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# Long-Term Cardiac Effects After Recovery in SARS-CoV-2 Infection

# SARS-CoV-2 Enfeksiyonunda İyileşme Sonrası Uzun Süreli Kardiyak Etkiler

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Dear editor;

SARS-CoV-2 can be transmitted from person to person through close contact with infected patients and inhalation of aerosols. Respiratory transmission has been shown to be highly lethal and the predominant way to spread the disease. Most people infected with SARS-CoV-2 are asymptomatic or show mild symptoms, most likely due to a good immune response that can control disease progression.[1,2] The rapid spread of the disease resulted in many infected patients, although it was mostly good. It resulted in an overburden on the healthcare system. It enabled the prioritization of patients according to their clinical severity and the development of triage systems.[2,3]

As SARS-CoV-2 infection is often discussed in the pulmonary context, various cardiac complications also occur in patients. Biochemical evidence of myocardial involvement elicited by high troponin has been reported in approximately 20-30% of hospitalized SARS-CoV-2 infected patients. Heart damage is mainly due to viral systemic effects, with direct viral cytotoxicity.[4] Disease severity is associated with patients' core comorbidities, including advanced age, diabetes, hypertension, obesity, and immunocompromised status. As the severity of the disease increases, the probability of cardiac injury increases, and therefore more serious cardiac complications may occur, ranging from arrhythmias to myocarditis, new-onset cardiomyopathy, myocardial infarction, and thromboembolism. These cardiac conditions, reported to have an incidence of 20-40% in patients, indicate a significantly increased morbidity and mortality when associated with SARS-CoV-2 infection.[5]

Most cardiac complications associated with acute infection complicate the clinical course of the patient and are associated with high morbidity and mortality. Patients who survive post-infection are at risk for long-term cardiac complications. A recent study evaluated the 1-year burden of cardiovascular disease in more than 150,000 SARS-CoV-2 infected patients. The observed increased incidence of arrhythmias, ischemic and non-ischemic cardiomyopathy, pericarditis, myocarditis, and thromboembolic disease suggests a significant risk of cardiovascular disease in SARS-CoV-2 infected survivors.[6] The long-term effects of the pandemic are still being reported in new clinical entities. Our knowledge of the long-term effects of coronaviruses is limited to SARS-CoV-1 infection. Because the SARS-CoV-1 virus uses the same cell entry receptors as SARS-CoV-2, cardiac complications appear like those seen with SARS-CoV-1.

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There are long-term follow-up studies suggesting an increased risk of cardiovascular disease, including myocardial infarction, coronary artery disease, atherosclerosis, and hyperlipidemia. In addition, an improvement in diastolic and systolic functions is observed in the follow-up of patients with arrhythmias, cardiomegaly and hypotension observed in acute infection with SARS-CoV-1. Based on SARS-CoV-1 studies, it is attempted to predict long-term cardiac complications from SARS-CoV-2. Symptoms such as cardiomyopathy may be reversible 30-90 days after infection. However, it is assumed that the risk for atherosclerosis and its complications increases markedly even years after infection.[7] A German study evaluated 100 SARS-CoV-2 infected patients who had recovered from infection at least 2 weeks after diagnosis with cMRI and showed cardiac involvement and ongoing myocardial inflammation in 78% and 60% of these patients, respectively.[8]

Long-term effects for patients with SARS-CoV-2 associated myocarditis remain to be reported. However, in the setting of viral myocarditis, it is important to consider complications such as atrial and ventricular arrhythmias and non-ischemic cardiomyopathy that do not improve despite optimal medical therapy. Case series have described autopsies of young adults who have found myocarditis to be the culprit with sudden cardiac death. Ventricular arrhythmias are implicated in sudden cardiac death and therefore high-risk patients should be closely monitored. Symptoms of prolonged SARS-CoV-2 infection include shortness of breath, palpitations, chest discomfort, fatigue, orthostatic intolerance, and a few other nonspecific symptoms. These symptoms together with orthostatic tachycardia are called postural orthostatic tachycardia syndrome (POTS) after SARS-CoV-2 infection.[9] There are several case reports describing this clinical condition. POTS is a syndrome with low awareness and familiarity in the follow-up of patients after SARS-CoV-2 infection. It also has underdiagnosis rates in patients with asymptomatic SARS-CoV-2 infection.[10] Further investigations are still ongoing to identify long-term cardiac and noncardiac sequelae.

## REFERENCES


1. Özkan A. Diagnostic accuracy of clinical gestalt of doctors with different experiences in COVID-19 suspected patients. J Exp Clin Med. 2022;39(3):738-742. doi:10.52142/omujecm.39.3.28
2. Algın A, Özdemir S. Evaluation of the predictability of platelet mass index for short-term mortality in patients with COVID 19: A retrospective cohort study. J Contemp Med. September 2021;11(5):728-733. doi:10.16899/jcm.973825
3. Abuzer Ö. Evaluation of short-term mortality prediction using initial lactate and news+l at admission in COVID-19 patients. Disaster Med Public Health Prep. 2023;17:e333. Published 2023 Jan 3. doi:10.1017/dmp.2022.299
4. Mitrani RD, Dabas N, Goldberger JJ. COVID-19 cardiac injury: Implications for long-term surveillance and outcomes in survivors. Heart Rhythm. 2020;17(11):1984-1990. doi:10.1016/j.hrthm.2020.06.026
5. Dy LF, Lintao RCV, Cordero CP, Cabaluna ITG, Dans LF. Prevalence and prognostic associations of cardiac abnormalities among hospitalized patients with COVID-19: A systematic review and meta-analysis. Sci Rep. 2021;11(1):8449. Published 2021 Apr 19. doi:10.1038/s41598-021-87961-x
6. Xie Y, Xu E, Bowe B, Al-Aly Z. Long-term cardiovascular outcomes of COVID-19. Nat Med. 2022;28(3):583-590. doi:10.1038/s41591-022-01689-3
7. Higgins V, Sohaei D, Diamandis EP, Prassas I. COVID-19: from an acute to chronic disease? Potential long-term health consequences. Crit Rev Clin Lab Sci. 2021;58(5):297-310. doi:10.1080/10408363.2020.1860895
8. Puntmann VO, Carerj ML, Wieters I, et al. Outcomes of cardiovascular magnetic resonance imaging in patients recently recovered from coronavirus disease 2019 (COVID-19) [published correction appears in JAMA Cardiol. 2020 Nov 1;5(11):1308]. JAMA Cardiol. 2020;5(11):1265-1273. doi:10.1001/jamacardio.2020.3557
9. Raj SR, Arnold AC, Barboi A, et al. Long-COVID postural tachycardia syndrome: An American Autonomic Society statement. Clin Auton Res. 2021;31(3):365-368. doi:10.1007/s10286-021-00798-2
10. Dixit NM, Churchill A, Nsair A, Hsu JJ. Post-acute COVID-19 syndrome and the cardiovascular system: What is known?. Am Heart J Plus. 2021;5:100025. doi:10.1016/j.ahjo.2021.100025



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