





Post-COVID-19 postural orthostatic tachycardia syndrome

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Since the beginning of the pandemic, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has faced a significant threat healthcare systems and medical professionals [1]. Despite the current pandemic and recent considerable increases in the incidence and hospitalizations linked with the Omicron BA.2, patients with a history of coronavirus disease 2019 (COVID-19) who suffer post-COVID-19 complications should be given additional attention. It is known that as a result of post-COVID-19 syndrome, patients struggle with a number of cardiac complications, such as myocarditis and progressive damage to the heart muscle [2]. People recovering from the COVID-19 sometimes show symptoms of a condition called postural orthostatic tachycardia syndrome (POTS). Typical arrhythmias occur in COVID-19 and long-term COVID-19 has been linked to tachycardia, with 25–50% of patients at a tertiary post-COVID-19 multidisciplinary team clinic experiencing persistent tachycardia or palpitations [3, 4]. It is unknown how many people worldwide suffer with long-COVID-19. However, according to one research roughly 43% of patients who tested positive for COVID-19, and more than half of those who got inpatient care for this condition, developed long-COVID-19 [5]. However, POTS is not a direct cardiac condition, but a neurological disorder that affects a component of the nervous system that controls heart rate and blood flow. POTS can cause the heart to beat rapidly

when standing from a reclining position, causing symptoms such as brain fog, fatigue, palpitations, dizziness, shortness of breath and other issues. A range of diseases, including viral or bacterial infections, can cause POTS. Because an increasing number of patients who recovered from COVID-19 are now reporting POTS-like symptoms including brain fog, tachycardia and severe chronic fatigue, some experts believe coronavirus may be a trigger for POTS. More and more studies provide us with information on POTS patients with long-COVID-19 [6]. According to studies, the prevalence of orthostatic hypotension with long-COVID-19 might range from 10% to 41% [7, 8]. The mechanism of POTS is unknown, although research is continuing to find the most likely reasons. People with POTS have platelet storage pool shortage, according to Gunning et al. [9], which is connected to symptoms including nosebleeds, dysmenorrhea, easy bruising, and anemia. It was also shown that persons with POTS have higher inflammatory biomarkers, all of which might indicate a chronic inflammatory condition. The presented conditions, especially inflammatory markers, could be associated with a cytokine storm during COVID-19 [9]. POTS affected an estimated 1–3 million persons in the United States, well before the pandemic, according to data published by the group Dysautonomia International. Although it is unknown how many more patients are seeking care as a result of COVID-19 than they were before the pandemic,

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American Autonomic Society statement reports suggest a sharp rise in instances, the majority of which are linked to long-COVID-19 [10]. These data suggest that POTS may be significantly related to COVID-19. POTS is an incurable condition, thus understanding its link with COVID-19 is critical if we are to protect people against it. At the moment, the sole treatment for POTS is conservative treatment, which includes exercise programs, avoiding triggers, high fluid and salt intake, wearing compression stockings, and engaging in cognitive behavioral therapy. At present, the only goal of pharmacological interventions is to correct physiological parameters. Further research is needed on the pathomechanism of POTS and the relationship between POTS and COVID-19 and long-COVID-19 in order to protect patients against the disease. In clinical practice, special attention should also be paid to post-COVID-19 patients in order to detect possible POTS, which, as reported during the COVID-19 pandemic, is becoming more frequent.

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