

Correlation between COVID 19 and Disseminated Intravascular Coagulation

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ABSTRACT: Coagulopathy in association with thrombotic complications and perhaps even disseminated intravascular coagulation (DIC) have become the hallmark of severe acute respiratory syndrome coronavirus 2 infections. The current guidance with regard to prevention of thrombosis and management of coagulopathy and DIC recommends pharmacological thromboprophylaxis be given to all immobilized and severely ill patients with COVID-19 unless otherwise contraindicated. Exploring the associated coagulation disease will aid in the understanding of the pathophysiological mechanisms underlying severe COVID-19.

Keywords: COVID-19, Coagulopathy, Disseminated intravascular coagulation, Deep vein thrombosis, pulmonary intravascular coagulopathy.

Coronavirus disease 2019 (COVID-19) is a novel infectious disease, with significant morbidity and mortality. This meta-analysis is to evaluate the prevalence of disseminated intravascular coagulation (DIC) in COVID-19 patients and to determine the association of DIC with the severity and prognosis of COVID-19.

The pathology of coronavirus disease 2019 (COVID-19) is intensified by the progression of thrombosis, and disseminated intravascular coagulation (DIC), and cytokine storms. The most frequently reported coagulation abnormality in COVID-19 is increase in D-dimer. COVID-19 thrombosis includes macro- and micro thrombosis. Treatment of COVID-19 is classified into antiviral treatment, cytokine storm treatment, and thrombosis treatment. Rather than providing uniform treatment, the treatment method most suitable for the severity and stage should be selected.

A large scale of patients has been reported to have developed pulmonary embolism without any risk factors, leading to theorizing that COVID-19 is an independent risk factor for venous thromboembolism. Pulmonary embolism was due to COVID-19-induced thrombosis or a result of coagulopathy secondary to DIC. A unique case of a COVID-19 associated coagulopathy in a patient with confirmed pulmonary embolism along with an unconcealed DIC. The patient is treated with anticoagulants and steroids along with blood products. For the time being the patient's condition will decidedly improve.

Pulmonary intravascular coagulopathy is the characteristic coagulopathy in COVID-19. The progression from pulmonary intravascular coagulopathy to sepsis-induced coagulopathy or disseminated intravascular coagulation in the context of COVID-19 may indicate that the patient's coagulation dysfunction has progressed from local to systemic. Exploring the associated coagulation disease will aid in the understanding of the pathophysiological mechanisms underlying severe COVID-19.

Coronavirus disease 2019 (COVID-19)-induced infection can be associated with a coagulopathy, findings consistent with infection-induced inflammatory changes as observed in patients with disseminated intravascular coagulopathy (DIC). The lack of prior immunity to COVID-19 has resulted in large numbers of infected patients across the globe and uncertainty regarding management of the complications that arise in the course of this viral illness. Meanwhile patients develop acute lung injury that can progress to respiratory failure, although multiorgan failure can also occur. Coagulation test screening, including the measurement of D-dimer and fibrinogen levels, is suggested.

COVID-19-associated coagulopathy should be managed as it would be for any critically ill patient, following the established practice of using thromboembolic prophylaxis for critically ill hospitalized patients, and standard supportive care measures for those with sepsis-induced coagulopathy or DIC. Although D-dimer, sepsis physiology, and consumptive coagulopathy are indicators of mortality, current data do not suggest the use of full-intensity anticoagulation doses unless otherwise clinically indicated. If bleeding does occur, standard guidelines for the management of DIC and bleeding should be followed.

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