

COVID-19 pandemic: Clinical management protocols for cardiac disease patients at teaching institute in Western Rajasthan

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ABSTRACT

The world is facing the new pandemic COVID-19 caused by a novel coronavirus SARS-CoV-2. The demography and socio-economic condition are highly varied in different parts of the world. India also has braced itself to fight with this novel threat. Patients with COVID-19 may have primary cardiac involvement or may have associated cardiac disease. Therefore, the institution needs a protocol in managing cardiac patients during this pandemic.

Keywords: Cardiac protocol, COVID-19, pandemic

The whole world is fighting with the new pandemic caused by novel coronavirus SARS-CoV-2. The disease called as COVID-19 was first time detected in December 2019 in Wuhan, Hubei Province, People's Republic of China when a cluster of patients from live animal market suffered pneumonia.^[1] Since then the disease has spread to the whole world and the WHO has declared it pandemic. SARS-CoV-2 is a highly contagious virus with the estimated R0 (Pronounced as "R Naught") or the reproduction number between 2 and 3, which means that the carrier or infected patient can transmit it to 23 persons in close contact.^[2] The incubation period ranges between 2 and 14 days with median of 5.4 days.^[3] The mortality rate is varied in different countries depending on many factors and exactly cannot be defined at the present moment.

The primary symptoms are fever, cough, and difficulty in breathing. The cardiovascular involvement in COVID-19 patients

range from focal or global myocarditis, acute coronary syndrome, cardiac arrhythmias to thromboembolic disease. As the pandemic is ongoing, it is unclear at the present moment the incidence of cardiovascular involvement in such patients. On the other hand, patients hospitalized with COVID-19 have underlying cardiovascular disease with hypertension in 14.9%, diabetes in 7.4%, and coronary artery disease in 2.5%.^[4]

AIIMS Jodhpur, being a tertiary level care hospital in Western part of Rajasthan is identified as a COVID-19 testing centre, as well as for providing clinical care to these confirmed cases. So, there is a need for institutional protocols for management of patients suffering either from primary cardiac disease or patients of COVID-19 having associated cardiac involvement. The doctors attending COVID19 cases may also seek cardiovascular opinion in such patients because of associated comorbidities with COVID-19. In order to manage COVID19 cases, the healthcare workforce need to be deputed very judiciously due to the high level of infectivity of virus and potential risk of infections in the attending healthcare staff.

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Therefore, the Institution came up with a duty roster of 30% of doctors with 1 week of clinical duties and 2 weeks of non-clinical academic duties. The faculty work in coordination with doctors in emergency department (ED). Because the proximity is needed with patients during cardiovascular evaluation and performing various procedures and the limited available human resources, following are the recommendations the Institute has made for all medical personnel involved in cardiac care of such patients.

1. **Clinical evaluation:** Patient with cardiac signs and symptoms undergoes detailed clinical evaluation with immediate present history of fever, cough, shortness of breath, and also any recent past history of travel. Based on clinical history given by patient, electrocardiogram (ECG), and cardiac enzymes or troponins are advised. Mild elevation of troponin or cardiac enzymes may be seen in patients having COVID-19 or any other infection because of associated myocarditis therefore is not advised for all patients in ED
2. **Echocardiography:** Any modality of echocardiography like transthoracic (TTE), transoesophageal (TEE) or stress echocardiography is advised only if it provides clinical information, which is important for the management of patients. Routine echocardiography including TEE is deferred and cardiac CT or MRI is advised if some specific clinical information is required. It prevents unnecessary mobilisation of medical staff and their risk of exposure and also limit the utilisation of medical resources like personal protective equipment (PPE). If it is necessary to perform the echocardiography then it is done only by an experienced operator with minimum scanning time and gathering of maximum information. We have kept a separate portable echocardiography machine for the echocardiography in such patients and is disinfected as per the protocol given by manufacturer
3. **Cath Lab Procedures:** Patients with suspected or confirmed COVID-19 disease and associated acute coronary syndrome are first clinically evaluated at ED followed by supportive investigations. If clinically and hemodynamically stable, they are managed conservatively with guideline directed medical therapy (GDMT). All ST-elevation myocardial infarction (STEMI) patients are given systemic fibrinolytic therapy in ED. All NSTEMI/USA patients are managed conservatively with medical therapy initially. If in any case, the patient is clinically or hemodynamically unstable or has failed fibrinolysis in STEMI patients, rescue percutaneous coronary intervention (PCI) of only the culprit vessel is performed. Thorough deep cleaning and disinfection of the cardiac catheterisation laboratory is done after the case. This conservative approach helps in limiting the spread of the COVID-19 along with conservation of important resources. All elective invasive catheterisation procedures are deferred and managed with GDMT
4. **Medical Management:** All patients of ischemic heart disease are treated as per the guidelines. All hypertensive patients are advised to continue ACE-I or ARBs as they are

advised and at present there is no evidence suggesting to shift patients to other antihypertensives. Regarding the treatment of COVID-19 patients with associated cardiac disease, the use of hydroxychloroquine for prophylaxis and treatment is strictly under pharmacovigilance and as per the guidelines issued and updated by Indian Council of Medical Research. The drug has cardiac side effects of which conduction disorder is the most common and may cause sudden cardiac death due to QT prolongation specially if given with drugs causing QT prolongation^[5]

5. **Personnel protective equipment:** All personnel involved in care of cardiac patients with confirm or suspected COVID-19 are provided PPE including disposable caps, N95 respirators, protective eyewear, full face shields, gowns, surgical gloves, and shoe covers. Proper donning and doffing of PPE are done.

Therefore, all primary care physicians are advised for detail clinical evaluation of the patients and advise limited investigations so that they can be managed at peripheral centre and long-distance travel can be avoided. Patients with acute coronary syndrome should also be managed with GDMT and to be referred only if patient is hemodynamically or symptomatically unstable in spite of medical management. India is a most populous democracy in the world with its varied diversity and limited infrastructure. This responsible role of primary care physicians at various peripheral centres will decrease the burden at tertiary care centres and helps in better use of limited resources in the present pandemic.

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Conflicts of interest

There are no conflicts of interest.

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