Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

thromboelastography findings and other parameters of hemostasis. J Thromb Haemost 2020;18:1738-42.
5. Caussy C, Wallet F, Laville M, Disse E. Obesity is associated with severe forms of COVID-19. Obesity (Silver Spring) 2020;28:1175.

https://doi.org/10.1016/j.jvsv.2020.06.006

Reply

The remarks made by Kow and Hasan[1] regarding the use of low-molecular-weight heparin (LMWH) in hospitalized COVID-19 patients are greatly appreciated since they focus on one of the most important aspects concerning the treatment of this disease, namely, thromboprophylaxis. In fact, since our latest letter was published in this *Journal*, suggesting a close correlation between COVID-19 and deep venous thrombosis (DVT),[2] a number of studies have followed, confirming this view and providing evidence of the fact that respiratory infection is also responsible for a systemic procoagulant activity,[3-5] which can lead to different clinical manifestations ranging from DVT to septic intravascular coagulation, not only in the most critical cases (patients in intensive care unit) but in all in-hospital patients. In light of this evidence, heparin has become a cornerstone of the treatment against COVID-19, along with empirical antiviral and antibiotic therapy, but the correct dose to administer is still the subject of discussion.[6] Most centers continue to administer a prophylactic dose of LMWH (100 mUI/kg daily), although our experience reports several cases of DVT and pulmonary embolism in COVID-19 patients with this posology, which justifies the use of anticoagulant doses (100 mUI/kg twice a day) when no absolute contraindication to anticoagulant therapy exists. This is, in our opinion, a correct approach, although there are other potential risks to be taken into account, for example, thrombocytopenia, a common alteration in COVID-19 patients that is a predictor of poor prognosis and can be worsened by LMWH.[7] The decision is, in fact, a difficult one, and it is made even harder by the many things that we still ignore regarding the effects that the virus has on the hemostatic function. In this respect, constant and careful monitoring of platelet count and coagulation parameters (especially D-dimer and fibrinogen) throughout the entire clinical course is crucial to recognize and minimize complications.

In conclusion, we share the authors' view that COVID-19 is a powerful risk factor for DVT; moreover, in hospitalized patients, it is often associated with pre-existing comorbidities (advanced age, obesity) and immobilization that further enhance the thrombotic risk, and so all measures should be adopted to counteract the onset of DVT or other clinical manifestations of an altered hemostasis. To this purpose, further studies investigating the relationship between disease severity and the extent of coagulopathy will be necessary to select those patients who need more protection.

Enrico M. Marone, MD

Vascular Surgery
Department of Clinical-Surgical, Diagnostic, and Pediatric Sciences
University of Pavia, Pavia, Italy

Unit of Vascular Surgery
Fondazione IRCCS Policlinico S. Matteo
Pavia, Italy

Luigi F. Rinaldi, MD

Vascular Surgery
Department of Clinical-Surgical, Diagnostic, and Pediatric Sciences
University of Pavia, Pavia, Italy

REFERENCES

1. Kow CS, Hasan SS. Use of low-molecular-weight heparin in COVID-19 patients. J Vasc Surg Venous Lymphat Disord 2020;8:900-1.
2. Marone EM, Rinaldi LF. Upsurge of deep venous thrombosis in patients affected by COVID-19: Preliminary data and possible explanations. J Vasc Surg Venous Lymphat Disord 2020;8:694-5.
3. Zhang L, Feng X, Zhang D, Jiang C, Mei H, Wang J, et al. Deep vein thrombosis in hospitalized patients with coronavirus disease 2019 (COVID-19) in Wuhan, China: prevalence, risk factors, and outcome. Circulation 2020 May 18. [Online ahead of print].
4. Bikdeli B, Madhavan MV, Jimenez D, Chuich T, Dreyfus I, Driggin E, et al. COVID-19 and thrombotic or thromboembolic disease: implications for prevention, antithrombotic therapy, and follow-up: JACC state-of-the-art review. J Am Coll Cardiol 2020;75:2950-73.
5. Artifoni M, Danic G, Gautier G, Gicquel P, Boutoille D, Raffi F, et al. Systematic assessment of venous thromboembolism in COVID-19 patients receiving thromboprophylaxis: incidence and role of D-dimer as predictive factors. J Thromb Thrombolysis 2020;50:211-6.
6. Shanghai Clinical Treatment Expert Group for COVID-19. Comprehensive treatment and management of coronavirus disease 2019: expert consensus statement from Shanghai [in Chinese]. Chin J Infect Dis 2020;Mar 21. [Online ahead of print].
7. Yang X, Yang Q, Wang Y, Wu Y, Xu J, Yu Y, et al. Thrombocytopenia and its association with mortality in patients with COVID-19. J Thromb Haemost 2020;18:1469-72.

https://doi.org/10.1016/j.jvsv.2020.06.007

Inconsistency of salvage outcome data in extremity vein repair versus ligation using the National Trauma Data Bank

The recently published "Impact of ligation vs repair of isolated popliteal vein injuries on in-hospital outcomes in trauma patients" by Byerly et al[1] gave us the opportunity to review multiple publications of traumatic vein injury repair based on the National Trauma Data Bank (NTDB). This retrospective study