<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>General Advisory</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Principles of Operation (Out-Patient &amp; In-Patient Services Including Emergency)</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>General Hygiene Related (Applies to Op/Echo/Ip Care Etc)</td>
<td>2</td>
</tr>
<tr>
<td>1.3</td>
<td>Teleconsultation Services and Review Visits</td>
<td>3</td>
</tr>
<tr>
<td>1.4</td>
<td>Appointment System for Outpatient Services</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Advisory for Echocardiography in Covid-19 Pandemic Season</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Echo Waiting Room / Registration</td>
<td>4</td>
</tr>
<tr>
<td>2.2</td>
<td>Echo Procedure Room</td>
<td>4</td>
</tr>
<tr>
<td>2.3</td>
<td>Echo Technical Advisory</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Advisory for Managing Chronic Heart Disease Patients</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Patients with Heart Disease Must Be Encouraged / Advised To</td>
<td>6</td>
</tr>
<tr>
<td>3.2</td>
<td>Patients with Specific Heart Disease</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td>Acute Cardiac Care</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>General Principles in Emergency Care</td>
<td>7</td>
</tr>
<tr>
<td>4.2</td>
<td>Catheterization Laboratory General Advisory</td>
<td>7</td>
</tr>
<tr>
<td>4.3</td>
<td>Acute Cardiac Care: Catheterization Lab specific Disease Advisory</td>
<td>8</td>
</tr>
<tr>
<td>4.4</td>
<td>Management Strategies for Coronary Artery Disease During COVID Pandemic</td>
<td></td>
</tr>
<tr>
<td>4.4.1</td>
<td>STEMI</td>
<td>9</td>
</tr>
<tr>
<td>4.4.2</td>
<td>NSTEMI</td>
<td>10</td>
</tr>
<tr>
<td>4.4.3</td>
<td>Stable Ischemic Heart Disease</td>
<td>11</td>
</tr>
<tr>
<td>5.</td>
<td>Conclusion</td>
<td>12</td>
</tr>
<tr>
<td>6.</td>
<td>Acknowledgment</td>
<td>13</td>
</tr>
</tbody>
</table>
COVID-19 PANDEMIC FOCUSED
RECOMMENDATIONS FOR
CARDIOLOGY

1. GENERAL ADVISORY

1.1. PRINCIPLES OF OPERATION (OUTPATIENT & INPATIENT SERVICES INCLUDING EMERGENCY)

1. Health care services for the cardiac patient should continue unaffected despite COVID-19 pandemic.

2. Health care workers are the currency coins of the health care system, whose health & wellbeing is crucial for proper functioning for health care system.

3. All efforts should be taken to protect the health care workers from contracting COVID-19 infection.

4. Every patient coming to seek health care services is potentially a silent or symptomatic carrier of active COVID-19 virus.

5. All efforts to be taken to provide the best possible medical care to the patient, making sure there is no possibility of cross infection to or from the patient.
1.2 GENERAL HYGIENE RELATED
[APPLIES TO OP / ECHO / IP CARE ETC]

1. Provision of facilities for hand washing /sanitisation should be available whenever needed.

2. Facilities of maintaining fool proof social distancing is a must be in place in all elements of the health care services.

3. All patients must wear face masks provided by the hospital / self.

4. Number of bystanders can be limited to nil or one throughout the visit.

5. Patients and bystanders must be screened for COVID-19, by a short history and temperature screening by an infrared thermometer at the entry.

6. The doors, handles, electrical switches and all other metallic things in the room should be frequently cleaned and decontaminated with sodium hypochlorite solution.

7. Implement systems to identify patients with possible COVID prior to registration by focussed short history and temperature screening and manage them appropriately.
1.3 TELECONSULTATION SERVICES AND REVIEW VISITS

1. Encouraged to offer teleconsultation services to the patients to the extent possible.

2. Whenever possible the next review of the patient, can be scheduled at a longer interval from the current visit.

3. In hospitals where medicines are issued free of cost to the patients, these medications can be given for a longer period of time [eg: Two to three months at a time] to reduce foot fall in the hospitals.

1.4 APPOINTMENT SYSTEM FOR OUTPATIENT SERVICES:

1. Hospitals, clinics and dispensaries should encourage prior appointment services to avoid walk-in services for elective outpatients.

2. Ushering in a system of online appointment will help the institution to maintain the social distancing and hygienic measures during the hospital visit.

3. Appointment system can be based on the following methods - IVR telephonic system, online website & app based and direct onsite.

4. The need to implement the appointment system is particularly felt in the cardiology departments of the government hospitals where the number of patients visiting the outpatient departments is phenomenally high and social distancing is not possible if walk-ins are allowed.
2. ADVISORY FOR ECHOCARDIOGRAPHY IN COVID-19 PANDEMIC SEASON

2.1 ECHO WAITING ROOM / REGISTRATION

1. General principles on social distancing / hand hygiene to be followed

2. Registration staff should don level-1 PPE [Surgical Cap, Surgical Mask, Surgical Gloves and work gown]

2.2 ECHO PROCEDURE ROOM

1. Echo room should have good ventilation. Airflow with high flow fans directing the flow from the HCW side to the patient to the exit.

2. Performing echocardiogram holding the probe with the right hand allows the patient to face away from the performer.

3. If the echocardiographer prefers to use the left hand, there is possibility of aerosol from patient’s face contaminating the echocardiographer. To prevent this, a transparent screen with space for hand, or a transparent fabricated partition with a gloved orifice for the performers hand and another orifice for echo probe, can be fashioned.

4. All HCWs in the echo room should don Level -2 PPE [surgical cap, work uniform, surgical gloves, N-95 mask, Hospital OT gown, goggles].

5. After completion of the procedure the transducer must be disinfected with cidex swabs or soap solution.
2.3 ECHO TECHNICAL ADVISORY

1. Routine echocardiograms [eg: routine neonatal, routine antenatal] can be postponed till the pandemic period is over.

2. Ordering of echocardiogram must be target oriented. It should be ordered only if the result is likely to change the mode of therapy.

3. Form focused and limited echocardiography, avoiding exhaustive evaluation to limit exposure time of the HCW with the patient.

4. Avoid TEE unless it is absolutely essential, as TEE can increase cough, throat secretions and aerosolization increasing the possibility of infection to HCWs.

5. Avoid stress echo whenever possible.

6. It is good to keep a dedicated portable point of care ultrasound [POCUS] systems for COVID positive patients and COVID wards. Hand held echo machines are also a good option to use in this scenario.

7. Medical officers in ICU can be trained to identify LV function, LV / LA / RV / RA dilatation, IVC size, pericardial effusion etc that can be easily done, without having to call for another dedicated HCW for the same.
3. ADVISORY FOR MANAGING CHRONIC HEART DISEASE PATIENTS

3.1 PATIENTS WITH HEART DISEASE MUST BE ENCOURAGED / ADVISED TO

1. Remain with a positive outlook. [Recovery rate from COVID-19 good in Tamil Nadu]

2. Follow healthy habits and lifestyle as advised

3. Continue the already advised dietary modifications and restrictions

4. Keep themselves active inside home, with simple exercises and short walks.

5. Follow the existing government advisory about going for walks out of home.

6. They are advised to strictly continue the prescribed medications as before.

7. Avoid routine consultations, if they live in red and orange zones.

3.2 PATIENTS WITH SPECIFIC HEART DISEASE

1. Patients with heart failure are encouraged to maintain their salt and water restrictions as before and periodically monitor their health by watching their weight, urine output, effort tolerance etc. Health care professionals are advised to train their patients on home self-monitoring to identify early decompensation.

2. Patients who have coronary stents in situ, are advised to continue antiplatelet drugs as advised as before, since stopping them could result in recurrent MI and sudden death.

3. Patients on oral anti-coagulant therapy should have their PT/INR done and get their dose titrated over phone. Training the patients to self-monitor their PT/INR and self- titrate the anti-coagulant therapy to maintain the target INR is a good option in suitable patients.
4. ACUTE CARDIAC CARE

4.1 GENERAL PRINCIPLES IN EMERGENCY CARE

1. Emergency department should have a triaging system should be in place to identify possible COVID infected patients and provide appropriate care. Preregistration elicitation of pertinent history with regards to COVID, vitals assessment including body temperature, CXR and if needed CT chest should be done to rule out a potential COVID-19 infection. Performing a COVID-19 rapid test, if not RT PCR as felt necessary, is essential particularly in red zones.

2. It is possible that patients may hesitate to seek emergency medical advice when they develop acute cardiac symptoms due to the apprehensions they may have, in view of possibility of contracting COVID during hospital visit and apprehensions regarding availability of acute cardiac care as before

3. Hospitals need to be encouraged and supported to offer the appropriate acute cardiac care for the patients who seek medical attention, with COVID safety systems in place. Patients need to be reassured of the available services and need to be encouraged, to seek medical attention, when they have acute symptoms.

4.2 CATHETERISATION LABORATORY GENERAL ADVISORY

1. All HCWs in catheterisation lab should have coverall gowns, gloves, full head cover, eye protection face shields, N95 respiratory mask and level 3 PPEs [surgical cap, work uniform, surgical glove, FF3 mask, Hospital OT Gown, Full face respiratory protective device]. Patients should wear surgical masks.

2. All HCWs in catheterisation lab need to be trained in donning and doffing procedures including eye protection. Lead aprons should be worn under the PPEs.
3. Donning room and doffing room to be identified in proximity to catheterisation laboratory / ICU

4. Absolute minimum number of HCWs to be allowed inside the catheterisation lab during the procedure. The doors to remain closed throughout the procedure.

5. Catheterisation lab to be decongested of all non-essential instruments.

6. In institutions with more than one catheterisation lab, one catheterisation lab can be dedicated for COVID-19 positive patients. High risk patients with cardiogenic shock can also be taken up in this lab.

7. Conversion of the cardiac catheterisation laboratory to a negative pressure labs with HEPA filters to be considered whenever possible.

8. Frequent wipe downs of commonly touched objects in the control rooms (i.e., keyboards, mouse, and door handles) should be performed.

9. All soiled linens should be placed in a fluid-resistant linen and should be handled by HCWs donning level 3 PPEs.

10. Meticulous terminal cleaning and disinfection of catheterisation lab to be done following procedure in a COVID positive patient, including UV light-based disinfection may also be considered.

11. Whenever possible COVID-19 positive patients can be scheduled as the last patient of the day in the cardiac catheterisation lab.

12. Aerosol generating procedures such as intubation, extubation, high-flow nasal cannula, noninvasive ventilation, etc can be avoided inside the catheterisation lab to minimize potential aerosolization and dissemination of
virus. When these procedures are needed only the minimum necessary personal should be around. These HCWs should don the level 3 PPE. Hooded HEPA [PAPR] powered air purifier respirator if available, will best suit this scenario.

13. In patients with respiratory distress, intubation can be done prior to transfer to catheterisation lab.

14. Procedures such as IABP, pericardiocentesis, ECMO - extracorporeal membrane oxygenation, temporary pacemakers can be done bedside, instead of shifting them to the catheterisation lab.

4.3 ACUTE CARDIAC CARE: CATHETERISATION LAB SPECIFIC DISEASE ADVISORY

Primary principle to be followed while doing interventional procedures in cardiac catheterisation lab during COVID pandemic is as below

1. The catheterisation lab and necessary manpower must be always available for life saving procedures like Primary angioplasty in STEMI with cardiogenic shock with in reperfusion window, failed lysis in STEMI within reperfusion window, recurrent ischemia post lysis in STEMI, permanent pacemaker implantation in life saving arrhythmia, life-saving antenatal mitral balloon valvotomies

2. For this reason, it is prudent to avoid unnecessary exposure of catheterisation lab personal and instruments to COVID-19.

3. Health care institutions need to make necessary modifications in the below suggested treatment protocol based on the available manpower against deputation for COVID duties, bed strength and instruments, to suit the primary principle cited above.
4.4 MANAGEMENT STRATEGIES FOR CORONARY ARTERY DISEASE DURING COVID PANDEMIC

4.4.1 STEMI:

1. All STEMI patients should undergo COVID-19 screening [clinical, radiological and rapid COVID testing / RT PCR as possible in the system of care] in the Emergency Department.

2. STEMI patients with in the reperfusion time window should undergo primary PCI remains in a COVID safe catheterisation lab, with all catheterisation lab personal donning level 3 PPE.

3. Fibrinolytic therapy to be considered whenever cardiac catheterisation lab is understaffed or overburdened or not available.

4. Fibrinolytic therapy also can be considered for low risk patients with STEMI, and STEMI patients with severe pneumonia.

5. Pharmaco-Invasive Therapy can be considered in Hub hospitals whenever possible.

6. Routine transfer of STEMI patients post lysis for pharmaco-invasive therapy from spoke hospital to hub hospital, in red zones and orange zones to be avoided.

7. STEMI patients outside the reperfusion window need to be managed only medically.

4.4.2 NSTEMI:

1. NSTEMI with low-risk features can be stabilized with medical therapy.
2. NSTEMI with high risk features [eg: GRACE score >140] can be considered for interventional management.

3. Myocardial injury with elevated troponin levels related to sepsis or acute respiratory distress syndrome can be medically managed.

4.4.3. STABLE ISCHEMIC HEART DISEASE:

1. All elective interventions in stable ischemic heart disease can be avoided /postponed in red zones and orange zones, whenever possible.

2. Elective patients scheduled for catheterisation lab procedures must be evaluated at least 72 hours prior and must undergo COVID-19 RTPCR testing before the procedure.
5. CONCLUSION

This recommendation urges to provide appropriate standard of care to all patients presenting with acute cardiac emergency keeping in mind the various strategies that need to be perused to protect the healthcare workers from contracting the infection and to minimise the transmission of infection to the patient from the health care facility. As the pandemic continues to pose greater challenge to delivery of health care, a prudent adoption of the suggested protocol in the management of both acute and chronic cardiac condition will definitely be beneficial to the patients and the health care workers creating a plausible environment for both allaying all apprehensions.
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