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mRNA VACCINE-ASSOCIATED MYOCARDITIS: MILD, SELF-RESOLVING

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COVID-19 mRNA vaccine-associated myocarditis in adolescents and young adults has a "mild, self-resolving clinical course", in contrast to the reported complications and long-term sequelae of COVID-19 itself, according to the authors of the largest study from a single children's hospital to date, published today by the *Medical Journal of Australia*.

Researchers from Monash Children's Hospital (MCH), Monash Health and Monash University analysed data from adolescents (12–18 years old) who presented to MCH with typical symptoms of myocarditis associated with troponin rise (> 15 ng/L) within 28 days of first or second doses of COVID-19 mRNA vaccines between 1 August and 31 December 2021. All patients underwent electrocardiography (ECG), echocardiography, and cardiac magnetic resonance (CMR) imaging.

"None of the 33 included patients presented with congestive heart failure or required intensive care treatment, inotropic support, immunoglobulin or steroid therapy," reported the authors, led by Dr Suraj Varma, a paediatric cardiologist at MonashHeart and MCH.

"Fourteen patients (42%) had rising troponin levels at presentation; eight had ECG changes typical for pericarditis, but no arrhythmias were detected by inpatient telemetry. Left ventricular systolic function was normal on echocardiography at presentation in 29 patients (88%) and mildly impaired in four (12%) and was normal in all patients at follow-up."

All patients had CMR; however, contrast could not be given to one patient because of anxiety.

"CMR findings were abnormal (late Gadolinium enhancement) in 27 of [the remaining] 32 patients (84%). Evidence of oedema in corresponding segments was detected in 22 of 32 patients (69%), meeting the accepted criteria for myocarditis.

"Myocarditis (CDC criteria[1]) was confirmed for 22 of 32 patients (69%) and was probable for ten of 32 patients."

All patients improved after treatment with high dose ibuprofen for one week or until symptom resolution and proton pump inhibitor therapy. Median hospital stay was 2.3 days. Two weeks' bed rest was recommended to all patients, followed by a gradual return to normal activities over three months.

"Only one of our participants had a history of prior Covid-19 infection, so background immunity is unlikely to have influenced the adverse event profile of vaccination," Varma and colleagues reported.

"COVID-19 mRNA vaccine-associated myocarditis has a mild, self-resolving clinical course, in contrast to reported complications and long-term sequelae associated with COVID-19, such as multisystem inflammatory syndrome in children, and other forms of myocarditis.

"The potential long-term consequences of myocardial injury with vaccine-associated myocarditis nevertheless warrant further investigation," they concluded.

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CONTACTS: Monash Health Media
Email: media@monashhealth.org
Ph: (03) 9594 7722