



## EDITORIAL COMMENT

## Myocardial infarction in the COVID-19 pandemic – Reperfusion therapy revisited



### Enfarte do miocárdio na pandemia Covid 19 – O paradigma da terapêutica de reperfusão revisitado

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The coronavirus disease 2019 (COVID-19) pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been placing enormous pressure on the whole of society and in particular on healthcare systems.<sup>1</sup>

Immediately after the implosion of the first wave of the pandemic, a large number of health resources were allocated to the treatment of the SARS-CoV-2 infection, limiting the access by patients with other diseases to proper diagnosis and treatment. A significant number of elective clinical, diagnostic and therapeutic procedures were canceled, generating the feeling that if it was not COVID-19 it could be deferred. This sensation was amplified by the numerous projects and campaigns emphasizing the need to stay at home.

As a consequence of these measures, the number of patients with non-COVID diseases decreased significantly in healthcare services, including patients presenting with acute myocardial infarction (AMI). In fact, numerous reports confirmed the reduction in patients admitted for acute coronary syndromes (ACS) worldwide, as well as an increase in late presentations with dramatic consequences on clinical outcomes.<sup>2–4</sup> The outbreak of COVID-19 may even be asso-

ciated with an increase in the incidence of AMI, similar to what occurs with infection by the influenza virus.<sup>5</sup>

In this issue of the *Journal*, Freitas et al., from Coimbra, report the effect of COVID-19 pandemic on admissions, clinical characteristics and outcomes in patients with ST-segment elevation AMI (STEMI) occurring between March and April 2020, the period between the first SARS-CoV-2 case diagnosed in Portugal and the end of the first state of emergency.<sup>6</sup> The authors report a non-significant 11% relative decrease in admissions for STEMI, in comparison with the same period of 2019. However, the proportion of patients transported to the hospital by pre-hospital emergency medical services decreased sharply, by half. They also report a significant increase in both patient delay and system delay. These results are in line with the aforementioned previous reports and highlight the impact of the pandemic on the interaction between patients and the healthcare system. On the one hand, the devaluation of non-COVID-19 diseases and patient fear of contracting the disease in hospital and, on the other hand, the inability of health services to respond to the increased demand as a result of SARS-CoV-2 infections. Notwithstanding this, the management network for the treatment of AMI remained active in Portugal, including the pre-hospital referral network, the Portuguese AMI referral network (Via Verde Coronária), and the availability of primary percutaneous coronary interven-

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tion (PCI)-capable centers to deliver a 24/7 service. Indeed, shortly after the start of the pandemic, the Portuguese Society of Cardiology issued recommendations for continue access for heart disease patients to healthcare services; the Portuguese Association of Cardiovascular Intervention was one of the first specialized associations to develop recommendations for primary PCI the world over.<sup>7</sup>

During the pandemic, the authors reported increased STEMI severity at admission with a greater number of patients in Killip-Kimball classes III and IV, which had an impact on the increased use of vasoactive support and mechanical ventilation. However, the most significant result was the doubling of the figure for in-hospital mortality. It should be noted that demographic characteristics and comorbidities were similar in the 2019 and 2020 cohorts. In 2020, more patients were discharged with severe left ventricular dysfunction. These results underscore the tremendous impact of time to reperfusion in STEMI on clinical outcomes and lead us naturally to revisit reperfusion, defined by complete, early and sustained coronary artery patency, preserved systolic function and improved survival.<sup>8</sup>

Diagnosis and treatment of heart diseases cannot be delayed even in a pandemic. Patients and the general population must be informed of this and healthcare systems should provide early and safe access to appropriate services. This is the case of timely access to primary PCI, the best reperfusion strategy for STEMI. In the present study, the authors noted an increase in the use of fibrinolytic therapy which cannot be encouraged due to possible limitations in the access to a PCI-capable hospital.

### Conflicts of interest

The author has no conflicts of interest to declare.

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