

Cardiovascular complications of COVID-19: a future public health burden requiring intensive attention and research

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Although coronavirus disease 2019 (COVID-19) is primarily a respiratory disease, cardiovascular complications are frequent in patients with COVID-19 and are associated with poor prognosis.¹ Myocardial injury, defined as elevation of serum troponin level, is one of the most common extrapulmonary complications of COVID-19.² The incidence of cardiac injury increases with severity of disease (62.9% in severe cases vs 17.9% in mild),² and with age (4% <60 years vs 12.5% 60–74 years vs 31% ≥75 years in age).³ Elevated troponin levels are associated with increased intensive care unit admission and worse prognosis.^{4,5} As the COVID-19 pandemic evolves and variants emerge, a clear understanding regarding the short- and long-term effects of COVID-19 on the cardiovascular system and outcomes is urgently needed.

In this issue of *Hong Kong Medical Journal*, Lo et al⁶ review the literature on cardiac injury associated with COVID-19. This review is both timely and important for us to better understand the pathogenesis of cardiac injury and the implications for treatment. Most studies included in this review reported cardiovascular complications during the acute phase of infection; however, recent data have shown that COVID-19 can cause cardiovascular symptoms, such as shortness of breath and palpitations. These symptoms can last weeks or months after the infection has gone. This is sometimes called post-COVID-19 syndrome or “long COVID”.⁷ A recent study has shown that the risk and 1-year burden of cardiovascular disease, including cerebrovascular disorders, dysrhythmias, ischemic and non-ischaemic heart disease, pericarditis, myocarditis, heart failure, and thromboembolic disease in survivors of acute COVID-19 are substantial.⁷ Patients with severe COVID-19 who need to be admitted to hospital or intensive care unit are at higher risk; however, even people with mild disease who do not need hospitalisation are also at increased risk of cardiovascular diseases 6 months to 1 year later.⁷ There is still a lot to learn about the lasting effects COVID-19 has had on the heart. Among

magnetic resonance imaging scans of patients who recovered from COVID-19, the majority (78/100) showed abnormal findings suggestive of ongoing inflammation and scarring on the heart muscle.⁸ The virus may leave behind lasting heart damage that needs monitoring in some patients.

Since the emergence of the new Omicron variant in November 2021, experts have been trying to learn more about this variant and the risks it poses in the long term. The Omicron variant is highly transmissible which might mean an increase in cases, leading to more hospitalisations, cardiovascular complications, and deaths. The long-term cardiovascular effects of this variant are less well understood and are yet to be addressed.

Physicians should consider a history of COVID-19 as a cardiovascular disease risk. It is important to identify early signs or symptoms of heart disease in these people. Early detection, diagnosis, and treatment will be key to prevent downstream adverse cardiovascular consequences. There are a lot of knowledge gaps that need to be investigated in future research to gain a better understanding of long-term cardiovascular outcomes of patients with COVID-19. How best to identify, diagnose, and treat these patients is a critical area of future research. The long-term trajectory of cardiovascular diseases among patients with COVID-19 requires long-term cohort studies to guide clinical practice and inform public health policy. An important message is increased awareness of cardiovascular complications among patients with COVID-19 and having well-established follow-up strategies.

Author contributions

All authors contributed to the editorial, approved the final version for publication, and take responsibility for its accuracy and integrity

Conflicts of interest

The authors have declared no conflict of interest.

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