

Editorial



The Impact of COVID-19 Pandemic on Acute Myocardial Infarction Outcomes: A Call for Preparedness for a New Pandemic

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The historical record reveals a number of global pandemics, including the Justinian Plague (541–542), the Black Death (1346–1353), and the Spanish flu (1918–1920). In more recent times, the human immunodeficiency virus/acquired immunodeficiency syndrome and severe acute respiratory syndrome pandemics have also had a significant global impact.¹⁾ The ongoing pandemic of coronavirus disease 2019 (COVID-19) represents a new and particularly challenging phenomenon in this regard, with a substantial global economic burden and a profound impact on global healthcare system. As reported by the International Monetary Fund, the global economic burden of the COVID-19 reached approximately 4.4% in 2020.²⁾ In addition to its effects on the respiratory system, the COVID-19 has been linked to an increased risk of mortality from acute myocardial infarction (AMI).³⁾ Furthermore, the vaccine developed to combat the virus has been associated with an elevated incidence of myocarditis.⁴⁾ The surge in infections associated with the pandemic has resulted in considerable disruption to healthcare services. Medical services of a less urgent nature were either cancelled or postponed. The surge in cases and hospitalizations due to the pandemic, coupled with the need for intensive care management, placed significant strain on healthcare personnel and resources, leading to a reduction in the number of non-COVID-19 patients and, consequently, lower revenues for hospitals.

One crucial area that has recently attracted increased interest is the management and outcomes of AMI in the early stages of the pandemic. A recent study that employed the National Inpatient Sample database has provided vital insights into how the pandemic has affected AMI trends and outcomes.⁵⁾ By analyzing the present situation accurately to identify problems and find solutions, we can be better prepared for the next pandemic. Consequently, this study should be considered to be highly significant.

Thyagaturu et al.⁵⁾ reported a concerning reduction in the incidence of AMI hospitalizations during the 2020 period in comparison to the 2019 period. Specifically, in 2019, there were 209,450 ST-elevation myocardial infarctions (STEMIs) and 677,355 non-ST-elevation myocardial infarctions (NSTEMIs), compared to 196,230 STEMIs and 626,445 NSTEMIs in 2020. This reduction in hospitalizations was likely attributable to a number of factors, including patients' apprehension about contracting COVID-19 in the hospital, which has resulted in delays in treatment or avoidance of healthcare facilities altogether. The study

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also revealed that patients diagnosed with AMI in 2020 exhibited a higher likelihood of in-hospital mortality (adjusted odds ratio, 1.27; 95% confidence interval, 1.23–1.32; $p < 0.01$). This significant surge illustrates the deleterious impact of the pandemic on the management of potentially life-threatening cardiovascular diseases. Several potential explanations for this trend have been proposed, including delayed hospital visits, an overburdened healthcare system, and the potential impact of the COVID-19 pandemic on cardiovascular health.

Moreover, the data indicated a notable decline in the utilization of essential revascularization procedures during the pandemic. The likelihood of undergoing coronary angiography, percutaneous coronary intervention, and coronary artery bypass grafting was significantly diminished in 2020 in comparison to 2019. These declines give rise to significant concerns regarding the accessibility and prioritization of life-saving interventions during a public health crisis. In light of these considerations, it becomes imperative to prioritize between the treatment of infectious diseases and the implementation of life-saving interventions.

The significant decline in AMI hospitalizations, combined with higher in-hospital mortality and reduced use of revascularization procedures, highlights the need for robust preparedness plans. Future strategies should ensure that critical cardiovascular care is not compromised, even during overwhelming health crises. Healthcare systems must prioritize maintaining essential services for managing life-threatening conditions like AMI during pandemics. This includes ensuring adequate resources, staffing, and protocols to manage both pandemic-related cases and critical non-communicable diseases simultaneously. Further research is essential to identify the underlying causes of increased mortality and to develop targeted interventions that can mitigate these risks in future health emergencies.

In conclusion, the initial phase of the severe acute respiratory syndrome coronavirus 2 pandemic presented considerable challenges for the management of AMI, resulting in elevated mortality rates and a reduction in the utilization of critical revascularization procedures. This study can provide insight regarding the importance of strengthening the resilience and preparedness of healthcare systems to prevent similar disruptions in the future. It is imperative that more effective plans should be developed for the protection of vulnerable populations and the improvement of outcomes for life-threatening conditions in the event of any future pandemics.

REFERENCES

1. Daszak P. Anatomy of a pandemic. *Lancet* 2012;380:1883-4. [PUBMED](#) | [CROSSREF](#)
2. Naseer S, Khalid S, Parveen S, Abbass K, Song H, Achim MV. COVID-19 outbreak: Impact on global economy. *Front Public Health* 2023;10:1009393. [PUBMED](#) | [CROSSREF](#)
3. Thyagaturu H, Roma N, Angirekula A, et al. Trends and outcomes of type 2 myocardial infarction during the COVID-19 pandemic in the United States. *Korean Circ J* 2023;53:829-39. [PUBMED](#) | [CROSSREF](#)
4. Park JH, Kim KH. COVID-19 vaccination-related myocarditis: what we learned from our experience and what we need to do in the future. *Korean Circ J* 2024;54:295-310. [PUBMED](#) | [CROSSREF](#)
5. Thyagaturu H, Sandhyavenu H, Titus A, et al. Trends and outcomes of acute myocardial infarction during the early COVID-19 pandemic in the United States: A National Inpatient Sample study. *Korean Circ J* 2024;54:710-23. [CROSSREF](#)