

STEMI in COVID-19 patients: thrombolysis-first approach could yield more risk than benefit

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This commentary refers to ‘Experiences and lesson strategies for cardiology from the COVID-19 outbreak in Wuhan, China, by ‘on the scene’ cardiologists’, by L. Zhang et al., 2020;41:1788–1790.

The coronavirus disease-19 (COVID-19) pandemic has altered the focus of everyday practice, literally transforming many departments into COVID-19 clinics. It was soon realized that COVID-19 patients may well present with myocardial injury attributed to a plethora of pathophysiological substrates. While myocarditis and type II myocardial infarction (supply–demand imbalance) are undoubtedly involved in the differential diagnosis, cardiologists should not overlook the ‘traditional’ cardiovascular emergencies. However, as per the imminent threat of this highly contagious disease, soon the ‘logistics’ of patient (and staff) management of patients suspected to have COVID-19 in the context of acute cardiovascular care became a point of argument.

We read with great interest the report by Zhang, et al.,¹ in which the authors present their initial real-life experience from a clinic that managed a significant load of COVID-19 patients. Indeed, Zhang et al.¹ conclude (and provide a corresponding algorithm) that primary percutaneous intervention (PCI) should be deferred and, for patients with ST-elevation myocardial infarction (STEMI) with pain onset of less than 12 h, fibrinolysis should be selected (if >12 h, the authors practically followed current recommendations).

On the other hand, major society documents are currently available in the field. First, the joint statement from the ACC Interventional Council and SCAI provided a lower level indication for first-thrombolytic approach in STEMI patients (‘can be considered’).² In the same line, an article from the SCAI Emerging Leader Mentorship Members and Graduates reserves a thrombolysis-first approach for STEMI patients with severe pneumonia.³ Most recently, a consensus statement from the ACC, SCAI, and ACEP underlined that the primary PCI approach should not be interchanged for the thrombolysis-first approach in definite STEMI patients regardless of (potential) COVID-19 diagnosis.⁴ Finally, the ‘ESC Guidance for the Diagnosis and Management of CV Disease during the COVID-19

Pandemic’ stresses that timely reperfusion as per current guidelines should remain the priority; thereby decisions should be made (primary PCI or thrombolysis) taking into account the potential extra delays in target times.⁵

While primary PCI deferral in COVID-19 patients could seem a tempting strategy in view of ‘logistics’ and the safety of healthcare providers, there are a series of drawbacks. First, thrombolysis for STEMI-mimickers would pose an excessive risk in these patients without any accompanying benefits. Secondly, the not negligible percentage of failed thrombolysis would drive patients to the catheterization laboratory; therefore, any ‘logistic’ benefits with a view to avoiding in-hospital contamination would melt away. Indeed, the recent consensus suggests that high-grade non-culprit lesions should be treated in the index procedure.⁴

Taking all the above into account, the risk–benefit balance of the thrombolysis-first approach should not be recommended. Keeping in mind the Hippocratic principles ‘first, do no harm’ (‘ὠφέλειον, ἢ μὴ βλάπτειν’ in ancient Greek), we believe that coronary angiography should remain the cornerstone of the diagnostic strategy of STEMI patients even in the context of COVID-19.

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