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to evaluate the concordance between vFFR-confirmed functional lesion significance and revascularization strategy as proposed by the heart team.

METHODS Consecutive patients from 6 institutions were screened for eligibility and 3-vessel vFFR was computed. Discordance between vFFR-confirmed lesion significance and revascularization was assessed. Rates of major adverse cardiac events, defined as cardiac death, myocardial infarction, and clinically driven revascularization were reported.

RESULTS Of a total of 1,003 patients screened for eligibility, 416 patients (age 65.6 ± 10.6 years, 71.2% male, 53% stable angina) were included. The most important reason for screening failure was insufficient quality of the angiogram (43%). Following heart team consensus, 72.8% of the patients underwent percutaneous coronary intervention, 20.7% coronary artery bypass grafting, and in 6.5% a conservative treatment was advocated. vFFR screening of the entire coronary tree indicated discordance between vFFR-confirmed lesion significance and revascularization in 124 of 416 patients (29.8%) corresponding to 149 vessels; 46 vessels (30.9%) were reclassified as significant whereas the remaining 103 vessels (69.1%) as nonsignificant by vFFR. Over a median of 962 days, the cumulative incidence of major adverse cardiac events was 29.7% vs. 18.5% in discordant vs. concordant patients (p = 0.031).

CONCLUSION vFFR computation is feasible in around 40% of the patients referred for heart team discussion, a limitation that is mostly based on insufficient quality of the angiogram. Three-vessel vFFR screening indicated discordance between vFFR-confirmed lesion significance and revascularization in 29.8% of the patients and has the potential to improve patient outcome.

CATEGORIES **IMAGING:** Physiologic Lesion Assessment

COVID-19 AND SOCIETAL ASPECTS OF INTERVENTIONAL CARDIOLOGY

Abstract nos: 211-227

TCT CONNECT-211

ST-Segment Elevation is Associated With Worse Outcomes in Patients Hospitalized With COVID-19: Large System-Wide Analysis of Clinical Characteristic and Outcomes

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BACKGROUND Coronavirus disease-2019 (COVID-19) infection-related myocardial injury is seen in approximately 20% of hospitalized patients and ST-segment elevation (STE) myocardial infarction may be the presenting clinical manifestation. Recently published data suggest that the STE may be due acute coronary occlusion or other etiologies such as myopericarditis. We assessed the clinical characteristics, electrocardiographic patterns, incidence, management, and outcomes of COVID-19 patients with STE.

METHODS We analyzed 23,406 electrocardiograms (n = 10,018) admitted to 13 New York City area hospitals between March 1 and April 30, 2020.

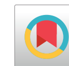
RESULTS After manual adjudication, 51 (0.5%) had focal STE, 22 (0.2%) had diffuse STE, and 9,945 did not have STE. Baseline clinical characteristics were similar among the 3 groups, albeit there was a higher percentage of patients with low ejection fraction in the diffuse STE group. Cardiac catheterization was performed on 10 patients. Three patients did not have identifiable culprit lesions. Patients with focal STE were more likely to require inotropes and die during index hospitalization. Kaplan-Meier estimated overall survival rates were 31%, 33%, and 6% in patients without STE, focal, and diffuse STE, respectively (p < 0.0001) (Figure). By stepwise logistic regression analysis, focal STE was the strongest predictor of death (odds ratio [OR]:7.0; 95% confidence interval [CI]: 3.8 to 13.0; p < 0 .0001) followed by age > 65 years (OR: 3.5; 95% CI: 3.1 to 3.9; p < 0.0001), and diffuse STE (OR: 2.9; 95% CI: 1.1 to 7.2; p < 0.0001). Female sex was associated with a decreased risk (OR: 0.72; 95% CI: 0.65 to 0.79; p < 0.0001).

CONCLUSION In this large retrospective analysis of 10,018 COVID-19 patients, we observed that STE as a manifestation of cardiovascular involvement with COVID-19 infections correlated with worse outcomes. Additionally, 1) a very small percentage (0.7%) presented with STE; 2) 70% had focal STE and 30% had diffuse STE; 3) a minority underwent coronary angiography; 4) in-hospital mortality rates were more so for those with focal STE (63% vs. 46%); and 5) focal STE was the strongest predictor of in-hospital mortality and female sex was a predictor of survival.

CATEGORIES **OTHER:** COVID-19

TCT CONNECT-212

The Effect of Influenza Vaccination on Cardiovascular Outcomes: An Analysis on the National Inpatient Sample Database



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BACKGROUND Influenza vaccination has been associated with a decreased risk of myocardial infarction (MI). The purpose of this study was to further investigate the effect of influenza vaccine on other cardiovascular outcomes including death during hospitalization, transient ischemic attacks, cardiac arrest, stroke, MI, and heart failure.

METHODS This retrospective cohort study compared cardiovascular outcomes between those who received influenza vaccination and those who did not during their hospital stay among adults age 18 years and older in the United States. The eligible patients were extracted for analyses from the 2014 and 2015 National Inpatient Sample Database. Vaccination status was determined using the International Classification of Diseases-9th version (ICD-9) code for vaccination "V04.81" (need for prophylactic vaccination and inoculation against influenza). Generalized linear models, with a link log and family Poisson was used to assess the adjusted prevalence ratios (PRs) between cardiovascular outcomes and selected cofactors. P values less than 5% were considered statistically significant.

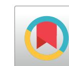
RESULTS The study included 29,753,764 adult patients. Of the 5,950,751 hospitalizations, 85,993 (1.45%) hospitalizations reported patients receiving influenza vaccination during their hospital stay. After adjusting for patients age, sex, race, location, income, insurance, as well as diabetes, hypertension, hyperlipidemia, and smoking status; vaccinated patients were less likely to experience MI (PR: 0.86, p < 0.001), transient ischemic attacks (PR: 0.89, p < 0.001), cardiac arrest (PR: 0.10, p = 0.001) and death (PR: 0.18, p < 0.001). The risk of strokes was slightly higher in vaccinated patients (PR: 1.09, p = 0.001). Also, the risk of a heart failure was elevated for vaccinated patients (PR: 1.01, p = 0.64), this association was not statistically significant.

CONCLUSION There was a decrease in the risk of myocardial infarction, cardiac arrest, death during hospitalization, and transient ischemic attacks observed for hospitalizations in patients with influenza vaccination compared to patients who did not receive vaccination. Our data further support the protective effects of influenza vaccination on cardiovascular outcomes beyond MI.

CATEGORIES **CORONARY:** Acute Coronary Syndromes

TCT CONNECT-213

Clinical Characteristics and Outcomes of Patients With COVID-19 and STEMI Treated With Fibrinolytic Therapy



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BACKGROUND The optimal management strategy for patients with concurrent coronavirus disease-2019 (COVID-19) infection and ST-segment elevation myocardial infarction (STEMI) is unknown. This study describes the clinical characteristics and outcomes in patients with concurrent COVID-19 infection and STEMI treated with fibrinolytic therapy.

METHODS This is a multicenter retrospective chart review of patients admitted with concurrent COVID-19 infection and STEMI from February 1, 2020, to April 15, 2020.

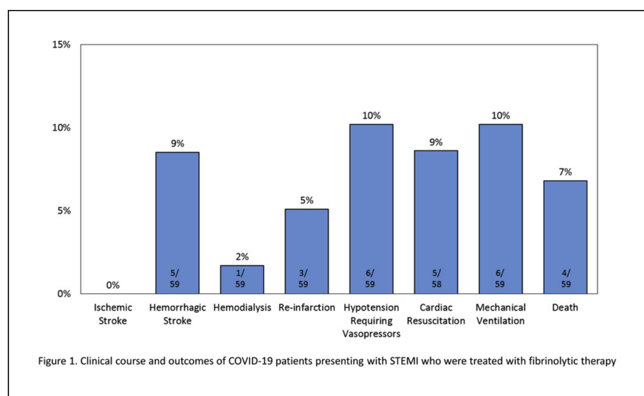


Figure 1. Clinical course and outcomes of COVID-19 patients presenting with STEMI who were treated with fibrinolytic therapy

RESULTS There were 59 patients treated with fibrinolytic therapy as first-line therapy (Table 1); 50 (84.7%) had successful fibrinolysis. Alteplase was used in 21 (35.6%) patients, and Tenecteplase in 38 (64.4%). Median peak troponin was 83 [58, 98] ng/ml and median left ventricular ejection fraction after revascularization was 43.5% [40%, 48%]. Hemorrhagic stroke occurred in 5 patients (8.6%). Six (10.2%) required invasive mechanical ventilation; 5 (8.6%) required cardiac resuscitation; and 4 (6.8%) died (Figure 1).

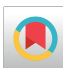
Characteristics	N (%) median [quartile 1, quartile 3]
Male	40 (67.8%)
Age (years)	64 [57, 70]
Obesity	14 (23.7%)
Hypertension	42 (71.2%)
Smoking	32 (54.2%)
Diabetes mellitus	19 (32.2%)
Coronary artery disease	47 (79.7%)
COVID-19 acute respiratory distress syndrome	1 (1.7%)
Successful fibrinolysis	50 (84.7%)

CONCLUSION In this case series of COVID-19 patients presenting with STEMI treated with fibrinolytic therapy, there was a high rate of hemorrhagic stroke (8.6%). Further studies are needed to better understand this treatment approach in this patient population.

CATEGORIES CORONARY: Acute Coronary Syndromes

TCT CONNECT-214

Impact of the COVID-19 Pandemic on Acute Coronary Syndrome and Stroke Volumes in Non-Western Countries



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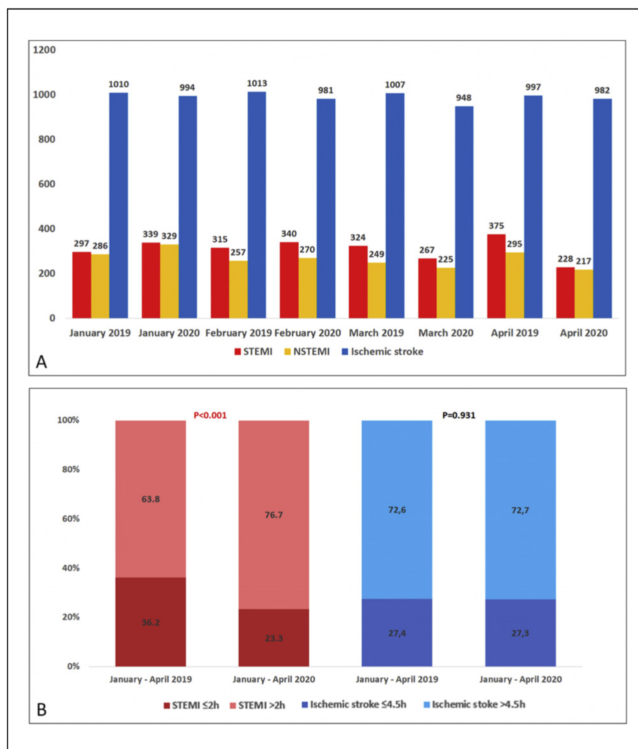
BACKGROUND The coronavirus disease-2019 (COVID-19) has profoundly disrupted health care services both by a massive influx of critical COVID-19 patients and through indirect effects, including medical care avoidance behaviors and the decreased efficiency of existing pathways of care.

METHODS We conducted a multinational retrospective survey analyzing the overall volume and the delays in presentation of acute coronary syndromes (ACS) and ischemic strokes during the COVID-19 pandemic (January 1, 2020, to April 30, 2020), comparing historical controls (same period in 2019). Eight centers in 4 countries contributed to the survey: Russia (4), Brazil (2), Kindgom of Saudia Arabia (1), and Tunisia (1).

RESULTS While the ACS volume tended to increase in January and February 2020 in comparison to the same period in 2019, in March and April 2020 the number of ST-segment elevation myocardial infarction (STEMI) decreased by 17.6% and 39.2%, respectively, as well as the number of non-NSTEMI (by 9.6% and 26.4%, respectively) in comparison with March and April 2019. A gradual decrease in stroke cases along the first trimester was found (January -1.6%, February -3.1%, March -5.8%) when comparing 2020 to 2019, followed by 3.5% increase in April 2020 in comparison to March 2020. Early STEMI presentation ($\leq$2 h) was less often encountered in the first quadrimester of 2020 in comparison with the first quadrimester of 2019 (36.2% vs. 23.3%; $p < 0.001$). Conversely, the delays of ischemic strokes were similar between the 2 periods.



CONCLUSION The number of ACS patients requiring invasive approach decreased in March and April 2020 whereas no significant change in ischemic stroke volume was found along the first quadrimester of 2020 in comparison with the same period of 2019.

CATEGORIES CORONARY: Acute Coronary Syndromes