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Letters to the Editor

Managing Anticoagulation for COVID-19-Related Lung Transplantation

To the Editor:

Many patients with COVID-19 develop a hypercoagulable state and require anticoagulation with heparin. Those treated with extracorporeal membrane oxygenation (ECMO) require heparin anticoagulation. These patients are at risk for heparin-induced thrombocytopenia (HIT). A 52-year-old man with COVID-19 was transferred to our institution for venovenous ECMO cannulation and lung transplant evaluation. His course was complicated by prolonged ECMO dependence, during which time he developed HIT and was transitioned to bivalirudin anticoagulation. The patient was taken to the operating room for lung transplantation. During cardiopulmonary bypass, we used our institution's bivalirudin weight-based and activated clotting time protocol. Significantly higher doses of bivalirudin than expected were required to maintain a target activated clotting time 2.5 greater than baseline. The patient received 40% more bivalirudin than expected. Rotational thromboelastometry was performed during rewarming and showed a markedly elevated clotting time on an external thromboelastometry, and low amplitudes and maximum clot firmness on both external thromboelastometry, and fibrin-based thromboelastometry. The bivalirudin was believed to be responsible for the prolonged clotting time, while the other values suggested significant coagulopathy. However, little bleeding was present, and the only blood product administered was one unit of platelets.

Our case highlights new coagulation challenges posed by COVID-19 infection in a patient requiring cardiopulmonary bypass for bilateral lung transplantation, including HIT, bivalirudin resistance, and hypercoagulability in the setting of abnormal point-of-care coagulation tests.

Conflict of Interest

None.

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