

## LETTER TO THE EDITOR

## Correspondence

# Response to case report on myocarditis and pericarditis after COVID-19 vaccination

Dear Editor,

We would like to comment on the publication "Myocarditis and pericarditis after vaccination for COVID-19." Hudson et al reported on an interesting case study and concluded that, "Although the majority of reported cases are coming from the lay press as the number of reports increases there is growing concern for at least an association between COVID-19 vaccination and subsequent myocarditis."<sup>1</sup> Hudson et al showed clinical data to support the existence of the cardiac problem. In the present case, a presumptive diagnosis of myocarditis is based on clinical history and laboratory findings. No cardiac imaging or pathological study is done. Based on the case report, the cardiac problem is confirmed, but the pathogenesis of the cardiac problem is not clear.

Hudson et al discussed many potential mechanisms of the cardiac problem, including hypersensitivity, inflammatory process, or inappropriate immune activation.<sup>1</sup> We agree that immunopathological processes might induce the problem. However, no laboratory evidence exists to confirm this. If there is a hypersensitivity problem, some basic laboratory findings, such as eosinophilia or basophilia, should be observed. For inflammatory process, there should be increased leukocyte count and elevated erythrocyte sedimentation rate. For inappropriate immune response, autoimmunity should be detected. Another possible explanation is hyperviscosity-induced cardiac problem.<sup>2</sup> After vaccination, excessive increased blood viscosity might occur and it might cause further cardiac problems.<sup>3</sup>

The underlying mechanism of post COVID-19 vaccination hyperviscosity is a change of antibody level in plasma after vaccine stimulation. In the case of underlying high blood viscosity or previous COVID-19, the excessive increasing of antibody level might occur and can result in excessive blood viscosity and hyperviscosity.<sup>2,3</sup> Because hyperviscosity

is a hypercoagulable state, there might be a clot and thrombosis of the heart and it can further result in acute myocarditis.<sup>4</sup>

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