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Letter to the Editor

Author's response to Letter to the Editor: Anticoagulant approach in COVID-19 patients with cerebral venous thrombosis.

We thank the Journal and the authors for the opportunity to further elaborate on the issue of anticoagulation choice raised in Siang et al's letter to the editor.¹ We appreciate Siang et al. raising this topic as it acutely impacts management of care and is becoming increasingly relevant as the number of reported thrombotic events associated with SARS-CoV-2 continues to rise.

In their letter, Siang et al. discuss the evidence favoring the use of LMWH instead of UFH in acute cerebral venous thrombosis (CVT), citing decreased reported mortality and new associated hemorrhage acutely as well as better chronic outcomes including fewer thrombotic complications, improved thrombus regression and recovery of symptoms.¹⁻⁴ The advantage of UFH is appropriately addressed in peri-operative conditions and in significant renal disease.⁵

We agree that the overall evidence suggests LMWH is often a better first-line choice compared with UFH in the treatment of acute CVT. As noted in our article, various heparins have been shown to bind to COVID-19 spike proteins, downregulate IL-6 and dampen the immune activation.⁶ Moreover, emerging in vitro evidence suggest heparins, in particular LMWH, may bind to coronavirus via competitive inhibition and that it may partially help reduce the cytokine storm associated with COVID-19.⁷ However, at this time the use of LMWH over UFH should remain as a guide and not a rule due to the novelty of SARS-CoV-2 associated CVT, and the lack of randomized blinded comparative or long-term outcome studies specifically in COVID-19 associated thrombotic events. Furthermore, as new treatments for COVID-19 emerge such as Remdesivir and convalescent plasma, consideration of drug-drug interaction will be needed when choosing the appropriate anticoagulant.^{8,9} There may be other situations in which UFH may be a better initial choice; for instance, if an acute CVT is associated with a large intracerebral hemorrhage causing significant mass effect or midline shift, it would be prudent to choose UFH initially

while monitoring for potentially life-saving surgical intervention to relieve resultant increased intracranial pressure.

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