

*Editorial***Admission of COVID-19 Patients to the Cardiac Care Unit: Challenges and Solutions**Mohammad Ali Zakeri¹ Mahlagha Dehghan^{2*} Vahid Mohammadi³

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The sudden outbreak of Coronavirus disease (COVID-19) on March 12, 2020 became a public health emergency of international concern. COVID-19 is a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is often associated with fever, cough, and shortness of breath after 2-14 days of exposure (1). Despite the spread of COVID-19 and concerns about its various dimensions, Acute coronary syndrome (ACS) is still one of the leading causes of morbidity and mortality worldwide and should not be overlooked during the COVID-19 outbreak (2). ACS patients, like other patients, were affected by the COVID-19 epidemic (3). Although the association between SARS-CoV-2 and ACS has not yet been elucidated, studies have requested a common guideline on how to manage ACS in patients with/without COVID-19 (2).

Rapid and timely diagnosis of the disease has become challenging for physicians and other healthcare professionals because of the

complications and problems associated with COVID-19.

In our hospital, some patients with ACS admitted to the cardiac care unit (CCU) were suspected of COVID-19 disease, and some of them became confirmed cases. Our main objective in the current study was to review the challenges and solutions available for the admission of COVID-19 patients to the CCU. According to our experiences in the cardiology department, our goals in the present letter were twofold: 1) to examine reasons for admission of COVID-19 patients in CCU and 2) to review strategies and measures to reduce the risks and prevent admission of COVID-19 patients in CCU to prevent the infection of healthcare workers.

Reasons for admission of the COVID-19 patients to coronary care units (CCUs) can be divided as follows:

a) Diagnostic conditions for patients: the sensitivity and specificity of clinical, radiological, and laboratory tests are variable

for the diagnosis of COVID-19, depending on the stage of COVID-19 disease (2).

b) Similarity of some symptoms in ACS and COVID-19: readmissions of patients with suspected ACS with symptoms, such as cough, shortness of breath and chest pain that were similar to the symptoms of COVID-19 (1) have caused a number of COVID-19 patients diagnosed with ACS to be admitted to CCUs.

c) COVID-19 patients referring with clinical manifestations of heart failure: some COVID-19 patients may have cardiac changes. Clinical and epidemiological evidence has also shown that COVID-19 infection was associated with myocardial injury and arrhythmic complications. Close cardiovascular monitoring was recommended, especially in patients with more severe manifestations (4), so that some COVID-19 patients with cardiac symptoms that have not yet been diagnosed must be admitted to the CCUs. Examination of these factors indicated the need for further investigation and attention to the admission and care of ACS patients.

In line with the second goal of this letter, it is necessary to pay attention to the necessary strategies and managerial measures to reduce the risks and prevent the admission of COVID-19 patients in the CCU to prevent infection of healthcare workers and other patients. These measures are as follows:

a) Take accurate patient history and complete clinical examinations upon arrival of ACS patients, especially patients with common symptoms. Perform diagnostic tests with low error rate upon arrival of the suspected ACS patients. Observe safety tips and health protocols and use protective equipment including medical gowns, surgical gloves, goggles, face shield, disposable caps, medical shoe covers and masks in critical care units to prevent infection, especially in emergency

percutaneous coronary intervention (PCI) (5). Consider the capacity of medical systems to respond and admit patients in need of treatment to critical care units for correct prioritization and optimal management of patients.

b) Prepare specific protocols to deal with infectious risks, such as COVID-19 disease, for rapid and optimal management of ACS and if necessary PCI treatment especially in ST-Elevation Myocardial Infarction (STEMI) (2). Increase the number of isolation rooms and beds in CCUs and use intermediate care units for suspicious patients. Organize catheterization labs and separate CCUs for patients with/without Covid-19. Use care labels and categories in cardiac patients according to the facilities. Use specific measures in dealing with patients with COVID-19 and ACS, such as recommending intubation, before cardiac catheterization if possible to prevent the spread of COVID-19 (2).

Although the prevalence of COVID-19 has affected ACS patient management and caused a variety of challenges, ACS should not be overlooked. Paying attention to effective diagnostic, care and treatment factors in patients suspected of ACS and COVID-19 can save the lives of patients and healthcare workers. Much more information and follow-ups are needed to properly understand the management of ACS patients during COVID-19 outbreak. In addition, COVID-19 patients may be admitted to similar wards, such as operating rooms and other non-infectious wards, so attention of managers and healthcare policy makers can be effective in solving this challenge.

Conflicts of Interest: No competing interest is declared.

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