



## EDITORIAL COMMENT

## ST-elevation myocardial infarction in the Covid-19 pandemic: A step backward in a success story



### STEMI na pandemia de Covid-19: um passo para trás numa história de sucesso

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The Covid-19 pandemic dramatically changed medical practice on a global scale during 2020. In this new clinical environment, several studies aiming to assess changes in ST-elevation myocardial infarction (STEMI) volumes, time between onset of symptoms and reperfusion therapy, door to balloon time, and in-hospital events, were performed around the world, comparing the pre-Covid-19 and the Covid-19 periods.

In September 2020, Xiang et al. published a paper in the *Journal of the American College of Cardiology* on the management and outcomes of patients with STEMI during the Covid-19 pandemic in China.<sup>1</sup> Based on data on 28 189 STEMI patients admitted to 1372 chest pain centers in China between December 2019 and February 2020, the study analyzed how the Covid-19 outbreak and modified STEMI protocols in Chinese chest pain centers influenced the number of STEMI cases admitted, reperfusion strategy, key treatment time points, and in-hospital mortality and heart failure in STEMI patients. The authors concluded that there were reductions in STEMI patients' access to care, delays in treat-

ment timelines, changes in reperfusion strategies, and an increase in in-hospital mortality and heart failure during the Covid-19 pandemic in China.

Daoulah et al. published a paper<sup>2</sup> in 2021 on STEMI and the Covid-19 pandemic in Saudi Arabia in which 1785 patients were enrolled in a retrospective study. The authors found that in 2020 total STEMI volumes were reduced by 28% and door to balloon time <90 minutes was achieved in 73.1%. Symptom onset to balloon time of more than 12 hours was more frequent during 2020 compared to pre-Covid-19 years (17.2% vs. <3%, respectively). However, there were no differences between the Covid-19 and pre-Covid-19 periods with respect to in-hospital events or length of hospital stay.

In May 2020, Pessoa-Amorim et al. published a survey on behalf of the European Society of Cardiology on the admission of patients with STEMI since the outbreak of the Covid-19 pandemic.<sup>3</sup> The aim was to survey health professionals' views of the impact of the pandemic on the rate and timing of admission of patients with STEMI through an online questionnaire for cardiologists and cardiovascular nurses. A total of 3101 responses were received from 141 countries across six continents, with 88.3% responding that their country was in total lockdown and 7.1% in partial

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lockdown; 78.8% responded that the number of patients presenting with STEMI had decreased since the coronavirus outbreak and 65.2% indicated that the reduction in STEMI presentations was over 40%. Approximately 60% of all respondents reported that STEMI patients presented later than usual and 58.5% that more than 40% of STEMI patients admitted to hospital presented beyond the optimal window for primary percutaneous coronary intervention (PPCI) or thrombolysis.

In July 2020, Garcia et al.<sup>4</sup> published data collected from 18 hospitals or healthcare systems in the US. Two periods, January 2019-February 2020 and March-April 2020, were defined to represent periods before (BC) and after (AC) initiation of pandemic mitigation measures, respectively. Compared to BC, the AC period was characterized by a marked reduction in the number of activations for STEMI (29%), number of activations leading to angiography (34%) and number of activations leading to PPCI (20%). A decline in STEMI activations drove the reductions in angiography and PPCI volumes. Relative to BC, door to balloon times in the AC period increased on average by 2 0%.

In this issue of the *Journal*, Oliveira et al.<sup>5</sup> present the results of a multicenter retrospective analysis of trends in STEMI during the Covid-19 pandemic in Portugal, using data from two cardiovascular intervention centers. The objective was to assess the impact of the pandemic on admissions for STEMI during the first pandemic wave. Patients' clinical data and hospital outcomes were compared in two periods between the years 2017 to 2019 and 2020. During 2020, in comparison with previous years, a reduction in the number of STEMI patients was observed (26.0 vs. 16.5), as well as an increase in the number of mechanical complications (0.0% vs. 3.0%). Mortality was also higher during the Covid-19 period than in previous years (1.9% vs. 12.1%).

Taking together the information from multicenter studies published in different continents, we can conclude that during the first Covid-19 wave, there were fewer

patients presenting with STEMI at catheterization laboratories, timely access to the cardiac catheterization laboratory for PPCI decreased, door to balloon time increased, and cardiac mortality and mechanical complications probably also increased.

This is important information, as it is clear that the pandemic is not over. It should be borne in mind that the results described above may evolve, and for this reason health policies should take them into consideration, in order to avoid further increases in cardiovascular morbidity and mortality in the future.

## Conflicts of interest

The author has no conflicts of interest to declare.

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