COVID-19 Management for My Patients

Q. Are patients with COVID-19 at high risk of developing VTE—such as pulmonary embolism (PE), deep venous thrombosis (DVT), or hypercoagulability?

A. Weak evidence from case reports and retrospective analyses of data for patients hospitalized with COVID-19 in China suggest that the disease is commonly associated with coagulopathy which may increases the risk of venous thromboembolism (VTE) and disseminated intravascular coagulation (DIC).

See Additional Resources below for discussion of supporting literature.

Additional Resources/Information

American Society of Hematology FAQs
COVID-19 and VTE/Anticoagulation: Frequently Asked Questions
COVID-19 and Pulmonary Embolism: Frequently Asked Questions

Supporting literature: Are patients with COVID-19 at high risk of developing VTE?

Tang, Li, and colleagues 2020, retrospectively analyzed data for 183 consecutive patients admitted to a hospital in China (from January 1-February 3) with confirmed novel corona virus pneumonia (NCP) to examine the correlation of the coagulation features with NCP.

41.0% of the patients had chronic diseases, including cardiovascular and cerebrovascular diseases, respiratory system disease, malignant tumor, chronic liver and kidney disease, and others. All patients received antiviral and supportive therapies after diagnosis. By the end of February 13, 78 (42.6%) patients had been discharged and 21 (11.5%) had died, the remaining 84 patients (45.9%) were still hospitalized in stable condition.

Analysis of the results showed the 21 patients who died had significantly higher D-dimer and fibrin degradation product (FDP) levels, longer prothrombin time and activated partial thromboplastin time compared to survivors, on admission (P < .05). The results also showed that 71.4% of non-survivors and 0.6% of the survivors met the criteria of disseminated intravascular coagulation during their hospital stay.

The overall results suggest that abnormal coagulation results, especially markedly elevated D-dimer and fibrin degradation product (FDP) levels, are common among deaths with NCP.

The study was a retrospective analysis with inherent limitations; it was a relatively small single-center study, patients were treated according to the hospital protocol; and the mortality and characteristics of enrolled patients may not be representative; in addition, some patients were still hospitalized at the time of manuscript submission.
A published article (Danzi et al, 2020) reports on a 75-year-old Covid-19-positive woman hospitalized for severe bilateral pneumonia whose CT scan documented bilateral pulmonary embolism, in the absence of major predisposing factors. The authors concluded that this case of diffuse bilateral COVID-19 pneumonia seems to confirm the role of severe infections as a precipitant factor for acute venous thrombo-embolism and the causal relationship. Based on these findings, treatment with low molecular weight heparin, lopinavir/ritonavir, and hydroxychloroquine was started.

Another article (Xie et al, 2020) reported on two cases from Wuhan, China, presenting with fever, cough, and dyspnea secondary to confirmed COVID-19 pneumonia. The 2 cases experienced respiratory deterioration and elevated serum D-dimer level. CT pulmonary angiography performed in the two patients (6 days after admission in one patient, and 10 days after admission in the other) confirmed acute pulmonary embolism.

References