

**Background**

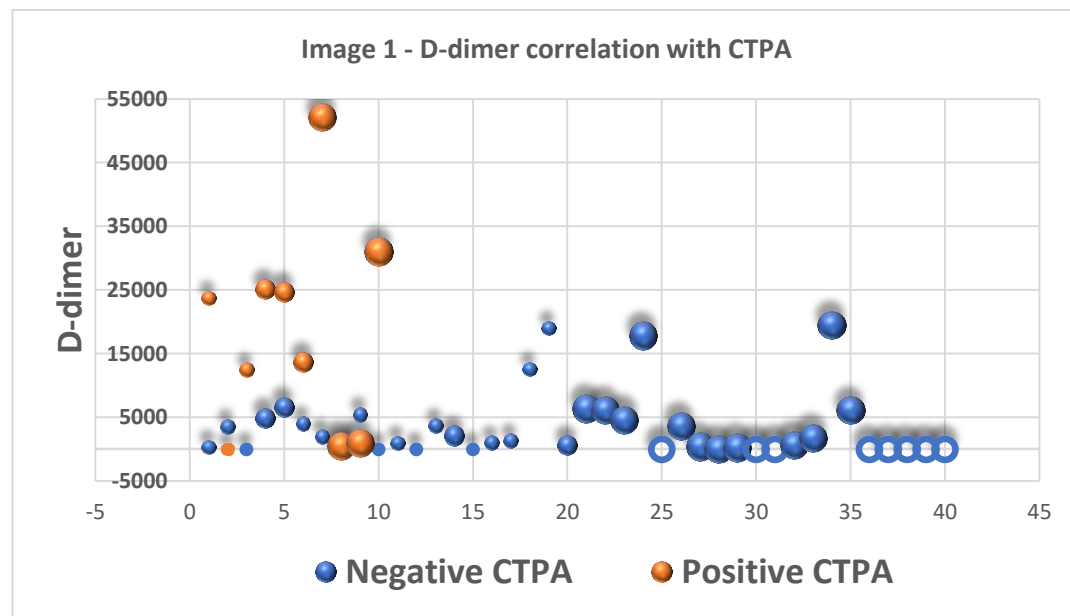
COVID-19 has been associated with an increased pro-thrombotic state causing venous thromboembolisms (VTE), thus leading to poorer outcomes. It is hypothesised that a hyper-inflammatory process leads to a cytokine storm, resulting in endothelial dysfunction and thrombotic sequelae.<sup>1</sup> This can occur despite VTE prophylaxis. Early use of anticoagulation may reduce mortality rates.<sup>2</sup> Measuring coagulation markers, such as D-dimer, have proven to be useful to detect hypercoagulability in patients with COVID-19. This together with a CTPA may increase the pick-up rate of VTE.

**Method**

We performed a prospective audit on patients who were admitted with COVID and treated with either CPAP, mechanical ventilation or both. All patients received VTE prophylaxis. We compared the association of D-Dimer with radiographic evidence of pulmonary emboli on a CTPA (Image 1).

**Results**

80 out of 130 patients had a D-Dimer (highest level). D-dimer results ranged from 297-52186ug/ml.



Total number of patients *	Number of patient with D-dimer measurement	Number of patients who had CTPA confirming PE	Number of patients who had negative CTPA
130	80	10	20

*\*patients treated with CPAP/mechanical ventilation/both*

**Discussion**

Raised D-Dimer levels can reflect a prothrombotic state, however, do not necessarily correlate with radiographic evidence of pulmonary emboli. A negative CTPA, may not account for the profound microembolic burden contributing to hypoxaemic respiratory failure. In particular, rising D-dimer in conjunction with increasing oxygen requirements may be predictors of impending pulmonary emboli and aid in delivery of prompt treatment.

There may be an association with other co-morbidities and the development of pulmonary emboli, patients with a high BMI are more at risk of developing pulmonary emboli and it is imperative to consider such risk factors when considering anticoagulation. Providing there are no contra-indications, empiric anticoagulation should be continued for at least 3 months.

Early anticoagulation can help improve mortality rates in these patients and should be considered in patients with high D-dimers, even if the CTPA does not prove pulmonary emboli.

**References**

1. COVID-19 and Pulmonary Embolism: Frequently Asked Questions. Lee et al. 2020. <https://www.hematology.org/covid-19/covid-19-and-pulmonary-embolism>
2. Coexistent COVID-19 pneumonia and pulmonary embolism: challenges in identifying dual pathology. Abernethy et al. Thorax (2020);0:1-3