

Reply: Takotsubo Cardiomyopathy After Receiving mRNA COVID-19 Vaccination is Very Rare



Keywords

Covid-19 • Takotsubo • TCM • Vaccination • mRNA • Moderna • CMR

To the Editor,

We thank Finsterer and Stollberger [1] for their interest in our case report of Takotsubo cardiomyopathy (TCM) after the first injection of two mRNA-1273 (Moderna, Cambridge, MA, USA) COVID-19 vaccinations [2], and for the interesting questions raised. We are pleased to comment on their concerns raised that our case report might not be the first described in the literature. The authors referenced in their letter several similar recently published case reports [3–6]. However, our published case report was indeed the first of its kind with a description of TCM confirmed by cardiac magnetic resonance (CMR) shortly after administration of a mRNA COVID-19 vaccination: our case report was accepted for publication by *Heart, Lung and Circulation* on 22 June 2021 and published on PubMed (<https://pubmed.ncbi.nlm.nih.gov>) in an open-access format ahead of print on 15 July 2021 [2]. The other mentioned case reports were accepted and published only *after* our case report was first published. The paper by Crane et al. was accepted on 17 September 2021 and published online on 8 October 2021 [6]. The manuscript by Toida et al. was accepted 22 October 2021 and published online ahead of print on 3 November 2021 [5]; the paper by Fearon et al. was accepted on 30 August 2021 and published online on 15 September 2021 [4]. The case by Jani et al. [3] was published at a similar time as ours; however, the exact acceptance and publication date cannot be retrieved from the manuscript (published in the May/June issue 2021 of the *American Journal of Therapeutics*) and the manuscript was not available on PubMed (<https://pubmed.ncbi.nlm.nih.gov>) at the time our case report was accepted for publication. Further, in contrast to the paper by Jani et al. [3], where the diagnosis of TCM was suggested by echocardiography, we made the diagnosis of TCM based on multimodality imaging, including CMR, which inherits the

ability to characterise myocardial tissue. In fact, CMR using T1 and T2 mapping, T2-weighted imaging, and late gadolinium enhancement is the ideal modality to establish the diagnosis of TCM and helps to discriminate TCM from the more common (but still very rare cases) of COVID-19 vaccination-induced myocarditis [7]. Therefore, our statement that “TCM confirmed by CMR after a COVID-19 vaccination has not yet been reported” was correct [2].

Further, Finsterer and Stollberger were interested in whether there were possible concomitant neurological complications present and whether other TCM triggers have to be considered in this case. The patient did not complain of any symptoms other than dyspnoea and fever. In particular, the patient did not complain of headaches or other neurological deficits. Further, in the physical examination, no neurological abnormalities were noted. No other physical or emotional stressors such as fear of needles, fear of vaccinations, or fear of COVID-19 infection could be depicted after a careful history-taking. We agree with Finsterer and Stollberger that in such cases neurological complications should also be considered and ruled out, and careful enquiries should be made regarding other emotional triggers. We have to acknowledge that the causality of TCM triggered by mRNA COVID-19 vaccination cannot be proved in our case; however, it seems to be the most likely cause, especially as the onset of symptoms occurred very soon after the vaccination. Nevertheless, adverse complications after COVID-19 vaccination are very rare, and reports of TCM, in particular, are only anecdotal. It is important to note that we fully encourage continuing global efforts to promote vaccinating individuals to protect them from severe COVID-19 courses. We thank Finsterer and Stollberger again for their interesting comments.

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