

Diagnosis of Pulmonary embolism and Deep vein thrombosis in COVID-19-A Retrospective cohort study

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Introduction

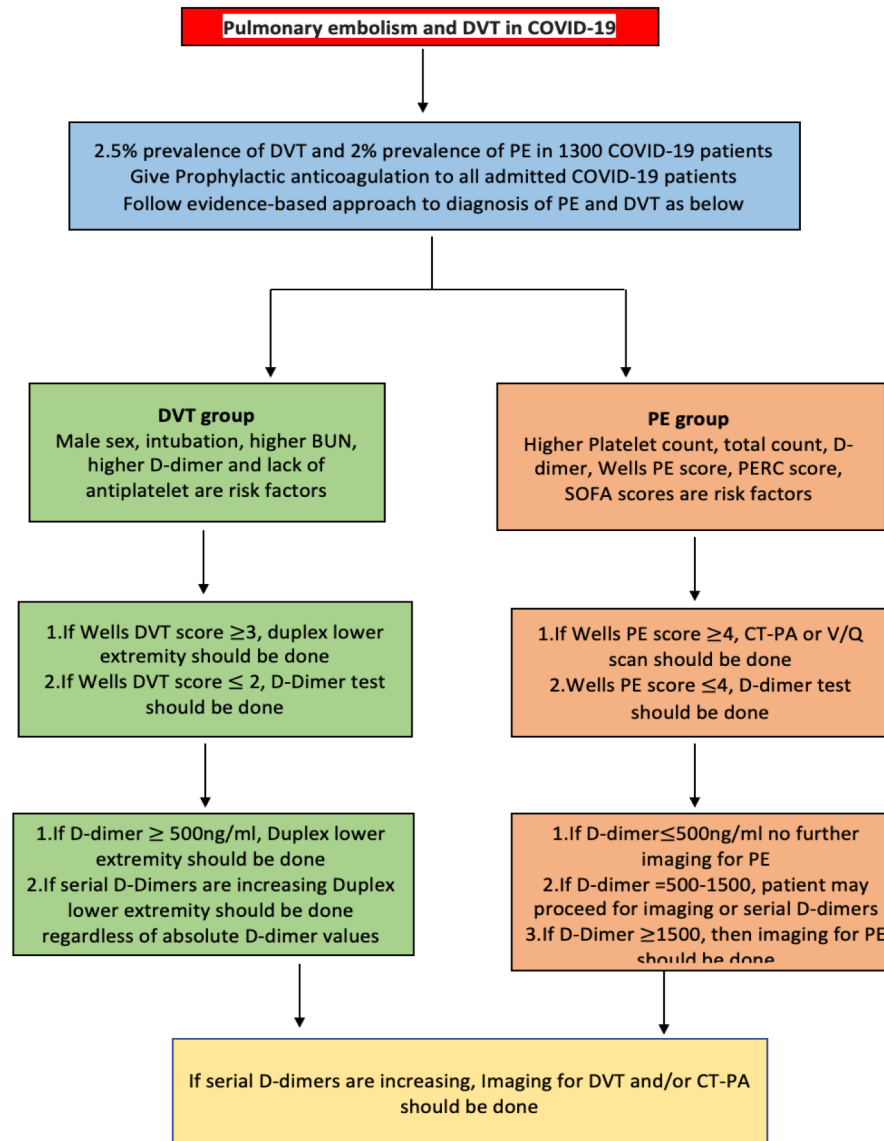
The validity of the combined approach of using Wells scores and D-dimers in COVID-19 related Venous thromboembolism has not been studied before. This study was designed to determine the accuracy of Wells scores and D-Dimers in COVID-19 related Deep vein thrombosis (DVT) and Pulmonary embolism (PE).

Materials and methods

We screened 1300 COVID-19 retrospectively for DVT and PE occurrence. Comparisons were made between patients with positive and negative lower extremity duplex. A similar approach was made in the PE group.

Results

- 1.The overall prevalence of DVT and PE was **2.6%** (35 out of 1300) and **2%** (26 out of 1300), respectively.
- 2.In the suspected DVT group, male gender (OR 3.88, 95% CI 1.55-9.7, P=0.004), antiplatelet use (OR 0.19, 95% CI 0.04-0.88, P=0.035), BUN (OR 1.02, 95% CI 1.00-1.04, P=0.018) and Intubation (OR 3.32, 95% CI 1.26-8.78, P=0.015) were statistically significant.
- 3.On multivariate analysis, **D-dimer** (OR 1.00, 95% CI 1.00-1.00, P=0.003) and systolic blood pressure (OR 0.99, 95% CI 0.93-0.99, P=0.024) remained significant.
- 4.In the suspected PE group, total WBC count (OR 1.07, 95% CI 0.95-1.21, P=0.032), platelet (OR 1.00, 95% CI 1.00-1.00, P=0.027), **D-dimer** (OR 1.00, 95% CI 1.00-1.00, P<0.001), **Wells PE score** (OR 2.46, 95% CI 1.50-4.06, P<0.001), **SOFA score** (OR 1.91, 95% CI 1.16-3.12, P=0.002) were statistically significant.



Results (contd)

- 5.On multivariate analysis, D-dimer (OR 1.00, 95% CI 1.00-1.00, P<0.001) and Wells PE score (OR 2.44, 95% CI 1.12-5.33, P=0.024) remained statistically significant.
- 6.A D-dimer of 500 had a sensitivity of 95.6% and 93.7% for the diagnosis of PE and DVT, respectively.
- 7.A Wells DVT score of 3 had a specificity of 92.9% and sensitivity of 8.8% for the diagnosis of DVT in COVID-19.
- 8.A Wells PE score of 4 had a specificity of 100% and a sensitivity of 20% for the diagnosis of PE.
- 9.The combined approach of using Wells scores and D-dimers missed one PE case and two DVT cases.

Conclusions

VTE occurrence in COVID-19 is associated with non-traditional risk factors such as intubation and higher severity of systemic inflammation, and these patients may benefit from more aggressive testing for VTE. D-dimer of 500 has good sensitivity to rule out both PE and DVT and should be used. Wells DVT and PE scores have high specificity but have poor sensitivity in COVID-19.