

# Thromboelastography-Guided Anticoagulant Therapy

The novel [coronavirus disease 2019 \(COVID-19\)](#), caused by the [severe acute respiratory syndrome coronavirus 2 \(SARS-CoV-2\)](#), often manifests a [coagulopathy](#) in severely ill patients, which may cause [hemorrhage](#) and/or [thrombosis](#) of varying severity.

A report comprises the cases of 3 patients with COVID-19-associated [coagulopathy](#) who were evaluated with [thromboelastography](#) (TEG) and [activated partial thromboplastin time](#) (aPTT) to enable personalized [anticoagulant therapy](#).

Three patients presented with COVID-19 [pneumonia](#), confirmed by reverse transcription-polymerase chain reaction, who developed thrombohemorrhagic coagulopathy.

Case 1: A 72-year-old woman on long-term warfarin therapy for a history of venous thromboembolism developed a right upper lobe pulmonary embolus, despite an international normalized ratio of 6.4 and aPTT of 120.7 s. TEG enabled successful anticoagulation with heparin, and her pulmonary infarct was no longer present 2 weeks later.

Case 2: A 55-year-old woman developed a rectus sheath hematoma while on heparin, and TEG demonstrated increased fibrinolysis despite COVID-19 patients more commonly undergoing fibrinolytic shutdown.

Case 3: A 43-year-old woman had a significant thrombus burden while severely hypocoagulable according to laboratory testing. As the venous thrombi enlarged in a disseminated intravascular coagulopathic-like state, the heparin dose was escalated to achieve a target aPTT of 70 to 80 s, resulting in a flat line TEG tracing.

These 3 cases of COVID-19 pneumonia with complex and varied clinical histories demonstrated the clinical value of TEG combined with the measurement of aPTT to facilitate personalized anticoagulation, resulting in good clinical outcomes <sup>1)</sup>.

<sup>1)</sup>

Bunch CM, Thomas AV, Stillson JE, Gillespie L, Lin KP, Speybroeck J, Kwaan HC, Fulkerson DH, Zamlut M, Khan R, Walsh MM. Thromboelastography-Guided Anticoagulant Therapy for the Double Hazard of Thrombohemorrhagic Events in COVID-19: A Report of 3 Cases. Am J Case Rep. 2021 Apr 1;22:e931080. doi: 10.12659/AJCR.931080. PMID: 33883541.

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