CHICAGO CHEST 2025 October 19 - 22

Pulmonary Vascular Disease

SESSION TITLE: Predictors in Pulmonary Vascular Disease
SESSION TYPE: Original Investigations
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PREDICTORS AND OUTCOMES OF EARLY HOSPITAL DISCHARGE IN PATIENTS ADMITTED WITH PULMONARY EMBOLISM

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PURPOSE: Traditionally, patients with pulmonary embolism (PE) were hospitalized for initiation of anticoagulation and monitoring for deterioration. However, risk stratification tools and rapid anticoagulation with direct oral anticoagulants support the safety of managing selected PE patients as outpatients. There is limited data evaluating the safety of early discharge in PE patients requiring hospitalization. To better understand barriers of early hospital discharge, we examined demographics, clinical features, and outcomes of patients with PE who were hospitalized for less than and greater than 48 hours.

METHODS: We conducted a retrospective cohort study of adult emergency department (ED) patients hospitalized at 21 medical centers with a primary diagnosis of PE, excluding patients who did not survive hospitalization or those diagnosed with PE as a secondary diagnosis (e.g, COVID-19 pneumonia and associated PE). Patients were categorized into two groups based on hospital length of stay: short stay (<48 hours) and prolonged stay (≥48 hours). We examined demographics and comorbidities, including mobility status and surgery within 30 days of hospitalization. We quantified PE severity at ED presentation using the PE Severity Index (PESI). We also examined trends in vital signs and oxygen requirements from the time of ED presentation through hospitalization. Adjusted relative risks (aRR) were calculated using quasi-Poisson regression models to assess the likelihood of early hospital discharge.

RESULTS: From 1/1/2018 through 12/31/2023, we identified 5,067 patients diagnosed with PE, whose mean age was 66 years (SD 21); 54% were female. On ED presentation, PESI risk categories (classes) were low (I-II; 30%), intermediate (III-IV; 22%) and high (V; 48%). Nearly half of subjects (50.4%) were hospitalized for less than 48 hours, and the likelihood of short stay hospitalization decreased by PESI risk category: 63.0% (low), 53.8% (intermediate), and 41.0% (high). Comparing prolonged and short-stay subjects, heart failure (15% vs. 9.8%), chronic pulmonary disease (32% vs. 26%), and reduced mobility (25% vs. 12%) were more common in prolonged stay patients (all $p<0.001$), but there were no differences by cancer diagnosis (33% vs. 34%; $p=0.7$) or history of recent surgery (9.3% vs. 9.1%; $p=0.9$). A primary language other than English was similar between groups (4.7% vs. 4.1%; $p=0.3$). Among subjects requiring supplemental oxygen in the ED (n=1,954), 46% required oxygen at hospital discharge, and this requirement did not differ between short and prolonged stay subjects (47% vs. 44%; $p=0.12$). In multivariable analysis, continued tachycardia >110 beats/min in the first day of hospitalization was associated with prolonged hospital stay (aRR = 1.37 [95% CI, 1.27-1.47]). Readmission within 7 days of hospital discharge did not differ between short (11%) and prolonged (11%) stay subjects ($p=0.7$).

CONCLUSIONS: Persistent vital signs abnormalities and reduced mobility were associated with lower likelihood of early hospital discharge for acute PE, and the need for supplemental oxygen at discharge was common in patients requiring oxygen at the time of initial presentation. Early hospital discharge was not associated with higher 7-day rehospitalization.

CLINICAL IMPLICATIONS: Understanding predictors and outcomes of hospitalization in PE patients will help develop targeted interventions to optimize management and allocate resources to reduce hospital length of stay.

DISCLOSURES:

No relevant relationships by Maheswari Balasubramanian

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No relevant relationships by Madeline Somers

No relevant relationships by David Vinson

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