

Figure 1. COVID-19 pattern and acute respiratory distress syndrome. (A) Right ventricular dilation on computed tomography. (B) Severe pulmonary involvement detected by computed tomography. (C) Echocardiographic right ventricular dilation (apical 4-chamber view). (D) Depressed longitudinal right ventricular strain.

complications, aggravated the RV afterload.⁵ The onset of right ventricular dysfunction and RV dilatation (acute cor pulmonale) is associated with excess mortality in ARDS.⁴ The acute cor pulmonale is classically associated with the following parameters: the driving pressure, the PaCO₂ and the PaO₂/FiO₂ ratio.⁴ Finally, the RV function, measured by the tricuspid annular plane systolic excursion, the right ventricular fractional area change and the right ventricular longitudinal strain, is a significant predictive factor of mortality in COVID-19 infected patients.⁶ In this context, in addition with the left ventricular function analysis, it is of importance to check and assess the right ventricle in COVID-19 infected patients, particularly in critical situation.

Conflict of Interest

The authors have no conflicts of interest to declare.

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Reply to “Non-vitamin K antagonist oral anticoagulants for atrial fibrillation in obese patients”



We read with interest the article by Wang et al.¹ It reads “It affects 1 in 4 adults >40 years.” This statement may be misunderstood easily. Does it mean prevalence or incidence or lifetime risk? Is not clear. The lifetime risk of atrial fibrillation >40 years is 25%, not the prevalence or incidence.²

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Cardiac Catheterization Laboratory Volume Changes During COVID-19—Findings from a Cardiovascular Fellows Consortium



In regards to the cardiac catheterization laboratory and the anticipated surge of COVID-19, the Center for Disease Control and Prevention (CDC) recommended deferral of elective cardiac catheterization procedures to limit resource utilization.¹ In our study, we sought to understand if there was a change in procedural volumes during the pandemic.

The Cardiovascular Fellows Consortium was formed by trainees across the United States who collaborated through social media as a response to the COVID-19 pandemic. Through the consortium, we collected all cardiac

procedures performed by invasive cardiology including cardiac catheterizations, coronary angiograms, and percutaneous coronary, endovascular, and structural interventions. These data were collected at 12 fellowship training sites across the United States, between March 1 and April 15, 2020, and compared with the corresponding time period in 2019. Data were obtained through an electronic query of each site's laboratory database without accessing patient data. These cases were performed at the discretion of each site's respective institution and the treating physicians. Participating sites included (1) Beaumont Hospital Royal Oak, Royal Oak, MI, (2) Detroit Medical Center (DMC), Detroit, MI, (3) Henry Ford Hospital, Detroit, MI, (4) Beaumont Hospital Dearborn, Dearborn, MI, (5) Spectrum Health, Grand Rapids, MI, (6) Lenox Hill Hospital, New York City, NY, (7) Metro Health, Cleveland, OH, (8) University of Arkansas for Medical Sciences, Little Rock, AR, (9) Ochsner-Louisiana State University, Shreveport, LA, (10) University of Colorado Health, Aurora, CO, (11) Beaumont Hospital Troy, Troy, MI, and (12) DMC Sinai Grace, Detroit, MI. Characteristics were summarized using descriptive statistics, that is, the percentage for categorical variables. The percent change was calculated and expressed as a median change with interquartile range (IQR). Analysis was performed with Stata 15 (StataCorp, College Station, TX) and Microsoft Excel for Mac version 16.35.

Between March 1 and April 15, 2020, a total of 2,548 procedures were performed at the 12 sites, whereas 4,671 procedures were performed during the same time period in 2019 (Figure 1). The median change in volume in 2020 compared with 2019 was -47% (IQR: -58% to -48%). The case volume decreased at 11 of the 12 sites (Figure). The largest decline occurred between April 1 and April 15, 2020 at all sites except 1 with a median change in case volume of -80% (IQR -86.2% to -72.5%).

The COVID-19 pandemic has seemingly changed our healthcare system for the foreseeable future. With the limitations in allocated resources, elective procedures are being deferred. This is suggested from our study findings which show a decline in cardiac catheterization laboratory procedures in the majority of participating sites during the COVID-19 pandemic. Our findings align with observations made in Spain which showed a 48% decline in diagnostic procedures.³ Additionally, a decline in patients presenting with acute coronary syndrome (ACS) has been reported, which also contributes to the overall reduction in cardiac catheterization laboratory volume.^{4,5} Thus, with fewer patients receiving cardiac care, hands-on training in the cardiac catheterization laboratory may be limited.

The COVID-19 pandemic occurred in the last quarter of the academic year when FITs are expected to consolidate case-based learning, technical skills, and clinical judgment in preparation for

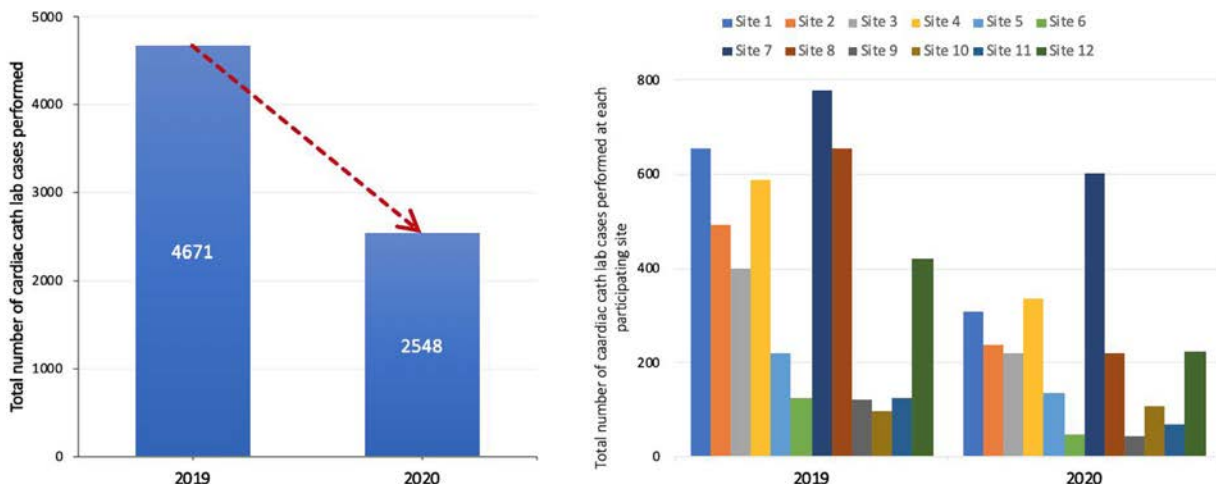


Figure. Comparison of total number of cases performed in the cardiac catheterization laboratories (cath lab) for each participating site in the study period (March 1- April 15) between the years 2020 vs. 2019.