Acute myocardial infarction in the Covid-19 era: incidence, clinical characteristics and in-hospital outcomes – a multicenter registry

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Background: A reduction in acute myocardial infarction (AMI) hospitalizations during the coronavirus pandemic has been previously documented. We aimed to describe the characteristics and in-hospital outcomes of AMI patients during the Covid-19 era compared to a recent previous registry.

Methods: We conducted a prospective, multicenter, observational study involving 13 intensive cardiac care units (ICCUs) to evaluate consecutive AMI patients admitted throughout an 8-week period during the Covid-19 outbreak. Data were compared to the corresponding period in 2018 using an acute coronary syndrome survey conducted in all ICCUs in Israel. The primary end-point was defined as a composite of sustained ventricular arrhythmia, pulmonary congestion, and/or in-hospital mortality.

Results: The study cohort comprised 1466 patients, of whom 774 (53%) were hospitalized during the Covid-19 outbreak. Overall, 841 patients were diagnosed with ST-elevation MI (STEMI): 424 (50.4%) during the Covid-19 era and 417 (49.6%) during the parallel period in 2018. No differences were detected in the admission rate of patients between the two study periods. STEMI patients admitted during the Covid-19 period tended to have fewer co-morbidities, but a higher Killip class (p value = 0.03). The median time from symptom onset to reperfusion was extended from 180 minutes (IQR 122–292) in 2018 to 290 minutes (IQR 161–1080, $p<0.001$) in 2020. Hospitalization during the Covid-19 era was independently associated with an increased risk of the combined endpoint of heart failure, malignant arrhythmia, or death in the multivariable logistic regression model (OR 1.63, 95% CI 1.02–2.65, p value = 0.05).

Conclusion: While the admission rate of AMI and STEMI in Israel remained similar during both the Covid-19 era and the corresponding period in 2018, total ischemic time extended significantly during the Covid-19 period, which translated into a more severe disease status upon hospital admission, and a higher rate of in-hospital adverse events.