DOI: https://doi.org/10.54393/pbmj.v5i4.414

PAKISTAN BIOMEDICAL JOURNAL

https://www.pakistanbmj.com/journal/index.php/pbmj/index

Volume 5, Issue 4 (April 2022)

COVID-19 and Cardiac Complications

Naseer Ahmad[1]

[1]Department of Basic Medical Sciences, Khyber Medical University, Peshawar

dr.naseer99@gmail.com

ARTICLE INFO

How to Cite:

Ahmed, N. (2022). COVID-19 and Cardiac Complications. Pakistan BioMedical Journal, 5(4). https://doi.org/10.54393/pbmj.v5i4.414

Coronavirus 2019 (COVID-19) is a communicable disease and novel viral infection. It became a pandemic in March 2020 and engulfed the whole world. The patients who have already cardiac issues have increased susceptibility for COVID-19. They are at higher risk for COVID-19 infection. The entry route for coronavirus inside cells is through its binding to Angiotensin Converting Enzyme 2 (ACE2) receptors, present and expressed in cardiac and respiratory cells in lungs. ACE2 have a vital role in the neurohumoral homeostasis of cardiac conduction system in pathological and physiological conditions. This binding of receptor and virus initiates several signaling pathways that leads to severe myocardial and lung inflammation [1,2]. There are many direct and indirect cardiac complications due to COVID-19 infection. Cytokine storm is initiated once infected with SARS-CoV-2 and it these inflammatory mediators may induce vascular inflammation, myocarditis, arrythmias, thromboembolism and metabolic syndrome [3]. COVID-19 infection affects the respiratory, cardiovascular as well as systemic system by causing inflammation [4]. Cardiovascular complication of COVID-19 arise by direct injury of myocadiac cells, vascular inflammation, disturbed ratio of myocardial supply, thromboembolism, side effects of various therapies for COVID-19 and deranged biochemical profile including electrolytes [5]. Medicines under study for COVID-19 may also have cardiovascular side effects of arrhythmia. Some of these drugs may prolong the QT and leads to tachycardia and sometimes sudden cardiac death. Cardiac biomarkers resulting from myocardial injury are raised in COVID-19 infection. These biomarkers include interleukins, C-reactive protein, troponins, ferritin, myoglobin, natriuretic peptides [6]. There are different patterns and symptoms of cardiovascular system involvement in COVID-19. Primary cardiovascular diseases include arrhythmias, myocarditis, coronary syndrome while secondary cardiovascular diseases include cardiac injury, organ failure and sepsis [6]. Hence, it is very important to understand the cardiovascular involvement in COVID-19 infection and the underlying mechanisms

REFERENCES

[1] Xiong T.Y., Redwood S., Prendergast B., Chen M. Coronaviruses and the cardiovascular system: acute and long-term implications. Eur Heart J. 2020

[2] Li B., Yang J., Zhao F. Prevalence and impact of cardiovascular metabolic diseases on COVID-19 in China. Clin Res Cardiol. 2020

[3] Chang WT, Toh HS, Liao CT, Yu WL. Cardiac Involvement of COVID-19: A Comprehensive Review. Am J Med Sci. 2021 Jan;361(1):14-22. doi: 10.1016/j.amjms.2020.10.002.

[4] Manolis AS, Manolis AA, Manolis TA, Apostolopoulos EJ, Papatheou D, Melita H. COVID-19 infection and cardiac arrhythmias. Trends Cardiovasc Med. 2020 Nov;30(8):451-460. doi: 10.1016/j.tcm.2020.08.002.

[5] Bansal M. Cardiovascular disease and COVID-19. Diabetes Metab Syndr. 2020 May-Jun;14(3):247-250. doi: 10.1016/j.dsx.2020.03.013.

[6] Bielecka-Dabrowa A, Cichocka-Radwan A, Lewek J, Pawliczak F, Maciejewski M, Banach M. Cardiac manifestations of COVID-19. Rev Cardiovasc Med. 2021 Jun 30;22(2):365-371. doi: 10.31083/j.rcm2202043.