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.

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Editorial

Making things right! Shouldn't we screen patients with thromboembolic events for SARS-CoV-2 infection, during the pandemia?

C. de Roquetaillade [a,b,*], B.G. Chousterman [a,b,c], A. Mebazaa [a,b,c]

[a] Department of Anesthesiology and Critical Care, Hôpital Lariboisière (AP-HP), Paris, France
[b] Inserm U942 MASCOT, Paris, France
[c] Université de Paris, Paris, France

Since its emergence in december 2019, Covid-19 has been associated with hypercoagulability and endothelial activation, regardless of the severity of lung infection. Elevation in coagulation markers (D-dimer, platelet count) has been consistenly associated with poorer prognosis [1] and numerous studies have reported very high incidence of thromboembolic events of venous [2] or arterial nature [3] among patients suffering from COVID-19. Thromboembolic events should not be misregarded since they may represent a major burden in COVID-19-related outcome. In a recent multicentric report of critically ill patients, the authors reported 12% of fatal thromboembolic events among COVID-19-related deaths [4].

Several studies also pointed out that COVID-19 hypercoagulability could affect patients with mild to moderate symptoms [5]. At last, reports of an excess of sudden deaths occuring during the first COVID-19 outbreak, in Paris Region, highlighted an increased incidence of fatal pulmonary embolism [6]. While most studies had focused on evaluating the incidence of thromboembolic events among patients with proven symptomatic covid-19 (respiratory failure, shortness of breath etc…) few studies had yet investigated the prevalence of thromboembolic events as a primary manifestation of SARS-CoV-2 infection.

In the present study of Miro et al. [7] assessed the prevalence of thromboembolic events as a primary manifestation of Covid-19 symptomatology. Their study, which comprises a remarkable sample size of 63,822 COVID patients presenting in emergency department (ED), confirms the association between SARS-CoV-2 infection and thromboembolic events in patients presenting at the ED. In their report, the observed increase in pulmonary embolism (PE) is unequivocal. In addition, observed mild increment in stroke might also suggest a role of the virus on such event. Interestingly, the observed increment in PE was not associated with increased prevalence of deep vein thrombosis. We see 2 possible explanations: (1) as discussed by the authors, the observed prevalence of an event is highy dependent on the strategy of diagnosis, in this perspective, increased number of performed computer scanography, to assess the diagnosis and the extension of SARS-CoV-2 pneumonia, might have increase the detection of asymptomatic PE while screening for deep vein thrombosis (DVT) is motivated on purpose. (2) Another possible explanation might rely on the fact that COVID-19 pulmonary embolism arises from a different pathophysiology than the common embolus migration paradigm. Several authors have suggested that the inflammatory process occuring within the lung of patients with COVID-19 might favor *in situ* thrombus formation. This process called immunothrombosis, is supported by several autopsy findings as well as comparative study of radiological patterns between conventional PE and COVID-19 related PE [8]. However, since the population studied was presenting in ED and not necessarily hospitalized, one can hypothesize a less intense pulmonary inflammation. The possibility for immunothrombosis to undergo in mildly affected patients with no respiratory failure deserves further explorations. If proven so, utilisation of anticoagulation therapy among patients with mild symptoms and discharged back home might become loudable [1]. Several studies are actually ongoing, the expected results should bring answers on this specific topic [9].

Another intriguing point is the reported characteristics of patients suffering from arterial thrombotic events. Although the reported incidence is only mildly increased (regarding stroke), the authors report differences in population characteristics when comparing with non-COVID patients (older patients with acute coronary syndrome, less female and less cancer in PE) which strongly suggests a role COVID-19 syndrome in this process. Moreover, since every patient presenting at ED was not systematically screened for COVID-19 infection (due to lack of ressources), one can hypothesize that association between COVID-19 and stroke, ACS and other thromboembolic events might have been underdiagnosed.

Taken together, the results highlighted by Miro O et al. suggest that thrombotic events should be carrefully assessed in all COVID-19 patients but also, conversely, that occurrence of such events in an asymptomatic patient presenting at ED should mandate a research for SARS-CoV-2 infection, during the pandemia. The possible benefit of systematic anticoagulation among patients with mild symptoms, surely deserves further investigations.

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* Corresponding author at: Inserm U942 MASCOT, Université de Paris, Hôpital Lariboisière - Bâtiment Viggo Petersen, 41, boulevard de la Chapelle, 75475, Paris Cedex 10, France.

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