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LETTER TO EDITOR

Before blaming SARS-CoV-2 infection or vaccination for acute peripheral artery occlusion, rule out differential causes

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Dear editor,

With interest we have read the article by Tan et al. on a case series of nine SARS-CoV-2 infected (SC2I) patients and three SARS-CoV-2 vaccinated (SC2V) patients with acute limb ischaemia.[1] Regarding the outcome, five of the SC2I patients died, whereas all three SC2V patients survived. It was concluded that the cardiovascular risk factors of SC2I and SC2V patients should be detected early to initiate immediate preventive measures to prevent peripheral artery occlusion and deep vein thrombosis. The study is excellent but has limitations that are a cause of concerns and should be discussed.

The main limitation of the study is that the presented causal relationship between SC2I and SC2V was unproven. Among the nine SC2I patients, five had classical cardiovascular risk factors (i.e. smoking, diabetes, arterial hypertension, hyperlipidaemia, atrial fibrillation or advanced age), and one had undergone caesarean section 6 days prior to the onset of limb ischaemia.[1] It is essential to know how these classical risk factors were ruled out as the cause of artery occlusion and whether any of the patients received oral anticoagulation prior to the development of artery or vein occlusion. In particular, patient 3 had a CHA_2DS_2-VASc score of >1, which typically requires oral anticoagulation.

Because SARS-CoV-2 infection can be complicated by endocarditis, myocarditis[2] or even pancarditis[3] or heart failure,[4] it is crucial that cardio-embolism is ruled out as the source of peripheral artery occlusion. Therefore, it is important to know whether all SC2I patients had undergone echocardiography to confirm or rule out intra-cardiac thrombus formation. In this regard, how many of the nine SC2I patients had atrial fibrillation on ECG during hospitalisation must be clarified.

SARS-CoV-2 infection can also be complicated by Takotsubo cardiomyopathy (TTS), also known as stress cardiomyopathy or broken heart syndrome.[5] Owing to severe left ventricular hypokinesia or akinesia, which is usually reversible, TTS can be complicated by ventricular arrhythmia and intraventricular thrombus formation. Therefore, TTS is another source of cardio-embolism that should be considered a cause of peripheral artery occlusion, especially in patients with severe SARS-CoV-2 infection.

In the article by Tan et al.,[1] there is also no mention of whether the included patients were sufficiently hydrated on admission.

Overall, the interesting study has limitations that call the results and their interpretation into question. Addressing these issues would strengthen the conclusions and could improve the status of the study. SC2I and SC2V patients are at risk of cardio-embolism and intra-arterial or intravenous thrombus formation, which can consequently lead to peripheral artery occlusion. Risk factors in addition to the viral infection should be identified as early as possible and treated appropriately to minimise the risk of peripheral artery occlusion and improve the outcome of patients. In cases of ineffective prophylaxis and occlusion of an artery or vein, recanalisation of the occluded vessel should be attempted through conservative measures, angioplasty, catheter thrombolysis or surgical thrombectomy.

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Author contributions

JF: Study design, literature search, discussion, initial manuscript drafting, provision of critical comments and final approval.
SM and SZ: Literature search, discussion, provision of critical comments, final approval

Conflicts of interest

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