Background: Many COVID-19 survivors report ongoing cardiopulmonary symptoms and organ dysfunction in a poorly understood syndrome known as post-acute sequelae of COVID-19 (PASC). Risk of arrhythmias is elevated in acute COVID-19 infection, especially in hospitalized patients with severe infection. In the post-acute period, palpitations are commonly reported, but little is known about the risk of arrhythmias in patients with PASC.

Objective: To characterize the burden of arrhythmias in individuals with PASC at least 1 year after SARS-CoV-2 infection and the correlation between symptoms and clinically significant arrhythmias.

Methods: As part of the LIINC COVID-19 recovery cohort (NCT04362150), we conducted ambulatory rhythm monitoring using the Bardy Diagnostics Carnation Ambulatory Monitor (CAM) for up to 14 days on participants at least 1 year after PCR-confirmed COVID-19 infection without prior CVD. Cardiopulmonary symptoms were assessed through interviews at the time of enrollment, at the time of initiation of rhythm monitoring, and through a journal used during the rhythm monitoring period.

Results: Among 27 participants, 13 reported cardiopulmonary symptoms. Median age was 56 and 48% were female (Table 1); monitoring was performed at a median of 16.5 months after infection. Those with PASC pushed the symptom button 4.2 more times on average (95% CI -1.4 to 10.3; p = 0.13). After adjustment for age and sex, cardiopulmonary symptoms were not associated with an increased burden of PACs (β = -0.04, 95%CI-0.15 to 0.07, p = 0.47), PVCs (β = 0.21, 95%CI-0.22 to 0.65, p = 0.31), or supraventricular tachycardia episodes (β = 3.0 per week, 95%CI-3.1 to 9.2, p = 0.31). Average HR (β = -1.66, 95%CI -12.8 to 9.5, p = 0.076) and HR variability (β = 2.5, 95%CI -10.3 to 15.3, p = 0.69) were not significantly different between those with and without symptoms. Similar results were found after adjusting for LVEF, LV strain, and LA volume index. Button pushes correlated with SVT in only one participant who had PASC and none without PASC.

Conclusion: In the first study to assess cardiac arrhythmia burden in patients with PASC through ambulatory rhythm monitoring, we did not find significant associations between the presence of cardiopulmonary symptoms after COVID-19 and PAC burden, PVC burden, SVT episodes, average HR, or HR variability.

ABSTRACT PC-577:

Complex Cases for the Ablationist

Saturday, April 30, 2022
1:00 PM - 2:00 PM

FASCICULAR ECTOPY FROM THE RIGHT CORONARY SINUS OF VALSALVA

John A. Anderson DO and Amit Noheria MBBS, SM

Background: Fascicular ectopic complexes (FEC) can cause symptoms and pseudo atrio-ventricular block (AVB). Ablation is a viable option but carries a risk of AVB. Successful far-field ablation of left anterior fascicular beats from right aortic sinus of Valsalva (RASoV) has been reported.

Objective: We present a case of FEC with earliest HPS signal and successful ablation from the RASoV.

Methods: N/A

Results: A 60-year-old woman had palpitations and blocked P waves. ECG revealed frequent FEC and occasional blocked P waves (fig. 1a). We postulated this to be due to concealed FEC (pseudo AVB). She failed flecainide and presented for ablation. A decapolar catheter was placed across the right His-Purkinje system (HPS). She had frequent FECs with early activation of the HPS. We observed FECs with complete antegrade block within the HPS but retrograde penetration into the atrium proving this as the mechanism for pseudo AVB (fig. 1b). Activation mapping of the right and left (retroaortic) HPS was performed with the earliest HPS potential on the decapolar catheter as the fiducial reference. Activation progressed retrograde to the proximal His and antegrade to the RBB, both being later than the distal His. Similarly, the left bundle branch and both fascicles were late. Mapping in the RASoV identified a His-like signal in sinus rhythm that was the earliest site in FEC, 7 ms ahead of reference (fig 1c & d). Focal radiofrequency ablation immediately abolished FECs. Monitoring overnight revealed no further FECs or blocked P waves, and patient reported relief of symptoms.

Conclusion: Mapping of FEC should include the RASoV. The anatomic basis for such fascicular potential in the RASoV may be the dead-end tract of the conduction axis reported by Kurosawa and Becker.
A Case of Coronary Artery Vasospasm; A Rare Complication of Vein of Marshall Ethanol Infusion for Atrial Fibrillation

Shingo Maeda MD, PhD; Kaoru Okishige MD, PhD; Jackson J. Liang DO; Ruben Casado Arroyo MD; Mihoko Kawabata MD, PhD; Hirotsugu Atarashi MD, PhD and Kenzo Hirao MD, PhD

Background: The vein of Marshall (VOM) has been increasingly recognized to be a potential target site during atrial fibrillation (AF) ablation for targeting non-PV triggers.

Objective: Recent papers report no major complications including coronary artery abnormalities during VOM ethanol ablation.

Methods: N/A

Results: A 75-year-old male was admitted for repeat catheter ablation for AF. All 4 pulmonary veins were chronically isolated, recurrent premature atrial contractions (PACs) were seen which occasionally triggered AF during isoproterenol infusion. Detailed activation mapping identified the site of origin of this PAC to be from the left atrium (LA) endocardial aspect of the VOM. Therefore, a VOM ethanol ablation was performed to target non-PV triggers. An occlusive balloon venography of coronary sinus showed the short length of the VOM (11 mm, Fig. A). A total of 3.5ml of 98% ethanol was infused in a slow fashion over 90 seconds. 30 minutes after the ethanol infusion, the 12-lead electrocardiogram demonstrated ST elevation in the inferior leads with unstable hemodynamics (B). Urgent coronary angiography revealed focal coronary vasospasm of the distal left circumflex coronary artery (LCx, C). Using CARTO Merge software, the endocardial LA low-voltage area which resulted from VOM ethanol ablation overlapped with the anatomic location of the spastic distal LCx artery (D). Intravenous infusion of a vasodilator was administered, which resulted in resolution of ST elevations and hemodynamic stability.

Figure. (A) ECG with fascicular ectopic complexes and blocked P wave (asterisk). (B) Fascicular ectopic complex (arrow) with retrograde penetration to the atrium (asterisk) but antegrade block to the ventricle. (C) Earliest fascicular signal (arrow) mapped and successfully ablated in right aortic sinus of Valsalva. (D) Right and left anterior oblique fluoroscopic location of the mapping/ablation catheter (arrow) at successful ablation site.