Management of cardiac patients during COVID 19 pandemic: clinical protocol

Department of Cardiology

Sree Chitra Tirunal Institute for Medical Sciences and Technology

Trivandrum, India

An Institution of National Importance, Department of Science and Technology, Govt. of India

Disclaimer: This document is intended only for use in the Department of Cardiology, SCTIMST, and had been prepared to address the concerns relevant to the department. This may not be applicable in a different setting.

(The document was approved by the COVID cell of the Institute on 30-03-2020)

Coronavirus disease 2019 (COVID 19) is a pandemic as recognised by World Health Organisation on March 11. The recent emergence of this new disease with many characteristic features has redefined the global health scenario in the last couple of months. Its high potential to spread to health care workers, need for quarantine in exposed to prevent further spread, and malignant clinical course at least in a minority of cases necessitate the need of precautions at multiple levels of healthcare. In addition, higher prevalence of severe disease in those with cardiovascular comorbidities, and potential need for advanced cardiovascular care in severe COVID19 infection demand the presence of a cardiovascular physician in the treating team. Similarly, many patients presenting with cardiovascular symptoms or conditions could have suspected, manifest, or diagnosed COVID 19 infection, and this poses a few unique management aspects relevant not only at personal care but to public health also.

These guidelines are designed by the department of Cardiology considering the above facts, and aimed at ensuring a workflow in the management of a cardiac patient during the pandemic in our tertiary care hospital.

Table of Contents

A. Management at outpatient department
B. Management of admissions and procedures
C. Management of ACS: Guiding principles
D. Interventional treatments: Triaging the indications
E. How to manage associated cardiac comorbidities in a COVID19 suspected case?
F. Management of cardiac ICU
G. Management of cardiac catheterisation lab
H. Sterilisation of the catheterisation lab
I. Management of teleconsultation

A. At outpatient department

- Thermal scan at entrance for all
- Complete the check list before close contact with the patient: (see the appendix 1 for the detailed proforma for COVID19 screening)

    1. History of fever in the last 3 weeks
    2. History of foreign travel in the last 3 weeks
    3. History of close contact with any with fever in the last 3 weeks.
    4. History of symptoms like fever, sore throat, cough or shortness of breath

- H/o quarantine, if any, and details
- For children, both parent and child to be screened as above
- Only one accompanying person per patient
- Mask for all patients and relatives
- Personal distancing of 1 meter will be followed.
- Frequent hand washings and use of hand sanitizers for all health care workers at OPD.
- Regular cleaning of hard surfaces with standard disinfectants with a contact time of 5-10min after every patient visit.
- Stethoscopes, ophthalmoscope etc. should also be cleaned as above after each patient use.
- Restrict appointments to new outpatient registrations to minimum number
- To promote tele-consultation facilities

B. General considerations for admissions and procedures

- No admissions other than emergency cases
- In compliance with the directions of the state, only emergency procedures will be done during this period.
- All elective echocardiographic procedures will be postponed; emergency transthoracic echocardiographic tests will be done only with standard precautions like masks and minimum contact.
- Trans-esophageal echocardiography will be considered as an invasive procedure with high risk of contact with pharyngeal secretions of the patient. This will be done only with use of PPE, and following guidelines for intubation accepted for COVID19 patients by the institute. The emergent indication to be cleared by the departmental medical board.
- Clinical rounds by teleconference can be considered on a case to case basis. Even during rounds, all precautions like hand hygiene, safe distancing etc. should be followed.
- As a guiding principle, in patients with suspected or confirmed COVID- 19 cases, non-invasive alternatives will be the first line of management.
- Emergent cases in catheterisation lab, if considered, shall be done with all universal precautions.
- All procedures being considered in the lab should have concurrence of two faculty members in view of the fact that each procedure puts all staff involved into considerable risk.

- The risks to the treating physicians, nurses and cath lab staff should be considered before deciding on any procedure
- In COVID19 suspected or confirmed cases, the procedure will be done only after ensuring complete and uncompromised PPE and other precautions
- A department medical team comprising of head of department with at least 3 other members will be formed for timely up-gradation of guidelines. Concurrence by this medical board in complex procedures is a must.
- The department (faculty and staff) will work on rotational roster of one-week each, with only one-half physically present at hospital at a given time. The other half will be on reserve duty. This rotation will start from the day the department becomes fully functional with all the consultants joined back

C. Management of ACS: Guiding principles

ST Elevation MI: In patients coming with STEMI, the management strategy will depend on the duration of ischemia and hemodynamic status of the patient. Hemodynamically unstable patients will be taken to cath lab for primary PCI. Failed thrombolysis will also be taken up for rescue PCI. In other patients thrombolysis will be considered.

The risks to the treating physicians, nurses and cath lab staff should be considered before deciding on primary PCI.

Non-ST elevation MI: High-risk NSTEMI will be taken for angiography and PCI. Low risk NSTEMI will be medically managed.

D. Interventional treatments: Triaging the indications

a): Adult interventional procedures

Only emergency life-saving cases will be considered for procedure (eg: pericardiocentesis in cardiac tamponade)

b): Paediatric (congenital heart disease/structural heart disease interventions

a. Can be considered:
    i. BAS – When failed management with PGE1, and emergent surgery cannot be offered
    ii. PDA stenting – When failed management with PGE1 infusion, and emergent surgery cannot be offered
b. May not be performed unless medical emergency: Infant PDA device closure, Coarctation stenting, elective percutaneous valvuloplasty, pulmonary angioplasty, neonatal valvuloplasty
c. Not to be performed: All elective device closures

c): Electrophysiological procedures (Ablation and devices)

EP procedures that may not be considered

- Pacemaker checks/interrogations
- Cardioversions in stable, asymptomatic patients
- Tilt table, Holter monitoring
- Implantable loop recorder implant
- Pacemaker implant for stable sinus node dysfunction or second-degree AV block without syncope (outpatient and inpatient)

- ICD placement for primary prevention in stable, low-risk patients
- Up-gradation to cardiac resynchronization therapy (CRT) in stable patients
- RF ablation of any arrhythmia in stable patients
- Lead extraction unrelated to infection or symptomatic lead failure

<u>EP procedures that can be considered</u>

- Semi-permanent pacing as a life saving measure
- Permanent pacing for complete heart block, high grade AV block and symptomatic bifascicular block as a life saving measure.
- Secondary prevention AICD as a life saving measure.
- VT ablation as a life saving measure.

E. How to manage associated cardiac comorbidities in a COVID19 suspected case?

For patients in whom COVID-19 has not been ruled out, without epidemiological history of COVID-19, but with 1-2 clinical manifestations of COVID-19, and yet not fulfilling diagnostic criteria for COVID-19, medical management should comply with guidance from a COVID-19 expert panel in the hospital. These patients will be managed in the COVID block being earmarked by the hospital. Till that is in place they will be managed in the area of MICU identified exclusively for suspected cases. If the disease is proven, they will be shifted to COVID block or COVID hospital nearby.

F. Management of medical ICU

Any patient being admitted from OPD will be subjected to COVID19 screening based on the history of travel, contact or fever. Those with high index of clinical suspicion or already

confirmed cases will be sent to hospitals assigned as COVID hospitals by the state government or to COVID block of the hospital.

All patients in the initial 48 hours will be managed in the MICU and upper cath lab. The remaining wards and lower level cath labs will be used only for those with no suspicion or any clinical evidence of COVID 19 infection or those who already had a negative swab test.

MICU, itself will have two divisions separated from each other in the best way possible. The high –risk cabin with 4 beds will be exclusively used to take care of patients with high index of suspicion (fever, cough, pneumonia etc.) and will be managed by staff with all possible precautions including PPE.

After each resuscitation or code blue, all equipment used including the chest compression device should be cleaned as per guidelines.

G. Management of cardiac catheterization lab

Specific recommendations for Cath lab include

- All elective procedures to be postponed, especially in elderly or patients with significant comorbidities. Though a non-invasive strategy is preferred in all, decision to perform cases in the lab should be individualised, considering the risk of COVID-19 exposure to the treating medical team versus the risk of delay in diagnosis or treatment.
- All catheterization laboratory personnel should be trained in the proper techniques for donning and doffing of PPE.
- Only essential staff should enter the lab to assist each procedure.

- All patients who are required to come to the catheterization laboratory, should wear an appropriate surgical mask.
- The threshold to consider intubation in any patient with borderline respiratory status should be lowered and should preferably be done prior to transfer to cath lab, in order to avoid emergency intubation in the catheterisation laboratory
- The cath lab (ISIR) in the first floor also will be considered as a part of the cath lab complex, and it will be ensured that only clean cases will be taken there.

H. Sterilisation of the catheterisation lab

Following a procedure in a patient who has not been ruled out for COVID-19 infection, the catheterization lab should be disinfected. As per the present understanding, ultraviolet light, exposure to 56°C for 30 min, lipid solvents (diethyl ether, 75% ethanol etc.), chlorine-containing disinfectants, peracetic acid, and chloroform can all effectively inactivate COVID-19. Chlorhexidine is probably ineffective

- The main requirements include: hydrogen peroxide (3%) spray should be used for air disinfection after the operation, and instruments should be cleaned with 2000 mg/L chlorine-containing disinfecting solution. After 30 minutes, clean water should be used to wipe off the instruments.
- The floor and wall (1.5 m from the floor and below) should be wiped with 2000 mg/L chlorinated disinfectant solution, and sprayed with 3% hydrogen peroxide again if necessary (or sterilized with an air disinfection machine). After disinfection, the department of nosocomial infections should be consulted prior to re-use.
- PPE will not be reused, unless a suitable and effective mechanism is identified in future. .

I. Tele-consultation for outpatients

Whenever possible, it is recommended to employ telemedicine strategies to optimize the prevention and treatment of patients with severe emergent cardiovascular diseases during the epidemic. The main benefits of telemedicine include: (1) guiding the treatment of patients in primary hospitals to minimize the risk of disease transmission during referral; (2) continuing to provide optimal treatment to the patients with cardiovascular disease who are isolated at home or discharged from the hospital to prevent clinical deterioration; (3) guiding patients with onset of cardiovascular emergencies at home to the nearest medical facility; (4) reducing unnecessary visits to the hospital to decrease the incidence of cluster infections.

The steps /Workflow:

All patients with a follow up appointment will be rescheduled and messaged in the mobile number available in the system about the new date. In addition, an option of having a telephonic conversation with the concerned doctor on the original appointment day also will be given to them. This will be notified in newspapers also.

The patients shall be informed to contact between 9:00 -10:00 am of the original appointment date to schedule the exact time of the teleconsultation. Electronic medical records of all these patients will be made available for the doctor from 1000 am onwards, at no additional charge. The doctor will attend calls from 1000am to 300pm, and help the patients. The cases spilled over, or those who contacted for appointment after 1000am will be attended between 3 and 4: 00pm. An electronic prescription with a disclaimer will be available for downloading at patient portal. A facility to send the snapshot of the prescription by whatsapp is also being made available.

Appendix 1

PROFORMA FOR COVID19 SCREENING

SCTIMST, Trivandrum

PATIENT DETAILS

1. Name:
2. Age:
3. Sex:
4. Phone Number:
5. Hospital Number(if registered):
6. Address:

CHECKLIST

Question	**Response**	**If the response is yes to the question on column 2, provide the details**
Has someone in your close family returned from a foreign country	YES/NO	
Is patient under home quarantine as advised by local health authority	YES/NO	
Have you or someone in your family come in close contact with a confirmed COVID 19 patient in last 14 days	YES/NO	
Do you have fever	YES/NO	
Do you have cough	YES/NO	
Do you have sore throat	YES/NO	
Do you have shortness of breath	YES/NO	

Have you been tested for COVID19? Yes/No (If yes, mention the result)

Evaluation Level I (Staff/MSW): Name and signature:

Evaluation Level 2 (Doctor):

Impression: COVID 19 **Unlikely** **Suspected** **Confirmed**

Further Plan:

Name and signature: