



## Rationale of anticoagulation among patients of COVID-19 undergoing cardiac surgery

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To the Editor:

Since December 2019, there has been substantial spurt in the cases of coronavirus disease 2019 (COVID-19). Of late it was chronicled that 20% of COVID-19 patients had coagulation abnormalities. This coagulopathy among COVID-19 patients is responsible for increased incidences of morbidity and mortality [1, 2]. Moreover, autopsy studies have also registered evidence of macro as well as micro embolism in patients with COVID-19 infection [3].

Tang et al. delineated in their study among 449 severe COVID-19 patients that the 28-day mortality of heparin users (99 patients) was lower than nonusers in patients with sepsis-induced coagulopathy score  $\geq 4$  (40.0% vs 64.2%,  $p = .029$ ), or D-dimer  $> 6$ -fold of upper limit of normal (32.8% vs 52.4%,  $p = .017$ ), although no difference in 28-day mortality was found between heparin users and nonusers (30.3% vs 29.7%,  $p = .910$ ). Yet, D-dimer, prothrombin time, and age were found to be positively correlated with 28-day mortality in multivariate analysis [2].

Significant elevation of D-dimer and fibrinogen degradation products (FDP) was seen among COVID-19-related deaths. Even so, this diagnosis should be confirmed by imaging [4, 5].

However, Tremblay et al. performed a propensity-matched analysis of patients who were on empiric antithrombotic therapy prior to COVID-19 infection which was compared with those who were on neither anticoagulant nor antiplatelet therapy. They found that there was no statistically significant difference in survival ( $p = .367$ ) and time to mechanical ventilation ( $p = .742$ ) between the two groups. These results are suggestive of the fact that empiric antithrombotic prophylaxis

alone is unlikely to be protective for morbidity and mortality due to COVID-19. They emphasized that more prospective randomized controlled trials should be promoted to validate these findings [6].

In the current times when we are about to restart our elective cardiovascular thoracic surgical procedures and knowing that COVID-19 is significantly associated with abnormalities of coagulation axis, the author wants Indian Association of Cardiothoracic and Vascular Surgeons through the editor to come out with strict recommendation and guidelines regarding “Do’s and Don’ts” of surgical procedures for the next 6 months to 1 year till the time vaccine is available or adequate herd immunity develops. Nonetheless, after surgical procedure the patient will be discharged and will be sent back to community where he may develop asymptomatic as well as symptomatic COVID-19 infection, which may affect coagulation cascades of the body which might result in increased incidence of thrombosis associated with biprosthetic grafts, mechanical prosthetic valves, etc. Strict guidelines should be drafted regarding which procedure should be done. The author is of thought that the procedures which are non-urgent should be avoided and the patient can be safely kept on prophylactic pharmacological management unless contraindicated till further course of disease is clear.

Repeated assessment of thrombotic risk and optimized pharmacological and surgical strategies are the need of the hour to prevent venous thromboembolism and pulmonary embolism. It should also be clarified which subset of COVID-19 patients should specifically be given empiric anti-thrombotic therapy.

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### Compliance with ethical standards

**Conflict of interest** The author declares that he has no conflicts of interest.

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