THE PREVENTION OF PULMONARY EMBOLISM

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Abstract

Coronavirus infection (COVID-19), an acute infectious disease caused by the SARS-CoV-2 virus, is characterized by activation of the hemostasis system, which in the most severe cases can lead to the development of consumption coagulopathy. At present, it remains unclear whether COVID-19 is the direct cause of these disorders or they arise as the infectious process progresses. In COVID-19, the incidence of asymptomatic and clinically pronounced thrombotic/thromboembolic complications (TEC) remains unclear, which is largely due to the difficulties of their diagnosis (problems of instrumental examination of patients lying on their stomach, the desire to limit the involvement of additional equipment and personnel). At the same time, according to some reports, the frequency of venous and arterial thrombosis in severely ill COVID-19 patients is quite high. Thus, in 184 patients with pneumonia with COVID-19, who was in intensive care units of 3 hospitals in Denmark, 13% of whom died, symptomatic deep vein thrombosis (DVT), pulmonary embolism (PE), ischemic stroke, myocardial infarction, or arterial thromboembolism noted in 31% of cases.

In a retrospective study of electronic medical records of 499 patients with severe manifestations of COVID-19 who were subsequently admitted to the same Tongji University Hospital in Wuhan, an increased level of D-dimer along with age, an increase in prothrombin time and a lower concentration of platelets in blood was an independent predictor of death in the next 28 days.

A similar result was obtained in a retrospective study of patients with COVID-19 admitted to a respiratory hospital in Wuhan (n = 191), 54 of whom died in hospital. D-dimer levels at hospital admission exceeding 1 μg / ml were an independent predictor of death (relative risk (RR) 18.42 at 95% confidence intervals (CI): 2.64 - 128.55) along with age and the sum of points on the SOFA (Sequential Organ Failure Assessment) scale. At the same time, in deceased patients, it gradually increased, sometimes to a very high level, while in survivors it changed little and rarely exceeded the upper limit of the norm.

Conclusion

Thus, based on the totality of accumulated facts, most patients hospitalized with COVID-19 meet the criteria for a high risk of venous feasibility studies and need their prevention. The group of experts of the International Society for Thrombosis and Hemostasis believes that the use of anticoagulants for the prevention of venous feasibility study should be in all patients hospitalized with COVID-19. In addition, in the most severe cases (sepsis-induced coagulopathy score ≥4 or blood D-dimer level> 6 times the upper limit of normal), heparin can be expected to reduce mortality . At the same time, another international group of experts proposes a more conservative approach, when in patients hospitalized with COVID-19, the risk of a venous feasibility study (for example, according to the Padua or IMPROVE scale) should first be determined and only after that a decision should be made about the appropriateness of prevention. However, they also recommend starting the prophylactic administration of heparin immediately in patients with respiratory failure or concomitant diseases (for example, malignant neoplasm, heart failure), as well as those who are bedridden or need intensive care. Obviously, this position is closer to the recommendations of the American College of Thoracic Physicians