81, 518.82, 518.84, 799.1x). On any day starting with the 2nd inpatient day, the patient must have ≥ 1 physician visit with an ICD-9 diagnosis for respiratory failure (518.81, 518.82, 518.84, 518.51, 518.52, 518.54, 799.1x) or a CPT code for critical care or ventilator management (99291, 99292, 94002, 94003, or 94660). Claims were classified into 2 cohorts; surgical and medical DRG. The control group was patients with medical DRGs admitted with ICD-9 hospital codes for ventilation and acute respiratory failure and a physician visit on day 1 with an ICD-9 diagnosis for respiratory failure and CPT code for critical care or ventilator management. Data is presented as mean \pm S.D; statistical analysis is t-test between proportions

Results: 16,653 patients (mean age 72.9 yrs. \pm 12.8; 52.7 % female) with a medical DRG who developed respiratory failure after hospitalization (group 1) were compared to 18,503 patients (mean age 70.8 yrs. \pm 13.2; 52.4% female) admitted with respiratory failure (group 2). In-hospital mortality in group 1 patients was 32.7% compared to in-hospital mortality of 27.8% in group 2 patients ($p < 0.001$). At 30 days post discharge, mortality was 15.3% in group 1 patients compared to 12.9% in group 2 patients ($p = 0.0001$). Patients developing respiratory failure after hospitalization (group 1) had concomitant diagnoses of CHF (45%), hypertension (38%), atrial fibrillation (35%), acute kidney failure (36%), pneumonia (31%), and septicemia (26%).

outcome	Group 1	Group 2	p value
in-hospital mortality	32.7%	27.8%	<0.0001
30 day post-hospital mortality	15.3%	12.9%	0.0001

Conclusion: Medicare patients who develop respiratory failure during hospitalization have higher mortality rates during the index hospitalization and 30-day period post discharge than patients admitted with recognized respiratory failure. These data identify the need for further study of hospital acquired respiratory compromise with a focus on early identification and preventive strategies.

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