



SHA and SHRS Task Force On Rhythm Management of Patients with COVID-19 Epidemic

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Abbreviations:

CDC Center for Disease Prevention and Control

COVID-19 Coronavirus Disease 2019

EP Electrophysiology

PPE Personal Protective Equipment

SHA Saudi Heart Association

SHRS Saudi Heart Rhythm Society

SPSC Saudi Patient Safety Center



Introduction:

Covid-19 is a global pandemic with more than a million confirmed cases worldwide and more than 60000 deaths. The SHA (Saudi Heart Association) and SHRS (Saudi Heart Rhythm Society)

developed this task force with guidance of experts cardiac electrophysiologists from a four different academic institutions to discuss the principles of clinical management of patients with cardiac rhythm diseases during the COVID-19 epidemic and to provide local general clinical guidance to cardiac electrophysiologists in the region. In a report from Wuhan, China, 16.7% of hospitalized and 44.4% of ICU patients with COVID-19 had arrhythmias (1).

General Recommendations:

Prevention:

Prevention of disease transmission to health care workers is considered a priority. Protective measures should comply and observe all the taken measures of the Saudi Government including strict Quarantine and National Saudi Center for Disease prevention and Control (CDC) Guidelines.

Covid-19 is transmitted by droplets; However, airborne transmission is possible through aerosolization in the setting of high flow oxygen, bronchoscopy, open tracheal suctioning, intubation, extubation, non-invasive positive pressure ventilation, endoscopy, cardiopulmonary resuscitation (CPR) and transesophageal echocardiography (2).

Considering that some asymptomatic patients may be a source of infection and transmission, all patients with severe emergent cardiovascular diseases should be managed as suspected cases of COVID-19(3).

All elective EP referrals should be postponed and rescheduled. Referrals among hospitals should be minimized to life-threatening emergencies and we encouraged to use telemedicine when possible. Devices should be checked remotely and clinic check should be minimized to a life-threatening abnormality. After interrogation: programmers, cables, and wands should be disinfected between all patients according to CDC guidelines.

Diagnosis:

All COVID-19 patients (confirmed and suspected) should be diagnosed in accordance with the updated Saudi CDC Scoring System. Swabbing for diagnosis needs an approval by the local Infection Control authority. Definitive diagnosis should be made as soon as possible ideally by a PCR test in 5 minutes.

Cardiac Complications:

COVID-19 causes myocardial injury with at least 17% found to have an elevated troponin and 23% noted to have heart failure (4). Coronary artery disease and cardiogenic shock have also been reported, with atrial and ventricular arrhythmias. Cardiac arrhythmias are very common cardiac manifestation described in patients with COVID-19 infection. Symptoms can range from simple palpitation to life threatening arrhythmias (5). Arrhythmia could be attributed to the direct myocardial injury or secondary to the metabolic derangement, hypoxia, neurohormonal changes or the inflammatory stress in the setting of acute viremia. However, a malignant arrhythmia in the setting of elevated cardiac markers should raise suspicion for underlying myocarditis (6).



Treatment:

Patients with confirmed or suspected COVID19 should be admitted to the hospital or home isolated according to local infection control guidelines. During the epidemic, an optimized conservative medical therapy strategy should be a top priority (3,7-8)

During the COVID-19 pandemic, high-risk patients with severe emergent cardiovascular diseases should be admitted to the hospital and receive optimized medical therapy according to recent guidelines in order to alleviate symptoms and position the patient for an optimal clinical outcome (8-11). Medical management should comply with guidance from the National Saudi CDC recommendations. The decision to proceed with invasive strategy should be considered only for life threatening conditions (Please refer to Saudi Patient safety Center Link for more Information at this link <https://spsc.gov.sa/Arabic/pages/guidelines.aspx>).

In general, it is reasonable to consider deferring any test or procedure that is unlikely to directly impact clinical care or outcomes over the next several months (12).

All strict protective measure should be applied to protect Catheterization Laboratory staff including full personal protective equipment (PPE) and negative pressure laboratory when feasible or Hepa filters beside the head of the patient. The PPE should also include the fitted N95 or powered air purifying respirator (PAPR) masks during aerosol generating procedures. Elective intubation in ICU in a negative pressure room is preferred in a sick patient. The number of staff attending the case and procedure time should be minimized. The CDC's or local recommendations for environmental cleaning and disinfection should be followed.

All suspected and confirmed COVID-19 patients should be transported with standardized attention to relevant national regulations. Prior to the procedure, the transfer route should be laid out and protection during transfer should be guaranteed. Special-purpose elevators should be identified and utilized. Delays during the in-hospital transfer should be minimized and should avoid frequent transfers between departments to reduce the risk of infection transmission (13). Patients with COVID-19 should be transferred to a Coronary Care Unit (CCU) or Cardiology Ward ideally with negative-pressure ventilation for continued treatment during the epidemic or isolated in a single-bed room with strict contact droplet precautions in accordance with local Infection Control recommendations. (14)

Up to date, there are no specific effective therapies for COVID-19, various pharmacologic agents are under active investigation. Chloroquine has been used in addition to antiviral therapy and it is important to monitor the potential risks of intermediate-to-delayed myocardial toxicity and the risk of torsade des pointes. ECG upon admission and frequent monitoring is recommended during the therapy period. The risk of torsade des pointes increases with electrolyte imbalance e.g. hypokalemia, hypomagnesemia, renal insufficiency and concomitant QT prolonging drugs such as azithromycin. (15,16)

Cardiopulmonary Resuscitation:

All efforts should be done to avoid emergency intubation by planning elective intubation in every sick patient in a negative pressure room with strict airborne precaution, full PPE and N95 mask. The minimum number of expert staff should participate in the CPR and should enter the room only after wearing full airborne PPEs. The use of external mechanical compression devices is preferred when available. The prognosis of COVID19 related Cardiac arrest is extremely poor and therefore considered to be futile by some experts. (17)



Useful links:

Saudi CDC : <https://covid19.cdc.gov.sa/>

SPSC : <https://spsc.gov.sa/Arabic/pages/guidelines.aspx>

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