

Myocarditis, Pericarditis and Cardiomyopathy After COVID-19 Vaccination[☆]



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The impact of the global health crisis due to the virus Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2)—the causative pathogen of the coronavirus disease 2019 (COVID-19)—has begun to alter with the timely development, approval and administration of vaccines [1]. Although SARS-CoV-2 infection primarily targets the respiratory system [2–6], it is now recognised that the infection and its clinical manifestations are systemic [7–12], and also affecting the cardiovascular system of adults and children [13–20]. Cardiac complications of variable severity with acute and long-term sequelae are now known to include acute myocardial injury, arrhythmias, vasculitis and endothelial dysfunction, thrombosis, myocardial fibrosis, and myocarditis [13–23]. The cardiovascular and cellular pathophysiology of COVID-19, and the clinical management of previously healthy subjects and patients with existing cardiovascular or other disease conditions

remain under intense investigation particularly as early in the pandemic, myocarditis was identified as a risk factor for increased mortality in COVID-19 patients [23–25].

Viral infections are a common cause of acute myocarditis, which usually presents with the hallmark of inflammatory infiltrate and myocardial cell injury unrelated to ischaemia, and in the absence of overt vascular disease [26,27]. In healthy subjects, anti-viral vaccine-associated immune eosinophilic myocarditis is rare but has previously been reported in healthy adults for the smallpox vaccine and the seasonal influenza vaccine [28–31].

Not surprisingly, highly publicised adverse events following immunisation with COVID-19 vaccine have been of great concern to the public and to health authorities world-wide, particularly when associated with the death of 'previously healthy' individuals. There has been considerable focus on the rare occurrence of Thrombosis with

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^{*}Heart, Lung and Circulation's Digital Collection of publications relating to COVID-19 is available at (www.heartlungcirc.org). The COVID-19 Vaccination-Guidance on Myocarditis and Pericarditis After mRNA COVID-19 Vaccines can be assessed at: https://www.health.gov.au/sites/default/files/documents/2021/08/covid-19-vaccination-guidance-on-myocarditis-and-pericarditis-after-mrna-covid-19-vaccines_1.pdf. The guidance was jointly developed by the Australian Technical Advisory Group on Immunisation (ATAGI) and the Cardiac Society of Australia and New Zealand (CSANZ).

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