Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Massachusetts ranks third in total number of COVID-19 cases and fourth in total number of COVID-19 deaths in the United States. (https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html) To determine if there has been a decrease in STEMI volume during the COVID-19 timespan (Figure 1a), we analyzed our January through April 2020 STEMI volume in comparison to January through April 2018 and 2019 (Figure 1b). We also analyzed STEMI volume for March 15 through April 15, 2018 and 19 in comparison to 2020 (Figure 1c). Baystate Medical Center is a tertiary hospital located in Western Massachusetts serving more than 10 referral hospitals with >350 STEMI cases per year. The STEMI volume includes patients presenting to Baystate Medical Center and transfers from referral centers.

Our preliminary analysis during the early phase of the pandemic demonstrates no significant reduction in STEMI volume during the COVID-19 pandemic. One difference between Garcia et al.[1] and our findings is the fact that we evaluated STEMI volume rather than STEMI activations. STEMI activations during the COVID-19 pandemic could be reduced due to the fact that emergency department personnel, due to concerns for infection, may consult interventional cardiology directly rather than activate the cardiac catheterization laboratory in order to limit exposure and decrease false activation.

In conclusion, in a high-volume STEMI center in the Commonwealth of Massachusetts, with high volumes of reported COVID-19 cases, there was no significant change in STEMI volume during the COVID-19 timespan.

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No Reduction of ST-segment Elevation Myocardial Infarction Admission in Taiwan During Coronavirus Pandemic

Recently, a significant reduction in ST-elevation myocardial infarction (STEMI) admission was reported from the United States and Europe where the coronavirus disease (COVID-19) caused a public health crisis.[1,2] The door-to-device time of primary percutaneous coronary intervention (PPCI) was also delayed.[3] The COVID-19 pandemic has a much less impact in Taiwan because early actions to prevent community outbreak were taken from January 2020 when mystery pneumonia in Wuhan, China was found.[4] As to May 2020, there were only 443 confirmed cases in 23 million population in Taiwan and most patients were imported cases from February to April, 2020. The public health response in Taiwan became a role model to flatten the infection curve of COVID-19.

We conducted a multicenter, observational, nationwide survey to collect data of STEMI cases from February 1 to April 30, 2020 (COVID-19 pandemic period) and compared the data with the same period in 2019. The following data were collected: (1) the number of patients admitted for STEMI, (2) symptom onset-to-door time, (3) door-to-device time of PPCI, and (4) use of fibrinolytic therapy. Symptom onset-to-door time is defined as the time between first patient- or family-reported symptom onset and patients' arrival at the hospitals. Door-to-device time is defined as the time between patients' arrival at the hospitals and successful wire crossing or balloon inflation during PPCI. Data were presented with mean ± standard deviation for average case number or medians and interquartile ranges for times. Comparisons were performed by paired Student *t* test for case number and Wilcoxon rank sum test for times. Overall, 42 major hospitals with 24-hour primary PCI service participated the survey and 40 (95.2%) provided the data for analysis. Compared with February to April, 2019 (n = 1,092), there was no significant reduction of admission for STEMI in 2020 (n = 1,038) with COVID-19 pandemic (average case number per hospital, 27.3 ± 18.4 vs 26.0 ± 16.7, p = 0.27). The door-to-device time was similar between 2019 and 2020, but there was a significant increase of symptom onset-to-door time in 2020 (142 [75 to 338] vs 180 [84 to 460] min, p <0.01; Table 1). In 2020 with COVID-19 pandemic, none of the hospitals used fibrinolytic therapy and 9 out of 40 (22.5%) hospitals had experiences of wearing personal protective equipment to perform PCI for suspected cases with COVID-19.

In Taiwan, adequate public health strategy diminished the impact of COVID-19 pandemic on healthcare system. There was no significant influence on admission and care quality of STEMI. Registry data in Taiwan showed the median door-to-device time was 96 minutes in 2010 and 71 minutes in 2015.[5] The time was continuously decreased to 66 minutes in 2020 even in the COVID-19 pandemic. However, there was a significant delay of seeking medical help. The symptom onset-to-door time increased by 27% in 2020 compared with the equivalent months in 2019. There were no in-hospital transmission and healthcare personnel infection of COVID-19 in Taiwan. It is likely that the impression of virus spread from hospitalized patients with COVID-19 made patients reluctant to go to hospitals and delay in seeking care. In Italy, a similar reduction of STEMI admission was found in central and south parts

Table 1
The case number and primary PCI for STEMI before and after COVID-19 outbreak in Taiwan

	2019 (Feb to Apr) (n = 1,092)	2020 (Feb to Apr) (n = 1,038)	p value
STEMI case number/hospital	27.3 ± 18.4	26.0 ± 16.7	0.27
Symptom onset-to-door time (min)	142 (75-338)	180 (84-460)	<0.01
Door-to-device time (min)	65 (50-81)	66 (52-81)	0.20

COVID-19 = coronavirus disease 2019; PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.

where there were less cases of COVID-19 compared with the most affected north part.[1] The risk of mortality and complications of STEMI also increased significantly.[1] Further study is needed to evaluate whether delay in treatment also cause worse prognosis of STEMI in Taiwan. In conclusion, although there was no reduction of STEMI admission in Taiwan, a significant delay for medical help was found during the COVID-19 pandemic. Further actions are necessary to avoid the negative impact of COVID-19 pandemic on care of STEMI.

Disclosures

The authors have no conflicts of interest to disclose.

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Do We Need a Modified HEART Score to Risk Stratify Chest Pain Patients in the Emergency Department?

To the Editor:—At present, History, Electrocardiogram, Age, Risk factors, and Troponin (HEART) is one of the most common scoring systems to risk stratify undifferentiated chest pain patients at Emergency Department (ED).[1] Low risk HEART scores (0-3) predict very low short-term major adverse cardiac event. We, as ED physicians, are particularly interested in recognizing the value of better directing low risk chest pain patients for their safety to discharge from ED. If patients deem to be "high" risks, such patients might need to be placed to hospital for further evaluations. However, using current HEART score might result in higher unnecessary hospital admissions among certain ED patient populations. One of the reasons is their broad definition of "high risk" items. For example, an elderly (≥65) patient with a history of previous myocardial infarction or cardiac atherosclerotic disease will have a HEART score of at least 4, regardless of his(her) clinical presentations, EKG findings, or troponin value.

We have been expecting the modifications of HEART scoring system to better differentiate "low risk" chest pain patients and avoid unnecessary hospital admissions. The findings in the paper by Roongsritong et al. seems to help answering this question.[2] Specifically, authors derived a novel SVEAT score, similar to the HEART score, with better "risk" definitions. Authors emphasize the differences between stable and unstable angina clinical presentations, the importance of recent cardiovascular events, and recognize the critical new/dynamic ischemic EKG changes, which are the usual thinking on the final patient disposition by ED physicians. More importantly, using SVEAT, a 28.6% of extra "low-risk" chest pain patients, in comparison to HEART score, can be recognized.

However, some of the authors' findings in this paper require further discussions. As mentioned in their limitation, the SVEAT scoring system is derived using clinical gestalt. With the help of statisticians, deriving a better scoring system does not seem to be challenge.[3] If each "risk" is not scored based on their weight to predict major adverse cardiac event outcomes, we are expecting higher misclassification rates. On the other hand, simply reporting c-statistics/area under the receiver operating characteristic curve is not enough for determining the accuracy of the diagnostic tool, though sensitivity, specificity, positive/negative predictive value, and likelihood ratio can be further calculated based on numbers listed in the paper. It is better to report, especially the likelihood ratios, since the readers can estimate the improved post-test probability of using SVEAT score for differentiating low-risk chest pain patients at ED.[4] The findings of this SVEAT score is promising and we expect to see the external validations of this scoring system in the future.

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Prognostic Value of Left Ventricular Global Longitudinal Strain in COVID-19

The novel severe acute respiratory syndrome coronavirus 2019 (COVID-