

CORONARY ARTERY DISEASE

Letter to the Editor

Trends in cardiovascular procedural volumes in the setting of COVID-19: Insights from the VA clinical assessment, reporting, and tracking program

To the Editor:

COVID-19 has resulted in significant changes in healthcare delivery throughout the world. To focus healthcare resources, organizations initially deferred non-urgent procedures under guidance from government organizations.¹ Cardiovascular professional societies endorsed these recommendations, with a consensus document reiterating the importance of avoiding elective coronary procedures for stable ischemic heart disease.² Patients with urgent or emergent cardiovascular conditions, such as acute coronary syndromes, were supposed to continue under standard practices. Preliminary reports have suggested that elective coronary procedures declined in line with these recommendations, with a similar unexpected decline in urgent procedures during the early phases of the pandemic.³ The trends in cases after healthcare facilities began to reopen for elective procedures have not yet been evaluated. With this in mind, we sought to evaluate the temporal changes in procedural volumes for percutaneous coronary intervention (PCI) since the onset of COVID-19 in the largest integrated healthcare system in the United States.

To do so, we identified all patients that underwent PCI in the VA Healthcare System from March 1, 2020 to June 27, 2020, with a comparison to the same period in the prior year (March 3, 2019 to June 29, 2019) using data from the VA Clinical Assessment, Reporting and Tracking (CART) Program. The number of facilities providing percutaneous revascularization was the same across the entire study period. Procedural volumes were compared between the same weeks in 2019 and 2020 by evaluating the proportion of cases that were performed each year from the total number of cases with the null hypothesis assuming that they would be equal. Using Bonferroni methods to adjust for multiple comparisons, a p value $< .0014$ was considered statistically significant.

Coronary intervention was performed in 3,859 patients during the time period under investigation in 2019 and 2,192 patients in 2020. The temporal trends in elective coronary intervention are demonstrated in Figure 1a. As shown, the weekly volume of elective coronary intervention was significantly lower ($p < .001$) than same values reported 1 year prior (2019) after the third week of investigation, corresponding to March 16, 2020, and persisted through June after many facilities had reinitiated normal operating procedures. The temporal trends in urgent or emergent coronary intervention for acute

coronary syndromes are demonstrated in Figure 1b. As shown, the weekly volume of coronary intervention was significantly lower ($p < .001$) than same values reported 1 year prior (2019) after the third week of investigation, before increasing to similar levels at week 8, corresponding to April 20, 2020.

The data demonstrate a decline in elective and urgent coronary interventions in a national healthcare system after the spread of COVID-19. The observed decrease in elective cases during the initial stages of the pandemic is consistent with professional society recommendations, wherein non-urgent procedures were deferred to reduce the utilization of healthcare resources.^{1,2} The persistent decrease in elective cases after many facilities began to return to normal operations may reflect non-urgent patients that continue to avoid visiting healthcare facilities to reduce their infectious risk.⁴ Urgent or emergent interventions for patients with acute coronary syndromes also transiently declined in the initial stages of the pandemic, consistent with prior reports demonstrating a decrease in catheterization laboratory activations for STEMI.³ After the eighth week of the crisis, though, the number of urgent or emergent cases for acute coronary syndromes returned to levels more consistent with historical norms. Interestingly, there was not a significant rebound of cases for acute coronary syndromes after the transient decline witnessed in the early stages of the pandemic. The long-term ramifications of this transient decline for the overall cardiovascular health of the population remains unknown. However, data demonstrating restoration of procedural volumes is encouraging in light of other studies demonstrating a decline in hospital admissions for acute indications.⁵ Regardless, ensuring that patients with acute coronary syndromes continue to have access to urgent or emergent revascularization is imperative, as we continue to grapple with the persistent effects of COVID-19.

The present analysis should be interpreted in the context of several limitations. Data was derived from clinical documentation for care provided within the VA Healthcare System. Care provided to Veterans outside the integrated healthcare system was not incorporated into this analysis, given the significant time required for outside facilities to report clinical data back to the VA. The data presented are from a unique nationally integrated healthcare system with predominantly male patients, which may not reflect the heterogeneous patterns of care in the community.

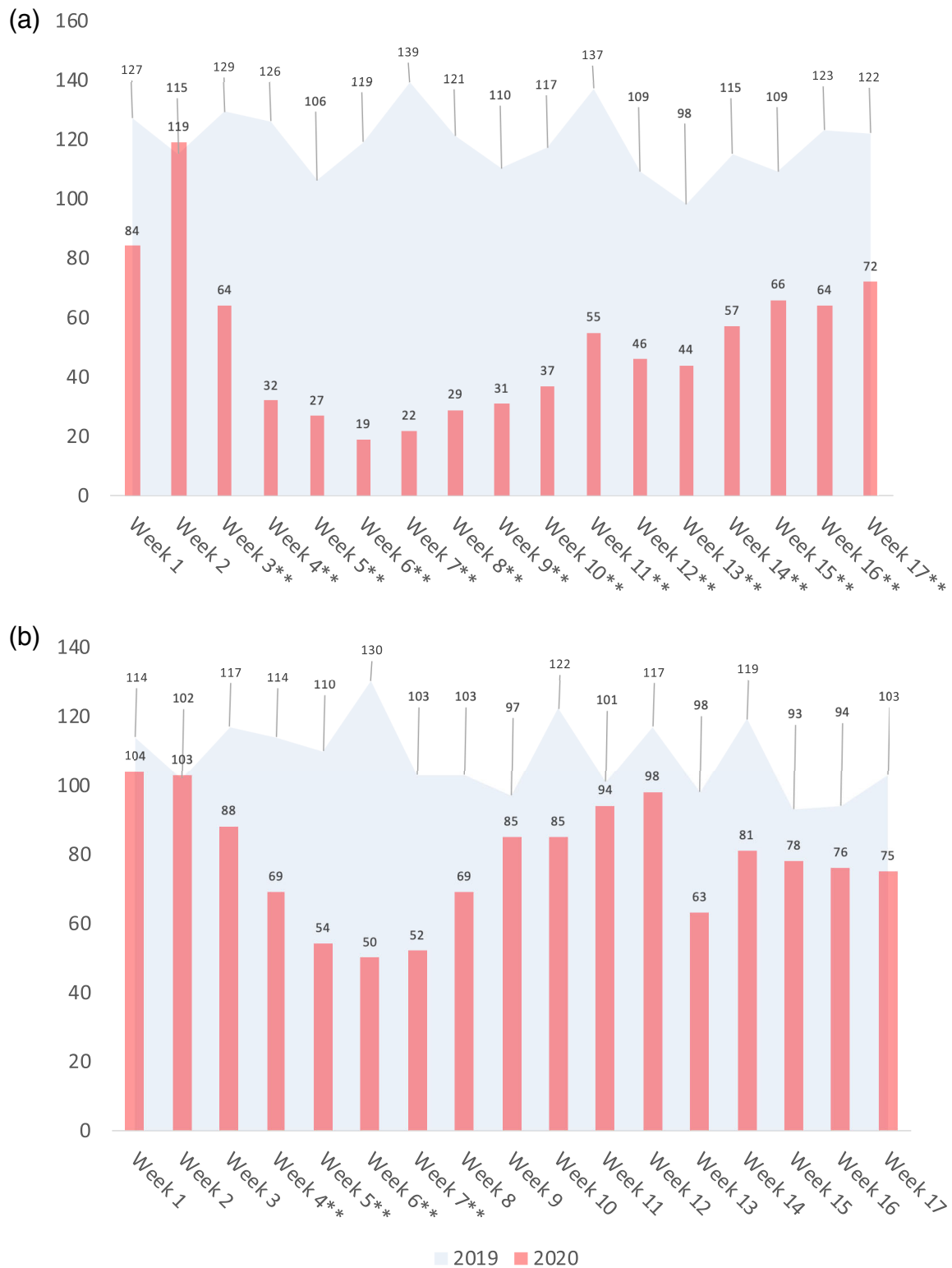


FIGURE 1 (a) Percutaneous coronary intervention volumes in elective and (b) urgent cases for acute coronary syndromes over time. In both panels, ** next to the x-axis suggests a statistically significant difference in case volume between the same weeks in 2019 and 2020

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CONFLICT OF INTEREST

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