Reply to "SARS-CoV-2 Vaccination Is Complicated by Takotsubo Cardiomyopathy Rather Than Myocarditis"

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THE AUTHORS' REPLY

We thank Finsterer and Matovu for their interest in our publication.[1] Although they raised intriguing points that deserve consideration, we cannot agree with their interpretation. The premise that Takotsubo syndrome (TTS) developed following a seizure is unsubstantiated simply because our patient did not have a seizure. Epilepsy misdiagnosis is an increasingly recognized problem. One study showed that approximately 42% of patients previously diagnosed with epilepsy were determined to have alternative diagnoses, mostly cardiovascular.[2] Moreover, myoclonic activity was commonly observed.

Historical details from patient histories and witness accounts are key in distinguishing syncope from seizure.[3] These details were not mentioned in the authors' letter. To reiterate, our patient presented with heart failure symptoms, including decreased exercise capacity, 1 week after the first vaccine dose, followed by intermittent palpitations, generalized fatigue, and exertional dyspnea over the next several months. She did not complain of headaches or other neurologic symptoms. Her syncopal episode occurred a month after the second dose (3 months after the first dose), at which time she was sitting in bed for about an hour when she suddenly developed palpitations and dyspnea before losing consciousness. She remembered losing consciousness and recalled her husband speaking on the phone as she regained consciousness, indicating the absence of a postictal state. No tongue biting or abnormal posturing were observed. Prolonged sitting/standing, palpitations, and syncope before loss of consciousness and the absence of a postictal state, tongue biting, and abnormal posturing are strongly predictive against seizures.[3] Moreover, magnetic resonance imaging (MRI) and computed tomography imaging of the head with and without contrast showed no significant findings. The serum lactate level was 0.8 mmol/L (normal, 0.9-1.7 mmol/L).

Recently, diagnostic criteria for TTS have been proposed.[4] Several clinical and radiologic features of our case do not fit with TTS. Patient age of 45 years is not typical because TTS most commonly affects postmenopausal women, with the largest registry reporting 90% of women at a mean age of 67 years.[4] Most patients present with chest pain mimicking an acute coronary syndrome, but she did not complain of chest pain at any point in her clinical course. Cardiac MRI showed severe global biventricular hypokinesia with left ventricular regional variability of wall motion, which does not conform to any of the more common anatomical variants of TTS.[4] The presence of extensive areas of subepicardial delayed gadolinium enhancement (DGE) is not typical of TTS, which usually lacks DGE. Reports of DGE in TTS usually occur in the acute phase, and DGE is frequently less bright.[4]

Myopericarditis following vaccination for severe acute respiratory syndrome coronavirus 2 is more common than TTS.[5] Our case, like many other reported cases, satisfied the 2018 Lake Louise Criteria for myocarditis,[5] which was confirmed on a biopsy that showed lymphohistiocytic inflammation with eosinophils, including an ill-defined granuloma, the latter raising the possibility of a hypersensitivity reaction. Myocardial inflammation in TTS has been reported more often in the acute phase.

Overall, although Finsterer and Matovu provided an interesting alternative interpretation, in our opinion, the clinical, radiologic, and histopathologic findings do not support their contention.

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