Acta Scientific Clinical Case Reports

Volume 1 Issue 6 July 2020

Short Communication

Cardiovascular Brunt of COVID-19

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Received: June 25, 2020

Published: June 30, 2020

COVID-19 as a global pandemic has affected almost the entire world. The effect has been so big that it has burdened the health-care systems of many countries to the fullest and crippled their economies. Millions have been infected with the virus and more than a quarter have died due to the disease. The spread of the virus across the globe has been rapid giving little time to the countries to prepare for the pandemic. Many people who have been infected are asymptomatic or have self-limiting disease. It has a long incubation period which serves as a major risk of transmission from asymptomatic individuals. We have to identify individuals who are at high risk of severe manifestations or death due to COVID-19. Clinical manifestations of COVID-19 are dominated by respiratory symptoms. Some patients have severe cardiovascular damage.

The worst outcomes are in patients who are older and/or have underlying heart disease. There is multifold mortality risk in patients with history of hypertension and cardiovascular disease. There have been systematic reviews and metanalysis to show increased mortality and severity of the disease in presence of underlying cardiovascular disease in patients suffering from COVID-19. There are reports that show marked increase in cardiac troponins in such patients indicating myocardial injury and a multifold rise in mortality risk.

There can be a mechanism where respiratory infection in these high-risk patients can trigger myocardial infarction leading to adverse outcomes. There have been many case reports of COVID-19 patients presenting with acute coronary syndrome (ACS), type II myocardial infarction (MI), takotsubo cardiomyopathy and myocarditis in the emergency department. Many such reports suggest that coronavirus can cause acute myocarditis and heart failure. There have been many patients who presented with typical symptoms suggestive of ACS, where plasma levels of cardiac troponins were elevated, electrocardiogram showed ST elevation MI and the patient was taken immediately inside cathlab for intervention. In many of these cases coronary angiogram turned out to be normal suggesting myocarditis and/or distal micro-embolization leading to such presentation. In such cases these patients lead to direct exposure of the cathlab team thereby spreading the infection to them.

In addition, among the confirmed cases of COVID-19 reported by the National Health Commission of China (NHC), some of the patients first went to see a doctor because of cardiovascular symptoms. These patients presented with heart palpitations and chest tightness rather than with respiratory symptoms, such as fever and cough, but were later diagnosed with COVID-19.

Among the people who died from COVID-19 reported by the NHC, 11.8% of patients without underlying CVD had substantial heart damage, with elevated levels of cardiac troponin, arrhythmias or cardiac arrest during hospitalization. Therefore, in patients with COVID-19, the incidence of cardiovascular symptoms is high, owing to the systemic inflammatory response and immune system disorders during disease progression. Reports also suggest that COVID-19 might also cause chronic damage to the cardiovascular system, therefore attention should be given to cardiovascular protection during treatment for COVID-19.

Understanding the damage caused by COVID-19 to the cardiovascular system is very important. This is clear that elderly people with comorbidities like hypertension, cardiovascular disease and diabetes mellitus are more likely to be seriously affected withCOVID-19. These associations clearly define that there is a direct or indirect cause that leads to cardiovascular consequences thereby leading to increased mortality in patients with COVID-19. Underlying mechanisms involved in this is of the greatest importance, so that the treatment of these patients can be done on time and effectively to reduce mortality. Our knowledge of COVID-19 is constantly evolving with various therapeutic interventions that have been proposed to treat these patients. With the ongoing dedicated research in COVID-19 we are hopeful of definite treatment options and a vaccine to be available in near future.