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Spotlight on Special Topics

INCIDENCE AND DIAGNOSIS OF DEEP VEIN THROMBOSIS AND PULMONARY EMBOLISM IN COVID-19-A RETROSPECTIVE COHORT STUDY OF 1000 PATIENTS IN A COMMUNITY HOSPITAL IN CENTRAL NEW JERSEY

Poster Contributions

Sunday, May 16, 2021, 9:45 a.m.-10:30 a.m.

Session Title: Spotlight on Special Topics: COVID 4

Abstract Category: 61. Spotlight on Special Topics: Coronavirus Disease (COVID-19)

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Background: COVID-19 is associated with a high incidence of pulmonary embolism (PE) and deep vein thrombosis (DVT). Our objective is to study the incidence of PE and DVT in COVID-19 and the reliability of the Wells score.

Methods: Data were manually extracted from the medical records of 1000 COVID-19 patients. Patients with positive lower extremity duplex (LED) were compared to those with negative LED. Patients with positive CT pulmonary angiogram (CT-PA) or high probability on the ventilation-perfusion scan were compared with those with negative CT-PA.

Results: Out of the 1000 patients, 88 had imaging for PE, and 81 had a LED. PE was present in 18 patients, and DVT was present in 25 patients. The cumulative incidence of DVT and PE were 2.5% and 1.8%, respectively. There was no major difference in clinical features, risk factors, and laboratory values in both groups based on univariate analysis. In the PE group, variables with a significant difference include temperature ($P=0.03$, CI 0.22-0.92), D-dimer ($P<0.001$, CI 1.0006-1.0017, AUC .87), serum sodium ($P=0.03$, CI 1.01-1.48), Wells PE score ($P<0.001$, CI 1.88-10.12, AUC 0.80), SOFA score ($P=0.02$, CI 1.10-3.87). On multivariate analysis, D-dimer ($P<0.001$, CI 1.000-1.022) and Wells PE score ($P=0.02$, CI 1.26-16.3) were significant. In the DVT group, significant variables were male sex ($P=0.01$, CI 1.31-10.97), current intubation ($P=0.01$, CI 1.23-10.76), Wells DVT score ($P=0.03$, CI 1.04-3.15, AUC 0.64), BUN ($P<0.001$, CI 1.00-1.04), and D-dimer ($P<0.001$, CI 1.004-1.001, AUC 0.79). A D-dimer level of less than 1500 ng/ml has a negative predictive value (NPV) of 95% for PE. A D-dimer of less than 500 has an NPV of 93% for DVT. Mean Wells score was 2.5 in PE cases and 1.5 in DVT cases.

Conclusion: The incidence of DVT and PE in COVID-19 patients is not high enough to justify empiric full-dose anticoagulation. For both PE and DVT, clinical gestalt and Wells scores are inferior to D-dimer. However, COVID-19 patients may have high D-dimers without a thrombus due to severe inflammation or kidney injury. We recommend testing for PE when D-dimer is more than 1500 and testing for DVT when D-dimer is more than 500, especially when other causes for high D-dimers are absent.