

Letters to the Editor

Reply to Čulić et al—COVID-19 Pandemic and Possible Rebound Phenomenon in Incidence of Acute Myocardial Infarction



To the Editor:

We agree with Čulić et al¹ regarding to the fact that the observed ST-segment elevation myocardial infarction (STEMI) hospitalisation rebound phenomenon is not entirely unexpected. Nonetheless, our report² is indeed the first description of this worrisome trend. Israel saw its first confirmed COVID-19 patient on February 21. The first documented in-state transmission of the virus subsequently occurred on February 22. New government regulations calling for social distancing; limiting gatherings; and restrictions on public transportation, schools, universities, and businesses were announced on March 10. Subsequently, on March 14, the Israeli government declared its plan for extending the quarantine to all nonessential workers, effectively bringing the country to a social and financial halt. Between March 14 and April 18, citizens were restricted to a 500-meter radius from their home. All outdoor physical activity was prohibited. Beginning on April 12, mask wearing became mandatory with the exception of children < 6 years of age. From April 19 to May 4, the Israeli government began to alleviate its restrictions, mainly in the area of limitation on free movement, reopening of street stores, and expanding the staff present in the workplace in private-sector firms. On May 3, schools reopened, and then on May 4 most imposed restrictions were lifted.³

Although the explication of underlying mechanisms for the rebound increase in STEMI hospitalisations remains obscure, several considerations may be proposed. Čulić and colleagues¹ hypothesised that the pandemic itself as well as anti-pandemic measures adversely affected healthy lifestyle and cardiovascular risk profile during the nationwide lockdown. They mentioned that social isolation, movement restriction, financial uncertainty, and fear of contracting the virus acted as fertile ground for unwholesome behaviours such as smoking binges, poor sleep hygiene, dietary indiscretion, sedentary lifestyle, and emotional frailty. However, a rebound increase in STEMI hospitalisations was detected as early as the second half of April, approximately 8 weeks from the first detected COVID-19 case in Israel and 6 weeks since the social restrictions were announced. It remains unclear whether this time frame is long enough to establish a substantial change in cardiovascular risk factors and subsequently affect an atherosclerotic plaque. In contrast to these long-term exposures, the role of vigorous

physical activity and emotional upset as precipitating external triggers for acute myocardial infarction has been described previously.⁴ Unsurprisingly, relief of movement restrictions has permitted renewal of physical activities after a period of sedentary lifestyle. In addition, anti-pandemic actions, personal and global economic instability, and changes in the social infrastructure resulted in increased levels of psychological stress, anger, and emotional upset. We hypothesise that these triggers could, at least partially, explain a surge of STEMI correlating with both resolution of the first wave of the COVID-19 pandemic and the lift of shelter-in-place restrictions.

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Funding Sources

The authors have no funding sources to declare.

Disclosures

The authors have no conflicts of interest to disclose.

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