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EDITORIAL

Is aortic thrombosis an intruder in the COVID pandemic?



During the COVID pandemic, the world faces a huge increase of deaths due to COVID pneumopathy responsible for acute respiratory distress syndrome (ARDS). Beside this specific and peculiar pneumopathy, it rapidly appeared that thrombosis, due to an important systemic and endothelial inflammation, was an important player to take into consideration [1,2].

Venous thrombosis and mainly pulmonary embolism is associated with COVID-19, with a higher rate of occurrence in the patients with the most severe form of the disease, i.e. in patients hospitalized in intensive care unit [3–6]. Furthermore, it also appears that microvascular thrombosis of pulmonary arterioles also plays a role in the severity of the pneumopathy associated with SARS-CoV-2. Interestingly the rate of pulmonary embolism is higher in ARDS due to SARS-CoV-2 than in ARDS induced by other infections also treated in ICU. So, it seems now clear that COVID-19 is an important risk factor of venous thromboembolism that requires systematic prevention in case of symptoms requiring a hospitalization or in patients having had a previous venous thrombosis or with known thrombophilia [7].

The association with arterial thrombosis is less clear [8], for example, the rate of myocardial infarction or stroke did not seem to dramatically increase during the pandemic, in large population [9,10]. Furthermore, a recent multinational study of 16,511 patients found that cardiovascular complications are not more common in patients with pre-existing cardiovascular disease after multivariable adjustment and serious cardiac complications are rare during hospitalization [11]. Nevertheless, it appears that in case of cardiovascular complications the prognosis is poorer in COVID-19 patients compare to controls [8,9]. That lead the European Society of Cardiology to edict guidelines for the diagnosis and management of cardiovascular disease during the COVID-19 pandemic [12].

Despite these reassuring data concerning the risk of arterial thrombosis that appears much lower and less

consistent than the risk of pulmonary embolism [8], several case reports of aortic thrombosis were published, including one case by our team [13]. In this issue of the JMV Caudron et al. reported a series of 10 patients with acute aortic thrombosis and COVID-19 infection, treated during April 2020 and August 2021, in a tertiary referral center for acute aortic syndrome. The patients with thrombosis of aortic grafts were excluded, as well as patients with aortic dissection or chronic aortic occlusion. Unfortunately, the authors did not compare their population with a population of acute aortic thrombosis without COVID-19 infection treated during the same period. This does not allow comparisons concerning the epidemiology of the disease and the risk of complications of surgery in case of concomitant infection by SARS-CoV-2, as previously reported for myocardial infarction and stroke [9,10]. In this population, median age was relatively low (62 y.o.), with 90% of males and all patients had at least one cardiovascular risk factor. Two patients had a history of coronary artery disease, 3 of stroke and 2 of peripheral arterial disease. Aortic thrombosis occurred in this population despite the fact that 6 patients were previously treated by antiplatelet therapy and 2 by anticoagulants. It seems that the COVID-19 pneumopathy associated with acute aortic thrombosis was severe as 4 patients were already hospitalized in ICU at the time of diagnosis but all of them had an ICU stay. This, similarly to what is observed for pulmonary embolism, confirmed the fact that a severe inflammation and pneumopathy induced by SARS-CoV-2 is associated with a higher risk of activation of coagulation and aortic thrombosis. This is also confirmed by the high levels of D-Dimer observed in this series. One important information from this surgical series is the poor prognosis after surgery in this population. The mortality rate was 30%, mainly related to COVID pneumopathy, but among survivors the free-amputation rate was 50%. This is probably due to the high rate of re-thrombosis following surgery in COVID-19 population. As discussed by the authors, other

series have been published with aortic or peripheral acute thrombosis associated with COVID-19 and all reported a poor prognosis when surgery had to be performed for acute ischemia requiring acute revascularization. This underlines the fact that in case of isolated aortic thrombosis and/or limb ischemia without threatening viability, medical therapy must be recommended and surgery postponed if required.

We should congratulate the authors for this series of COVID-19 associated with acute aortic thrombosis, as it is a rare occurrence but with important consequences for the patients. Is acute arterial thrombosis a new intruder in the large spectrum of complications associated with SARS-CoV-2 should be confirmed by further studies. Finally, it would also be important to follow these patients, as long term cardiovascular outcomes of COVID-19 was also raised as a new cardiovascular issue [14].

Disclosure of interest

The author declares that he has no competing interest.

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Available online 25 October 2022