

RECOMMENDED GUIDANCE FOR THE MANAGEMENT OF ACUTE MYOCARDIAL INFARCTION (AMI) PATIENTS DURING THE COVID19 PANDEMIC

A Consensus statement from the Cardiac Services Development team at the
Ministry of Health of Saudi Arabia

Abbreviations

AMI = Acute Myocardial Infarction

STEMI = ST Segment Elevation Myocardial Infarction

NSTEMI = Non-ST Elevation Myocardial Infarction

PPE = Personal Protective Equipment

PCI = Percutaneous Coronary Intervention

Introduction

The COVID19 pandemic devastated the world given its fast spread affecting a huge percentage of the population. Patients who present in the most severe form of this disease are in their majority elderly patients with multiple comorbidities or diseases.

The rapid spread of the disease has overwhelmed medical facilities around the world causing a sudden high demand for inpatient and Intensive care beds as well as the need of trained skilled medical staff to care for these sick patients which also has resulted in increased need of medical equipment and personal protective equipment (PPE).

To face this high demand and to accommodate the increased need we had to reduce our elective admissions, manage patients through virtual care, delay less urgent cases and change our strategies of management.

Studies found that patients with established cardiovascular disease who are infected with COVID19 have a higher risk of mortality. However, most patients who need urgent and emergent cardiac care present with typical cardiac symptoms and do not necessarily fit the case definition of COVID 19 patients.

The aim of this document is to provide recommended guidance for Ministry of Health Hospitals in the management of Acute Myocardial Infarction (AMI) patients who present with ST Segment Elevation (STEMI) or Non-ST Segment Elevation (NSTEMI). We also differentiated in our recommended guidance between hospitals that have a Cath Lab and hospitals that do not provide this service.

This document is based on the best available evidence from published studies and expert opinion though none of the published literature is specific for COVID19 pandemic

This document is not static but rather dynamic and will be revised regularly if there is a need.

GUIDANCE NO. 1- INFECTION CONTROL PRECAUTIONS FOR ALL AMI PATIENTS PRESENTING DURING THE COVID19 PANDEMIC

1. All patients presenting to Emergency Departments with signs and symptoms of AMI as walk-in or through the ambulance systems or referred from other hospitals should be treated as suspected case of COVID19 until proven otherwise.
2. During All emergency AMI procedures proper hand hygiene should be followed at all times, Personal Protective Equipment (PPE) such as gowns, gloves, face mask, eye shield/protection, with aerosolization protection such as FF₂ /FF₃ /N95 for the entire staff caring for the patient should be available.
3. A negative pressure Cath. Lab should be used, if not available a HEPA filter should be used and be placed near the patient's head.
4. All AMI patients preferably to be admitted to a single room with negative pressure or HEPA filter should be provided if negative pressure room is not available.
5. All patients entering Cath. Lab or CCU or Cardiac Ward should be wearing a face mask if tolerated.
6. Terminal Cleaning and sanitation in Cath. Lab must be conducted at least one hour after patient leaves the procedure room. This allows aerosols in the room to settle down. Extra care should be ensured that the healthcare facility cleaners should be provided and be supervised to wear appropriate PPE's for terminal cleaning.

GUIDANCE NO. 2- MANAGEMENT OF STEMI CASES PRESENTING TO CARDIAC CATH. CAPABLE HOSPITALS DURING THE COVID19 PANDEMIC

1. All patients presenting with STEMI should be considered as COVID19 positive until proven negative by either a sound clinical decision or through testing.
2. During the COVID19 pandemic, PCI or Fibrinolytic therapy are considered appropriate therapies. The choice should depend on many factors and is left to the decision of the consultant interventional cardiologist. Factors such as time of day of presentation, the clinical status of the patient, availability of Cath. Lab. Room, availability of PPE's, and the ability to perform the procedure in a timely manner. All these are to be considered when making the decision about primary PCI or Fibrinolytic therapy.
3. Cath. Lab activation for primary PCI should not be done until the consultant interventional cardiologist has reviewed the case (at least over the phone) and the diagnosis is confirmed.
4. Patients who are tested positive or who are considered highly suspicious of COVID19 with severe pulmonary decompensation due to COVID19 related lung injury/sepsis/multiorgan failure that develop STEMI would most probably NOT benefit from emergent reperfusion strategy nor advanced mechanical support - for those patients compassionate medical therapy is appropriate.

GUIDANCE NO. 3- MANAGEMENT OF NSTEMI CASES PRESENTING TO CARDIAC CATH. CAPABLE HOSPITALS DURING THE COVID19 PANDEMIC

1. All patients presenting with NSTEMI should be considered as COVID19 positive until proven negative by either a sound clinical decision or through testing.
2. All NSTEMI patients should be treated medically for 48 hours. If the patient has refractory symptoms, heart failure, cardiogenic shock, ventricular arrhythmias then angiography with appropriate revascularization should be considered.
3. Patients who are tested positive or who are considered highly suspicious of COVID19 with severe pulmonary decompensation due to COVID19 related lung injury/sepsis/multiorgan failure that develop NSTEMI most probably would NOT benefit from emergent reperfusion strategy nor advanced mechanical support – for those patients, compassionate medical therapy is appropriate.
4. Echocardiography should be restricted and should be reserved ONLY for COVID19 patients with NSTEMI when a mechanical complications and/or cardiac tamponade is suspected.

GUIDANCE NO. 4- AMI PATIENTS IN HOSPITAL WITH NO CARDIAC CATH. CAPABILITY DURING COVID 19 PANDEMIC

1. All patients presenting with clinical signs and symptoms of AMI should be considered as COVID19 positive until proven negative by either a sound clinical decision or through testing.
2. In hospitals with cardiology service, the diagnosis should be confirmed by the consultant cardiologist. In hospitals with NO cardiology service, the case should be discussed with the Consultant Interventional Cardiologist at the nearest Cardiac Cath. capable hospital. Coordination for these patients should be directly with cardiology services. The decision should NOT be made by the RHD or the Cluster.
3. STEMI patients should receive fibrinolysis therapy if no contraindication.
4. In case of patient did not show signs of reperfusion, the patient may be considered for transfer to cardiac Cath. Lab. facility. The referring team must ensure that the patient is fit for transfer and that proper PPE protection for all the transfer staff is available and are worn by the transfer team during transport. Discussion and acceptance by the receiving Consultant Interventional Cardiologist before the transfer is a MUST.
5. All patients with NSTEMI should be treated medically for 48 hours. If the patient has refractory symptoms, heart failure, malignant arrhythmias, heart blocks, the case should be discussed with the Consultant Interventional Cardiologist at the receiving cardiac cath.

capable center. Patient could be transferred if case is accepted, patient is stable for transfer and required PPE for all staff during the process is available.

6. In hospitals that have a Cardiology service, direct communication between Consultant Cardiologist at the referring hospital and Consultant Interventional Cardiologist at the receiving hospital should be done

7. Upon arrival of the patient to the cath. capable hospital, patient should initially be evaluated in the Emergency Department and properly triaged and consented before shifting to Cardiac Cath. Lab.

8. Patients with confirmed or highly suspicious of COVID19 and COVID 19 related lung injury with Severe pulmonary decompensation/sepsis/multiorgan failure that develop STEMI/NSTEMI will most probably NOT benefit from emergent reperfusion strategy nor advanced mechanical support - compassionate medical therapy is appropriate in such cases.

REFERENCES:

1. SACIS Guidance for ACS Management for the COVID – 19 Pandemic issued 22 March 2020
2. ESC Guidance for the Diagnosis and Management of CV Disease during the COVID-19 Pandemic. Last updated on 21 April 2020
3. Management of Acute Myocardial Infarction During the COVID-19 Pandemic
A Consensus Statement from the Society for Cardiovascular Angiography and Interventions (SCAI), American College of Cardiology (ACC), and the American College of Emergency Physicians (ACEP)