509 | Global Trends and Variation in Initial Anticoagulation of Patients Hospitalized With Acute Pulmonary Embolism

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Background and Objectives: A recent U.S. study of initial anticoagulation in adults with acute pulmonary embolism (PE) requiring hospitalization found excessive intravenous unfractionated heparin (UFH) use (> 50%). This deviates from society guidelines which recommend low molecular weight heparin (LMWH) for hemodynamically stable patients, except those with severe renal failure. Recent use patterns of initial anticoagulation in other countries are unclear. This study used an international registry to analyze global temporal trends in initial anticoagulation for patients with acute PE requiring hospitalization and anticoagulation variation by patient characteristics and geographic regions.
Methods: We analyzed data from the Registro Informatizado de Enfermedad TromboEmbólica (RIETE), an ongoing prospective multinational registry of consecutive patients with objectively confirmed venous thromboembolism. This study included adults hospitalized for acute symptomatic PE from January 1, 2013, through December 31, 2024, in 273 hospitals across 31 countries. We assessed temporal trends in anticoagulation selection across geographic regions. Using multivariable regression, we identified variables independently associated with UFH use.
Results: Among 36,210 adults, the most prevalent anticoagulants administered were subcutaneous LMWH (83.2%), UFH (7.1%), and direct oral anticoagulants (6.8%). Over 12 years, LMWH use decreased slightly (85.8% to 79.2%), while UFH increased (8.9% to 10.4%). The rise in UFH from 2020 to 2024 (4.9% to 10.4%) paralleled increased reperfusion therapies (3.1% to 7.4%). Wide geographic variation was observed in LMWH (37% to 95%) and UFH use (2% to 39%). Male sex, increased weight, bleeding risk variables, abnormal vital signs, and decreased renal function were positively associated, whereas age > 80 years, chronic lung disease, and prior ischemic stroke were negatively associated with UFH. Compared with Spanish hospitals, management in other European countries, the U.S., and Asia was independently associated with UFH use.
Conclusion: UFH use was more common in patients with higher PE severity, impaired renal function, and bleeding risk but also varied substantially by geographic location, independent of patient-level characteristics. This highlights an opportunity for some regions to align initial anticoagulation more closely with evidence-based guidelines.

510 | Changes in White Blood Cell Count After Steroid Administration in Asthma Patients With and Without Infection

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Background and Objectives: Distinguishing whether leukocytosis reflects a viral or bacterial infection or noninfectious etiology remains a challenge in asthma exacerbations. Systemic corticosteroids, well-recognized to cause leukocytosis, can confound interpretation of white blood cell (WBC) counts, particularly when infection is suspected. We sought to quantify WBC changes following steroid administration in patients hospitalized for asthma exacerbation and to compare these changes among patients with asthma alone, asthma with pneumonia, and asthma with viral respiratory infections.
Methods: We conducted a retrospective cohort study of adults presenting to the ED with acute asthma exacerbation between January 1, 2023, and December 31, 2024. Eligible patients had a baseline complete blood count (CBC) prior to steroid administration, received oral or patenteral corticosteroids, and had at least one subsequent CBC during hospitalization. Patients on antibiotics prior to admission, pregnant patients, those requiring ICU care, or those who died during hospitalization were excluded. Changes in WBC over time were analyzed using linear mixed-effects models with random patient intercepts and fixed effects for disease group, time, baseline WBC, age, sex, Charlson Comorbidity Index, and Emergency Severity Index.
Results: Seventy-four patients met inclusion criteria: 44 with asthma alone, 9 with asthma and pneumonia, 19 with asthma and viral infection, and 2 with both pneumonia and viral infection. Compared with asthma alone, patients with asthma and pneumonia had a mean WBC change that was 0.48 K/μL lower (95% CI−4.17 to 3.64). Patients with asthma and viral infection demonstrated a 0.34 K/μL higher change (95% CI−4.13 to 4.57), while those with both pneumonia and viral infection had a 0.83 K/μL lower change (95% CI−10.17 to 7.94). None of these differences were statistically significant.
Conclusion: Among patients hospitalized for asthma exacerbation, steroid-associated leukocytosis did not differ significantly between those with asthma alone and those with concurrent bacterial or viral respiratory infections. These findings suggest that changes in WBC count after steroid administration have limited utility in distinguishing infectious from steroid-related leukocytosis in this population and should be interpreted cautiously when guiding antibiotic decisions.

511 | Characterizing Missed Cases of Acute Decompensated Heart Failure Across an Integrated Health System

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Background and Objectives: Acute decompensated heart failure (ADHF) is a leading cause of emergency department (ED) visits and hospitalizations. Diagnosis remains challenging due