

COVID-19

Reduced hospital admissions for ACS — more collateral damage from COVID-19

“Stay-at-home mandates and fear of catching the virus in the hospital setting are likely to have discouraged access to emergency medical services in COVID-19 hotspots”

During the peak of the coronavirus disease 2019 (COVID-19) pandemic, numerous hospitals across Italy and the USA reported a reduction in admissions for acute coronary syndrome (ACS), which correlates with higher case fatality and complication rates, as well as a decline in cardiac catheterization laboratory ST-segment elevation myocardial infarction (STEMI) activations. These findings, taken from a large observational survey and two smaller retrospective analyses, highlight the importance of identifying and addressing the reasons underlying this decline to avoid preventable deaths.

Ciro Indolfi and colleagues conducted a nationwide survey to investigate consecutive patients with acute myocardial infarction (AMI) admitted to intensive care units in the week of 12–19 March 2020 at the peak of the COVID-19 outbreak in Italy. The total number of patients hospitalized with AMI during the week in 2020 was 48.4% lower than in the equivalent week in 2019 (319 versus 618; $P < 0.001$). This decline occurred for both STEMI (26.5%) and non-STEMI (65.4%) admissions. Within the STEMI subgroup, the

decrease in registered cases was higher among women than men (41.2% versus 17.8%). Furthermore, the STEMI case fatality rate during the COVID-19 outbreak increased to 13.7% compared with 4.1% in 2019 (risk ratio (RR) 3.3, 95% CI 1.7–6.6, $P < 0.001$). The fatality rate during the pandemic remained significantly higher than in 2019 even after excluding patients with SARS-CoV-2 infection. The rate of major complications, such as life-threatening arrhythmias, also increased to 18.8% from 10.4% in 2019.

“Cardiology went back 20 years during the COVID-19 period,” remarks Indolfi. “Both patient-related and system-related declared delays were substantially increased during the outbreak.” The time from symptom onset to coronary angiography was prolonged by 39.2% in 2020 compared with the same week in the previous year, whereas time from first medical contact to coronary revascularization was prolonged by 31.5%. In addition to the decline in patients admitted for AMI, the survey investigators also reported significant reductions in hospital admissions for heart failure (46.8%) and atrial fibrillation (53.4%) registered during the week in March 2020 compared with the equivalent week in 2019.

A separate retrospective analysis of consecutive patients admitted for ACS across 15 hospitals in northern Italy has also reported similar findings. The mean hospital admission rate for ACS during the study period (20 February to 31 March 2020) was 13.3 per day, which was significantly lower than the rate during the equivalent period in 2019 (18.9 per day, incidence RR 0.70, 95% CI 0.63–0.78, $P < 0.001$).

Finally, an analysis of nine high-volume cardiac catheterization

laboratories in the USA showed an estimated 38% reduction in the monthly rate of STEMI activations during the early phase of the pandemic (1–31 March 2020) compared with the control study period before social life and medical operations were restricted (1 January 2019 to 29 February 2020). All the centres combined had a mean of 23.6 activations per month in the period before the restrictions were implemented, compared with a mean of 15.3 activations per month in the period thereafter.

Numerous hypotheses have been proposed to explain this reduction in ACS hospital admissions and STEMI activations during the pandemic. Stay-at-home mandates and fear of catching the virus in the hospital setting are likely to have discouraged access to emergency medical services in COVID-19 hotspots. Furthermore, the relocation of health-care resources to prioritize patients with COVID-19 might have contributed to deferred treatment of less urgent cases of STEMI.

“The lesson that Italy has learned from this pandemic is that we must be prepared,” urges Indolfi. “Italian politicians should rethink the linear cuts made in recent years to public health, as well as the reduction in the number of doctors, beds and resources, to maintain the quality of medical services in all Italian regions.”

Karina Huynh

ORIGINAL ARTICLES De Rosa, S. et al. Reduction of hospitalizations for myocardial infarction in Italy in the COVID-19 era. *Eur. Heart J.* **41**, 2083–2088 (2020) | De Filippo, O. et al. Reduced rate of hospital admissions for ACS during Covid-19 outbreak in northern Italy. *N. Engl. J. Med.* <https://doi.org/10.1056/NEJMc2009166> (2020) | Garcia, S. et al. Reduction in ST-segment elevation cardiac catheterization laboratory activations in the United States during COVID-19 pandemic. *J. Am. Coll. Cardiol.* **75**, 2871–2872 (2020)



Credit: SCIENCE PHOTO LIBRARY/Getty