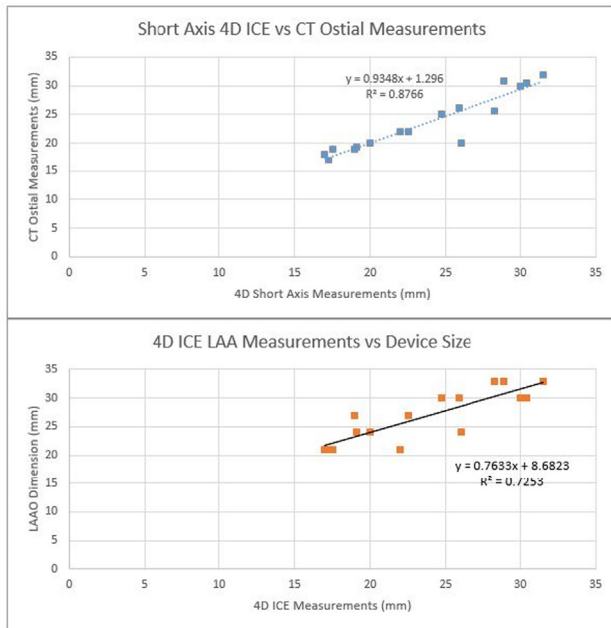




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#### PO-671-04

##### RATE OF CHANGE OF INITIAL INTRINSIC DEFLECTION PREDICTS SITE OF ORIGIN OF ENDOCARDIAL VERSUS EPICARDIAL VENTRICULAR TACHYCARDIA

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**Background:** Electrophysiological mapping and ablation of ventricular tachycardia (VT) of epicardial origin requires precise definition of VT morphology to maximize successful outcomes. Several studies have published morphological characteristics derived from the 12-lead Electrocardiogram (ECG) that can be used to predict whether a VT is epicardial in origin. Unfortunately, for many of these criteria, when scaled to clinical practice the generalizability is limited.

**Objective:** To develop a predictive analysis of the surface ECG that can determine the origin (epicardial versus endocardial) of a VT.

**Methods:** We developed an analysis that takes advantage of the fact that electrical conduction is faster through the cardiac conduction system than the myocardium, and that the conduction system is primarily an endocardial structure. The technique calculated the rate of change in the initial VT depolarization from a signal-averaged 12 lead ECG. We hypothesized that the rate of change of depolarization in endocardial VT would be faster than epicardial. We compared the rate of change in 26 patients with VT with non-ischemic cardiomyopathy.

**Results:** When comparing patients with VTs ablated using epicardial and endocardial approaches, the rate of change of depolarization was found to be significantly slower in epicardial ( $6.3 \pm 3.1$  vs  $11.4 \pm 3.7$  mV/sec;  $p < 0.05$ ). Statistical significance was found when averaging all 12 ECG leads, the limb leads, but not the precordial leads. Follow-up analysis by calculation of a receiver operator curve demonstrated that this analysis provides a strong prediction if a VT is epicardial origin (AUC range 0.72 - 0.88).

**Conclusion:** When comparing patients with VTs ablated using epicardial and endocardial approaches, the rate of change of depolarization was found to be significantly slower in epicardial

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#### PO-671-05

##### ATRIAL ARRHYTHMIAS ASSOCIATED WITH INCREASED MORTALITY IN PATIENTS HOSPITALIZED WITH COVID-19

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**Background:** COVID-19 is a novel, highly contagious virus with a wide array of presentations. Initially characterized by symptoms in the respiratory tract, cardiovascular disease and associated complications often accompany COVID-19 infections thereby increasing morbidity and mortality. Current literature has reported an increased rate of cardiac arrhythmias in patients hospitalized with COVID-19. This retrospective medical analysis sought to evaluate the impact of atrial arrhythmias on morbidity and mortality in patients hospitalized with COVID-19.

**Objective:** This retrospective medical analysis sought to evaluate the impact of atrial arrhythmias on morbidity and mortality in patients hospitalized with COVID-19.

**Methods:** This inpatient cohort from the HCA Registry included 5786 patients with a diagnosis of COVID-19. All patients had confirmed SARS-CoV-2 infection by PCR testing of a nasopharyngeal sample. We evaluated clinical records to obtain demographic characteristics and medical comorbidities. In addition, we recorded the admission profile that included vitals and laboratory tests. We calculated rates of prior and in-hospital atrial fibrillation, atrial flutter, and other supraventricular tachycardias and evaluated rates of mortality and major adverse cardiovascular events.

**Results:** This retrospective medical review analyzed data from 5786 hospitalized patients > 18 years of age (52.1% female; 42.9 % caucasian, mean age 48 years old) with COVID-19 from the HCA Registry from March to August 2020. Patients with a diagnosis of COVID-19 in addition to past or present diagnosis of atrial fibrillation, atrial flutter and/or SVT had increased rates of mortality ( $p < .001$ ), NSTEMI ( $p < .001$ ), STEMI ( $p < .001$ ), cardiac arrest ( $p < .001$ ; including ventricular tachycardia ( $p < .001$ ), and ventricular fibrillation ( $p < 0.05$ )), (CHF ( $p < .001$ ), and AKI ( $p < .001$ )).

**Conclusion:** Recent literature has shown that COVID-19 infection may increase the susceptibility to atrial arrhythmias, especially in the acute phase. Our analysis shows the potential clinical impact atrial arrhythmias can have on these hospitalized patients. Electrocardiographic and telemonitoring devices may improve care for these patients by early detection and prompt treatment of atrial arrhythmias.

#### PO-671-06

##### ADVERSE EVENTS ASSOCIATED WITH THE ATRICLIP LEFT ATRIAL APPENDAGE EXCLUSION SYSTEM: A FOOD AND DRUG ADMINISTRATION MAUDE DATABASE STUDY

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**Background:** The AtriClip device (Atricure, West Chester, Ohio) is placed epicardially to exclude the left atrial appendage through open or minimally invasive surgery.