

Myocarditis/Heart Disease Post COVID-19

2025, June 27: COVID-19 and Myocarditis: Trends, Clinical Characteristics, and Future Directions

The reported prevalence of COVID-19-associated myocarditis varies between 2.3% and 5.0%, though myocardial injury is more frequently observed than confirmed myocarditis. Pathophysiological mechanisms include direct viral damage, immune-mediated injury, and molecular mimicry. Clinically, patients may present with chest pain, dyspnea, and fever. Diagnostic workup includes electrocardiography (ECG), troponin measurement, echocardiography, cardiac magnetic resonance imaging (cMRI), and in selected cases, endomyocardial biopsy (EMB). The management and disposition of COVID-19-associated myocarditis varies according to severity, especially to allow targeted treatment of complications. Glucocorticoids are a mainstay of treatment in severe cases. Myocarditis following SARS-CoV-2 vaccination is rare, more frequently reported in males under 30 years, and is generally associated with a favorable prognosis. Despite this, the benefits of vaccination continue to outweigh the risks. COVID-19 is associated with an increased risk of heart failure and other cardiovascular complications, underlining the importance of long-term follow-up and preventive strategies. <https://pmc.ncbi.nlm.nih.gov/articles/PMC12250244/>

2023, Jan. 3: COVID-19 vaccine induced myocarditis in young males: A systematic review.

“The incidence of myocarditis found for young men after SARS-CoV-2 infection is larger than what we found for myocarditis following COVID-19 vaccination. Moreover, Patone et al showed that the number of excess myocarditis events after SARS-CoV-2 infection was at least four times larger than after either dose 1 or 2 of the AstraZeneca, Pfizer or Moderna vaccine among people of all ages. However, when Patone's analysis was limited to those under 40, the number of excess myocarditis events after dose 2 of the Moderna vaccine outnumbered those having had a SARS-CoV-2 infection “ Knudsen B, Prasad V. Eur J Clin Invest. 2023 Apr;53(4):e13947. doi: 10.1111/eci.13947. Epub 2023 Jan 3. PMID: 36576362; PMCID: PMC9880674. <https://onlinelibrary.wiley.com/doi/10.1111/eci.13947>

2022, Oct. 6: Myocarditis following COVID-19 vaccine: incidence, presentation, diagnosis, pathophysiology, therapy, and outcomes put into perspective. A clinical consensus document supported by the Heart Failure Association of the European Society of Cardiology (ESC) and the ESC Working Group on Myocardial and Pericardial Diseases.

Heidecker B, Dagan N, Balicer R, et al. Eur J Heart Fail. 2022 Nov;24(11):2000-2018. doi: 10.1002/ejhf.2669. Epub 2022 Oct 6. Erratum in: Eur J Heart Fail. 2023 Mar;25(3):443. doi: 10.1002/ejhf.2789. PMID: 36065751; PMCID: PMC9538893. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9538893/>

2021, Feb. 7. Long-term cardiovascular outcomes of COVID-19

“We show that, beyond the first 30 d after infection, individuals with COVID-19 are at increased risk of incident cardiovascular disease spanning several categories, including cerebrovascular disorders, dysrhythmias, ischemic and non-ischemic heart disease, pericarditis, myocarditis, heart failure and thromboembolic disease. These risks and burdens were evident even among individuals who were not hospitalized during the acute phase of the infection and increased in a graded fashion according to the care setting during the acute phase (non-hospitalized, hospitalized and admitted to intensive care). Our results provide evidence that the risk and 1-year burden of cardiovascular disease in survivors of acute COVID-19 are substantial.” Nature Medicine. <https://www.nature.com/articles/s41591-022-01689-3>

2021, Dec. 14: Risks of myocarditis, pericarditis, and cardiac arrhythmias associated with COVID-19 vaccination or SARS-CoV-2 infection.

Patone M, Mei XW, Handunnetthi L, et al. Nat Med. 2022 Feb;28(2):410-422. doi: 10.1038/s41591-021-01630-0. Epub 2021 Dec 14. PMID: 34907393; PMCID: PMC8863574. <https://www.nature.com/articles/s41591-021-01630-0>

2021, Aug 23: Focal Myocarditis after Mild COVID-19 Infection in Athletes

COVID-19 infection in athletes usually has a milder course, but in the case of complications, myocarditis and even sudden cardiac death may occur. We examined an athlete who felt symptoms upon returning to training after asymptomatic COVID-19 infection. Physical, laboratory, and echocardiography findings were normal. The cardiopulmonary exercise test was interrupted at submaximal effort due to severe dyspnea in the presence of reduced functional capacity in comparison to previous tests. Cardiac magnetic resonance (CMR) detected the focal myocarditis. After three months of recovery, CMR still revealed the presence of focal myocarditis and the persistence of decreased functional capacity. This case raises the question of screening athletes even after asymptomatic forms of COVID-19 infection.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC8392699/>

2020, July 27. Outcomes of Cardiovascular Magnetic Resonance Imaging in Patients Recently Recovered From Coronavirus Disease 2019 (COVID-19).

This is a prospective observational cohort study of 100 patients diagnosed with severe acute respiratory syndrome coronavirus 2 by reverse transcription–polymerase chain reaction on swab test of the upper respiratory tract who fulfilled inclusion criteria for this CMR investigation...In this cohort study including 100 patients recently recovered from COVID-19

identified from a COVID-19 test center, cardiac magnetic resonance imaging revealed cardiac involvement in 78 patients (78%) and ongoing myocardial inflammation in 60 patients (60%), which was independent of preexisting conditions, severity and overall course of the acute illness, and the time from the original diagnosis. These findings indicate the need for ongoing investigation of the long-term cardiovascular consequences of COVID-19.