Cardiac Complications of Coronaviruses

Zainab Hamzah Alsharef

Abstract

Statement of the problem: Coronavirus disease has infected over one million people and led to thousands of deaths across the world. Severe acute respiratory syndrome that results in serious cardiovascular complications caused the outbreak of COVID-19 (Zhu et al., 2020). According to Davidson & Warren-Gash (2019), acute respiratory infections boost acute cardiac events in individuals without an approved diagnosis of cardiovascular disease. COVID-19 adversely affects the cardiovascular system and leads to acute myocardial infarction, dysrhythmias, myocarditis, heart failure, venous thromboembolism, and myocardial injury (Long et al., 2020).The purpose of this study is to explore cardiac complications caused by coronavirus disease and provide recommendations on how to alleviate the burden of infection. Due to high mortality and morbidity rates, the healthcare providers should focus on cardiovascular complications that significantly contribute to the mortality associated with COVID-19.

Methodology: A literature review has been performed using PubMed, the Lancet, Google, and Google Scholar.

Findings: Patients with coronavirus disease face a high risk of cardiac complications. Up to 50% of hospitalized individuals have a chronic condition (40% cardiovascular/cerebrovascular disease); 16.7% of patients suffer from arrhythmia, 8.7% experience shock, 7.2% face acute cardiac injury, and 10% of patients require intensive care (Xiong et al., 2020). There is also an epidemiological association between the history of heart and circulatory conditions and poor outcomes associated with COVID-19.

Conclusion and significance: Coronavirus disease has become a global health threat, and the number of infected patients continues to grow. COVID-19 produces serious cardiovascular complications that the specialists should consider during the treatment process (Madjid et al., 2020). The issue is significant, as some medications prescribed to address COVID-19 can cause cardiac complications. Therefore, it is critical for the emergency medical care providers to be informed about patients' cardiovascular history to minimize risk.

Recommendations: The healthcare providers should perform immune surveys of patients with COVID-19 to better understand the perturbation caused by the infection and alleviate adverse cardiovascular effects. Interdisciplinary management of complex cases and prolonged follow-up are also recommended.

Recent Publications

1. Davidson, J. A., & Warren-Gash, C. (2019). Cardiovascular complications of acute respiratory infections: Current research and future directions. *Expert Review of Anti-Infective Therapy, 17*(12), 939-942. https://doi.org/10.1080/14787210.2019.1689817

2.Long, B., Brady, W. J., Koyfman, A., & Gottlieb, M. (2020). Cardiovascular complications in COVID-19. *The American Journal of Emergency Medicine*. https://doi.org/10.1016/j.ajem.2020.04.048

3.Madjid, M., Safavi-Naeini, P., Solomon, S. D., & Vardeny, O. (2020). Potential effects of coronaviruses on the cardiovascular system: A review. *JAMA Cardiology*. https://doi.org/10.1001/jamacardio.2020.1286

4.Xiong, T. Y., Redwood, S., Prendergast, B., & Chen, M. (2020). Coronaviruses and the cardiovascular system: Acute and long-term implications. *European Heart Journal, 41*, 1798-1800. https://doi.org/10.1093/eurheartj/ehaa231

5.Zhu, H., Rhee, J. W., Cheng, P., Waliany, S., Chang, A., Witteles, R. M., Maecker, H., Davis, M. M., Nguyen, P. K., & Wu, S. M. (2020). Cardiovascular complications in patients with COVID-19: Consequences of viral toxicities and host immune response. *Current Cardiology Reports, 22*, 1-9. https://doi.org/10.1007/s11886-020-01292-3

Biography

Zainab Hamzah Alsharef is the analytically minded achiever and a detail-oriented, time manager with the solid academic background and experience. She obtained High-School Diploma, MBBS degree, and MSc in International Health, as well as worked in Internal Medicine, Hematology and Oncology, Infectious Diseases, Neurology, Rheumatology, Cardiology, and Emergency Medicine and internship, including General Surgery, Radiology, OB/GYNE, Pediatrics, Rheumatology, and Internal Medicine. Zainab Hamzah Alsharef also possesses BLS Provider, Saudi License Exam, ACLS Provider, Part One Saudi Board Exam certifications, as well as performed research covering non-angiographic prediction of coronary artery disease in obese patients, unilateral pleural effusion in grave's thyrotoxicosis, intravenous methylprednisolone for intractable childhood epilepsy, and erosive polyarthritis in a patient diagnosed with a suspicion of atypical Mycobacteria. In 2008, Zainab Hamzah Alsharef received an award of Academic Excellence Deanship of Students Affairs. Overall, solid experience and expertise has made her a valuable contributor to the medical field.