



Letter to the Editor

Management of ST elevation myocardial infarction (STEMI) with primary angioplasty in Covid 19 lockdown



Keywords:

STEMI
ACS
COVID 19
PCI

1. Introduction

The COVID-19 (SARS-CoV-2 virus) pandemic has become a global challenge for all the countries in the world. There is an additional challenge for management of other emergencies like, Acute Coronary Syndrome (ACS), particularly ST elevation myocardial infarction (STEMI).¹ The initial presentation and electrocardiogram (ECG) changes of COVID 19 infection can resemble with STEMI. Both the conditions may also coexist in a patient. Primary Percutaneous Coronary Intervention (PCI) has remained the gold standard treatment for cases with STEMI. However in the recent times during Covid-19 outbreak, many cardiologist are opting for fibrinolytic therapy over Primary PCI for STEMI.

2. Methods

All patients of STEMI admitted in a tertiary care hospital during COVID-19 pandemic (between March 25 to May 25,2020) were included. Retrospective analysis of clinical and angiographic characteristics of patients was done. Diagnosis of STEMI was based on Universal definition.⁸ All patients were tested for COVID 19, however the treatment with emergency CAG and revascularization was not delayed due to unavailability of the COVID report. All the patients were taken to cardiac catheterization laboratory and Primary PCI of the culprit artery was done as per the guideline. None of the patients received fibrinolysis.

3. Results

A total of 30 patients were included. The mean age of the patients was 60.23 ± 9.97 years. 29 were men. 29 had chest pain on presentation, 6 had shortness of breath and 3 had shock at presentation. 14 were diabetics, 13 hypertensive, 3 dyslipidemic and 8 smokers. Majority (17) presented with inferior wall STEMI, 13 with anterior wall. Atherosclerotic coronary artery occlusion (Fig. 1) was found in all (100%) the patients. Left Anterior Descending (LAD) artery was occluded in 13 patients (43%), Left Circumflex

(LCX) artery in 6 (20%), Right Coronary Artery (RCA) in 11 (37%). All the patients underwent percutaneous trans catheter coronary angioplasty (PTCA) with drug eluting stent. Ticagrelor was used in 27 patients and clopidogrel in 3, as the dual antiplatelet. No patient came COVID-19 positive. There was no increased risk of COVID 19 infection among the catheterization laboratory staff and treating doctor. One patient died during hospital stay.

4. Discussion

During this pandemic, reports suggest a downward trend in the number of patients reporting to hospital with Acute MI.^{2–5}

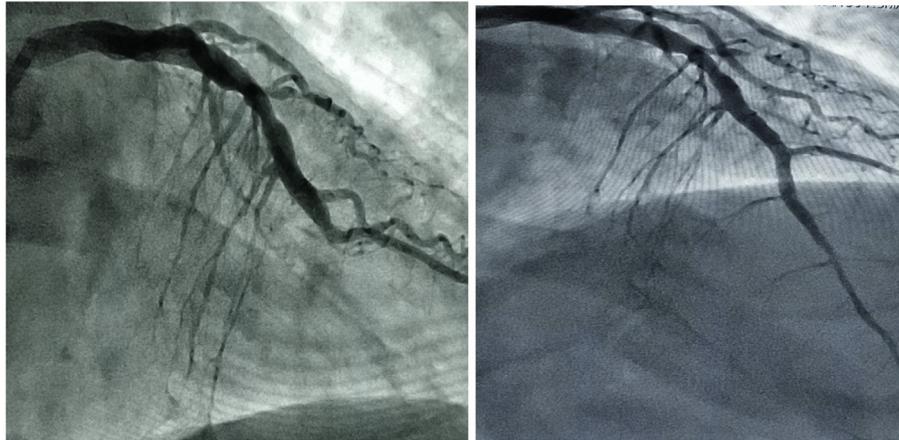
In our opinion, all patient in India, with STEMI, should receive Primary PCI as the preferred treatment during the COVID-19 pandemic, if the patient arrives at PCI enabled center and it is safe to perform it. This strategy is also endorsed by Society for Cardiovascular Angiography and Interventions (SCAI), the American College of Cardiology (ACC) and the American College of Emergency Physicians.⁷

Majority of patients presenting with ACS don't have COVID-19. All patients with STEMI should be suspected as COVID-19 until otherwise proven.⁷ These patients should be transferred to the cardiac laboratory and should not be made to wait for COVID-19 result. Fibrinolysis may be ideal as a first therapeutic strategy if patient arrives in non-PCI enabled center, with duration of shifting to PCI center exceeds 120 min.⁶ The door to balloon time should be noted in patients treated with Primary PCI but delay should be acceptable due to appropriate reasons.⁷ The highest-risk subgroup of patients with acute MI continues to be those with cardiogenic shock and/or resuscitated out-of-hospital cardiac arrest.⁶ All the patients should be treated by health care team with appropriate personal protective equipment (PPE) in the emergency department and the cardiac catheterization laboratory regardless of COVID-19 status. A major challenge is the myocarditis-like syndromes with COVID-19 mimicking STEMI, who may not have the same benign consequences when given unnecessary fibrinolytic therapy. These complications can be avoided with Primary PCI strategy. Although the risk of exposure and transmission to the health care team is greater with Primary PCI, the proper use of PPE can take care of that.

5. Conclusion

During the COVID-19 pandemic, primary PCI remains the standard of care for STEMI patients at PCI capable hospitals when it can be provided in a timely fashion, with an expert team outfitted with PPE in a dedicated cardiac catheterization lab. Patient should be assumed to be COVID 19 positive. All the treatment should be

(a)



(b)



Fig. 1. Showing atherosclerotic occlusion of LAD (a) and RCA (b) before and after revascularization.

carried out with smaller team with proper PPE kits for every member of the team.

Source of funding

None.

Conflict of interest

None.

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