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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
TCT CONNECT-215
Demographics and in-Hospital Outcomes of COVID-19 Patients Undergoing an Invasive Strategy for Acute Coronary Syndrome: The Global Multi-Centre Prospective COVID-ACS Registry

Thomas Kite,1 Chris Gale,2 Adriano Caixeta,3 Parham Sadeghpour,4 Manel Sabate,5 Angel Iniesta,6 Pilar Jimenez-Quevedo,7 Luciano Candillo,8 Stephen Hoole,9 Nick Palmer,10 Albert Ariza Sole,11 Olga Bockeria,12 Alim Namitokov,13 Otilia Cristea,14 Annika Eriksson,15 Andrew Morrow,16 Flavien Vincent,17 Hector Hugo Escutia-Guevas,18 Charlie Budgeon,19 Gregg Stone,20 Peter Ludman,21 Nick Curzen,22 Colin Berry,23 Anthony Gershlick24

1University of Leicester, Leicester, United Kingdom; 2Leeds University, Leeds, United Kingdom; 3Hospital Clinica Albert Einstein-Barceloneta, Sao Paulo, Brazil; 4Rajaie Cardiovascular Medical and Research Center, Tehran, Iran; 5Hospital Clinic Barcelona, Barcelona, Spain; 6University Hospital La Paz, Madrid, Spain; 7Hospital Universitario Ciudad San Carlos, Madrid, Spain; 8Royal Free London NHS Foundation Trust, London, United Kingdom; 9Royal Papworth Hospital NHS Foundation Trust, Cambridge, United Kingdom; 10The Liverpool Heart and Chest Hospital, Liverpool, United Kingdom; 11Servicio de Cardiología, Hospital Universitario de Bellvitge, Barcelona, Spain; 12Bakoulev Scientific Center for Cardiovascular Surgery, Moscow, Russian Federation; 13Scientific Research Institute - Ochapovsky Regional Clinical Hosp No 1, Krasnodar, Russian Federation; 14Spitalul Clinic Jubilee National Hospita, Glasgow, United Kingdom; 15Lille University Hospital, Lille, France; 16Regional Hospital ISSSTE Puebla, Puebla City, Puebla, Mexico; 17The University of Western Australia, Perth, Western Australia, Australia; 18Mount Sinai Heart Health System, New York, New York; 19Queen Elizabeth Hospital, Birmingham, United Kingdom; 20University Hospital Southampton, Southampton, United Kingdom; 21Golden Jubilee National Hospital, Glasgow, United Kingdom; 22University Hospitals of Leicester, Leicester, United Kingdom

BACKGROUND The demographics, angiographic findings, and in-hospital outcomes of coronavirus disease-2019 (COVID-19) – positive patients undergoing an invasive strategy for suspected acute coronary syndromes (ACS) are not well defined. COVID-19-positive ACS patients may have different etiology and outcomes. Patient presentation times from small sample published data appear longer.

METHODS Anonymized data on 234 patients in 81 general centers are presented from this prospective registry for the period March 1, 2020, to May 31, 2020. As of submission date, a further 84 patients have been submitted. All were required to be COVID-19-positive (or have a high index of clinical suspicion, i.e., clinical status plus chest x-ray/computed tomography scan findings) and to undergo coronary angiography for suspected ACS.

RESULTS Results are shown in Tables 1-3 and compared with National United Kingdom British Cardiovascular Intervention Society/ Myocardial Ischemia National Audit Project databases of non-COVID-19 ACS patients where available and appropriate. Major findings were: significantly higher proportion of COVID-19-positive patients had hypertension, hyperlipidemia, and renal dysfunction. In the ST-segment elevation myocardial infarction (STEMI) subgroup, sympto-to-door time was double and door-to-balloon increased by median 20 minutes. Mortality was quadruple and in-patient stay doubled in this subgroup, and significantly higher in non-STEMI COVID-19-positive cohort and in-patient stay also double. The high mortality may be due to the high incidence of cardiogenic shock (13.4% vs. 5%), with its 67% mortality.

CONCLUSION These novel data indicate that COVID-19-positive ACS patients present later, have higher incidence of cardiogenic shock, and much higher mortality, which are likely to be inter-related. In-patient stay is prolonged compared to non-COVID-19 ACS.

CATEGORIES CORONARY: Acute Coronary Syndromes

TCT CONNECT-216
Effects of the COVID-19 Pandemic on a Population Older Than 75 Years With Previous Percutaneous Coronary Revascularization: Experience in Spain and Portugal

Jose de La Torre Hernandez,1 Pilar Carrillo,2 Jesus Jimenez-Mazuecos,3 Alfonso Freites Esteves,4 Juan Gabriel Cordoba Soriano,5 Alejandro Gutierrez-Barceloneta,6 Paulo Alen Cid Alvarez,7 Ramiro Trillo,8 Tamara Garcia Cameron,9 Armando Perez de Prado,10 Juan Francisco Oteo Dominguez,11 Georgina Fuertes Ferre,12 Victor Alfonso Jimenez Diaz,13 Higo Lozano,14 Koldobika Garcia San Roman,15 Raymundo Ocaranza-Sanchez,16 Gines Martinez Caceres,17 Juan Sanchis Fores,18 Silvio Leal,19 Xavier Carrillo,20 Alberto Rodrigues,21 Mario Sadaba,22 Imanol Otegui,23 Esther Lazaro Fernandez,24 Jose Antonio Linares Vicente,25 Francisco J. Morales,26 Ricardo Santos,27 Francisco Bosa Ojeda,28 Jose Antonio Linares Vicente,29 Francisco J. Morales,27 Xavier Carrillo,21 Alberto Rodrigues,21 Mario Sadaba,22 Imanol Otegui,23 Esther Lazaro Fernandez,24 Jose Antonio Linares Vicente,25 Francisco J. Morales,27

BACKGROUND The demographics, angiographic findings, and in-hospital outcomes of coronavirus disease-2019 (COVID-19) – positive patients undergoing an invasive strategy for suspected acute coronary syndromes (ACS) are not well defined. COVID-19-positive ACS patients may have different etiology and outcomes. Patient presentation times from small sample published data appear longer.

METHODS Anonymized data on 234 patients in 81 general centers are presented from this prospective registry for the period March 1, 2020, to May 31, 2020. As of submission date, a further 84 patients have been submitted. All were required to be COVID-19-positive (or have a high index of clinical suspicion, i.e., clinical status plus chest x-ray/computed tomography scan findings) and to undergo coronary angiography for suspected ACS.

RESULTS Results are shown in Tables 1-3 and compared with National United Kingdom British Cardiovascular Intervention Society/ Myocardial Ischemia National Audit Project databases of non-COVID-19 ACS patients where available and appropriate. Major findings were: significantly higher proportion of COVID-19-positive patients had hypertension, hyperlipidemia, and renal dysfunction. In the ST-segment elevation myocardial infarction (STEMI) subgroup, sympto-to-door time was double and door-to-balloon increased by median 20 minutes. Mortality was quadruple and in-patient stay doubled in this subgroup, and significantly higher in non-STEMI COVID-19-positive cohort and in-patient stay also double. The high mortality may be due to the high incidence of cardiogenic shock (13.4% vs. 5%), with its 67% mortality.

CONCLUSION These novel data indicate that COVID-19-positive ACS patients present later, have higher incidence of cardiogenic shock, and much higher mortality, which are likely to be inter-related. In-patient stay is prolonged compared to non-COVID-19 ACS.

CATEGORIES CORONARY: Acute Coronary Syndromes

TCT CONNECT-216
Effects of the COVID-19 Pandemic on a Population Older Than 75 Years With Previous Percutaneous Coronary Revascularization: Experience in Spain and Portugal

Jose de La Torre Hernandez,1 Pilar Carrillo,2 Jesus Jimenez-Mazuecos,3 Alfonso Freites Esteves,4 Juan Gabriel Cordoba Soriano,5 Alejandro Gutierrez-Barceloneta,6 Paulo Alen Cid Alvarez,7 Ramiro Trillo,8 Tamara Garcia Cameron,9 Armando Perez de Prado,10 Juan Francisco Oteo Dominguez,11 Georgina Fuertes Ferre,12 Victor Alfonso Jimenez Diaz,13 Higo Lozano,14 Koldobika Garcia San Roman,15 Raymundo Ocaranza-Sanchez,16 Gines Martinez Caceres,17 Juan Sanchis Fores,18 Silvio Leal,19 Xavier Carrillo,20 Alberto Rodrigues,21 Mario Sadaba,22 Imanol Otegui,23 Esther Lazaro Fernandez,24 Jose Antonio Linares Vicente,25 Francisco J. Morales,26 Ricardo Santos,27 Francisco Bosa Ojeda,28 Jose Antonio Linares Vicente,29 Francisco J. Morales,27

BACKGROUND The demographics, angiographic findings, and in-hospital outcomes of coronavirus disease-2019 (COVID-19) – positive patients undergoing an invasive strategy for suspected acute coronary syndromes (ACS) are not well defined. COVID-19-positive ACS patients may have different etiology and outcomes. Patient presentation times from small sample published data appear longer.

METHODS Anonymized data on 234 patients in 81 general centers are presented from this prospective registry for the period March 1, 2020, to May 31, 2020. As of submission date, a further 84 patients have been submitted. All were required to be COVID-19-positive (or have a high index of clinical suspicion, i.e., clinical status plus chest x-ray/computed tomography scan findings) and to undergo coronary angiography for suspected ACS.

RESULTS Results are shown in Tables 1-3 and compared with National United Kingdom British Cardiovascular Intervention Society/ Myocardial Ischemia National Audit Project databases of non-COVID-19 ACS patients where available and appropriate. Major findings were: significantly higher proportion of COVID-19-positive patients had hypertension, hyperlipidemia, and renal dysfunction. In the ST-segment elevation myocardial infarction (STEMI) subgroup, sympto-to-door time was double and door-to-balloon increased by median 20 minutes. Mortality was quadruple and in-patient stay doubled in this subgroup, and significantly higher in non-STEMI COVID-19-positive cohort and in-patient stay also double. The high mortality may be due to the high incidence of cardiogenic shock (13.4% vs. 5%), with its 67% mortality.

CONCLUSION These novel data indicate that COVID-19-positive ACS patients present later, have higher incidence of cardiogenic shock, and much higher mortality, which are likely to be inter-related. In-patient stay is prolonged compared to non-COVID-19 ACS.

CATEGORIES CORONARY: Acute Coronary Syndromes
CONCLUSION In this elderly population with coronary artery disease revascularized before the pandemic, an increase in cardiovascular and general morbidity as well as in total mortality was observed during the outbreak and confinement. Incidence of COVID-19 was higher than in the general population. Mortality among COVID-19 patients was very high.

CATEGORIES OTHER COVID-19

TCT CONNECT-217 Hydroxychloroquine and Azithromycin Usage in African American Patients With Coronavirus Disease 2019 (COVID-19) and Their Effects on QT Interval

Mohammed Al-Sadawi,1 Adam Budzikowski,2 Justin Lee,3 Ahmed Jallad,1 Baho Sidiqi,1 Ishmam Ibtida,2 Yusra Qaiser,1 Harshith Priyan Chandrakumar,1 Ashkan Tadayoni,1 Paul Madaj1
1SUNY Downstate, Brooklyn, New York; 2SUNY Downstate, Brooklyn, New York; 3SUNY Downstate, Brooklyn, New York

BACKGROUND The novel coronavirus disease-2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus-2 (SARS Cov-2) has been a major cause of morbidity and mortality around the world. Thirteen million cases have been diagnosed with approximately 570,000 deaths worldwide. COVID-19 is associated with myocarditis, myocardial infarction, and eventual arrhythmia. Cases may present as acute thrombotic occlusion, stress cardiomyopathy, or coronary spasm. Hydroxychloroquine (HCQ) was temporarily approved by FDA for COVID-19 treatment. In this study, we planned to characterize the risk and degree of QTc prolongation in largely African American population in central Brooklyn, who were hospitalized with COVID-19 infection in association with inpatient administration of HCQ and azithromycin. One of the major adverse drug effects of HCQ and chloroquine is the potential prolongation of corrected QT interval (QTc).

METHODS In our retrospective study, we included patients, both males and females, 18 years of age and older who were admitted at SUNY Downstate Medical Center, Brooklyn, New York, for COVID-19 infection and were treated with hydroxychloroquine. Native baseline RR, QRS, and QT intervals were measured before administering the first dose of hydroxychloroquine and within 24 h of administration. The RR interval was measured as a distance between the peak of the R-wave and the peak of the previous R-wave in the same lead in milliseconds and converted to a heart rate by equation, 60,000/RR. For correction of the QT, we used common formulas: QTc = QT/RR [Bazett formula], QTc = QT/√RR [Fridericia formula], QTc = QT + 0.154 (1-RR) [Frithingham formula], QTc = QT + 1.75 (heart rate -60) [Hodges formula]. QTc interval prolongation was defined based on the following rules: Male Rules: 1) Baseline >450 ms, and post HCQ >450 ms; 2) >5% increase over baseline post HCQ; and 3) baseline >450 ms and <500 ms, and post is >500 ms; Female Rules: 1) Baseline >470 ms, and post HCQ >470 ms; 2) >15% increase over baseline post HCQ; and 3) baseline >470 ms and <500 ms, and post is >500 ms. Statistics: Means were compared using independent sample t-tests; paired sample t-tests and proportions were compared using Chi square method. Of all patients included in the study 125 (63.5%) were male and females, 18 years of age and older who were admitted at SUNY Downstate Medical Center, Brooklyn, New York, for COVID-19 infection and were treated with hydroxychloroquine. Native baseline RR, QRS, and QT intervals were measured before administering the first dose of hydroxychloroquine and within 24 h of administration. The RR interval was measured as a distance between the peak of the R-wave and the peak of the previous R-wave in the same lead in milliseconds and converted to a heart rate by equation, 60,000/RR. For correction of the QT, we used common formulas: QTc = QT/RR [Bazett formula], QTc = QT/√RR [Fridericia formula], QTc = QT + 0.154 (1-RR) [Frithingham formula], QTc = QT + 1.75 (heart rate -60) [Hodges formula]. QTc interval prolongation was defined based on the following rules: Male Rules: 1) Baseline >450 ms, and post HCQ >450 ms; 2) >5% increase over baseline post HCQ; and 3) baseline >450 ms and <500 ms, and post is >500 ms; Female Rules: 1) Baseline >470 ms, and post HCQ >470 ms; 2) >15% increase over baseline post HCQ; and 3) baseline >470 ms and <500 ms, and post is >500 ms. Statistics: Means were compared using independent sample t-tests; paired sample t-tests and proportions were compared using Chi square method. Of all patients included in the study 125 (63.5%) were male and females, 18 years of age and older who were admitted at SUNY Downstate Medical Center, Brooklyn, New York, for COVID-19 infection and were treated with hydroxychloroquine. Native baseline RR, QRS, and QT intervals were measured before administering the first dose of hydroxychloroquine and within 24 h of administration.

RESULTS We screened 444 consecutive patients with COVID-19 who were admitted to our hospital between March 10 and April 15, 2020, a total of 247 were excluded from this study because they met the exclusion criteria. Thus, 197 patients were included in the analysis. The mean baseline QTc interval calculated with the Bazett, Hodges, Frederica, Framingham methods were 451.0 ± 34.3, 425.1 ± 28.9, 417.2 ± 34.0, and 413.9 ± 31 ms, respectively. Of the 4 correction methods, 35.5% of all patients met the criteria for prolongation using the Bazett method. Of all patients included in the study 125 (63.5%) were male and females, 18 years of age and older. Subjects were predominantly African American ancestry, 179 (90.9%). The mean age of all patients was 66.1 ± 13.3 years. The most common comorbidities were hypertension (74.6%), diabetes (55.3%), and hyperlipidemia (37.5%). Of all study participants, 91.7% received concomitant azithromycin; 31% of patients were on home beta-blocker therapy, while 27.9% were on home calcium-channel blockers. Of baseline electrocardiograms, 87.8% were sinus rhythm. Total number of patients meeting prolongation criteria was less using the Hodges, Frederica, and Framingham methods. Mean QTc values for both genders are presented in (Tables 1, 2, 3, and 4).

All 4 methods showed statistically significant increases in QTc. Bazett had the relatively largest difference between pre- and post-therapy QT interval with a mean difference of 14.48 ms. The increase was present in both men and women. The mean difference across sexes was largest using the Bazett method 16.43, but this was not statistically significant. Univariate analysis across all methods found that the concomitant use of azithromycin was not a significant predictor in QT prolongation across the Bazett, Hodges, Frederica, and Framingham methods. However, the presence of coronary artery disease was a statistically significant predictor for QT prolongation. The presence of congestive heart failure was also a predictor using the Hodges and Framingham methods. (Table 5, 6, 7, and 8) (Figure 1)