3 (0.67 ± 0.26 ng/dl) than that in Gr 1 (2.15 ± 0.17 ng/dl, p < 0.001) and 2 (2.26 ± 0.04 ng/dl, p < 0.001), respectively. There were no protein expression differences of the calcium handling proteins (CaV1.2, NCX, RyR and SERCA2), Kv7.1, Kir2.1 and Nav1.5 among groups, respectively (Fig C). There was a significant elevations of tyrosine hydroxylase nerve innervation, but not choline acetyltransferase, in Gr 2, compared to Gr 1 and 3 (Fig D).

**Conclusion:** RDN is capable of suppressing ventricular arrhythmias induced by OSA through autonomic reverse remodeling with decreasing sympathetic overactivity and catecholamine spillover, protecting from the risks of life-threatening arrhythmia and sudden cardiac death.

**BS-526-04**

**IMPAIRED REDOX RESPONSE TO INCREASED WORKLOAD IN ATRIAL MITOCHONDRIA FROM PATIENTS WITH ATRIAL FIBRILLATION**

Julius Ryan Pronto MS; Fleur E. Mason PhD; Michael Kohlhaas PhD; Funsho Emmanuel E. Fakuade PhD; Christoph Maack MD and Niels Voigt MD

**Background:** Calcium handling abnormalities contribute to the pathophysiology of atrial fibrillation (AF). In ventricular myocytes, Ca\(^{2+}\) has been shown to play an important role in mitochondrial response to increased workload by activating key dehydrogenases in the Krebs cycle, necessary for NAD(P)H regeneration and, ultimately, neutralisation.

**Objective:** We hypothesise that workload response of mitochondria is impaired in atrial cardiomyocytes from patients with AF.

**Methods:** Membrane currents (patch clamp), cytosolic Ca\(^{2+}\) (Fluo-3) and NAD(P)H/FAD autofluorescence were recorded in right atrial myocytes from sinus rhythm (CTL) or AF patients. Immunofluorescence labeling together with STED microscopy and EM microscopy were employed to characterize interaction between mitochondria and sarcoplasmic reticulum (SR).

**Results:** Diastolic [Ca\(^{2+}\)] of voltage-clamped myocytes was comparable, whereas amplitudes of L-type Ca\(^{2+}\) current and triggered of Ca\(^{2+}\) transients (CaTs) were decreased by 49% and 43%, respectively. Basal level of NAD(P)H at 0.5 Hz stimulation frequency was comparable in CTL and AF (73.08 ± 2.62%, n = 14/7 vs. 81.05 ± 5.39%, n = 4/3 respectively), suggesting a similar redox index. In all CTL cells, upon increasing stimulation frequency to 3 Hz and subsequent β-adrenergic stimulation, the NAD(P)H level initially decreased but recovered to a level comparable to basal state. In contrast, 35% of AF myocytes lost this capacity to recover. Electron and STED microscopy images (Figure) show a disturbance in mitochondrial organisation and their interaction with the SR.

**Conclusion:** Impaired cytosolic Ca\(^{2+}\) handling and disturbed interaction between mitochondrial and Ca\(^{2+}\) release sites of the SR may contribute to the impaired redox response of mitochondria to increased workload which we observed in AF patients. This likely results in impaired ATP production and ROS neutralisation, which may finally contribute to atrial arrhythmogenesis in AF patients.

**ABSTRACT CE-542:**

Getting an eye on the target before the ablation of SVT

Sunday, May 1, 2022
8:00 AM - 9:00 AM

CE-542-01

**Precordial ‘REVERSE PATTERN BREAK’: A NOVEL PREDICTOR FOR EPICARDIAL POSTEROSEPTAL ACCESSORY PATHWAYS**

Debabrata Bera MD

**Background:** Posteroseptal (PS, also known as inferior paraseptal) accessory pathways (AP) may occasionally lie within the coronary sinus (CS), its tributaries, in a CS diverticulum (CSD) or along the epicardial surface.

**Objective:** We encountered preordial reverse pattern break (RPB) of QRS morphology in some patients with epicardial APs and analysed all ECGs of posteroseptal accessory pathway (PSAP) cases.
Methods: Inclusion criteria: Consecutive patients aged >18 years, who underwent successful RF ablation in the PS region. Exclusion criteria: Failed ablation, ablation at the left sided endocardium, ablation deep inside the main CS, beyond 3 cm of the CS ostium (left free wall epicardial pathways). The cases were divided into two groups: Group En: Endocardial ablation; Group Ep: Ablation within the CS/CSD/epicardial surface. Definition: RPB is defined as monophasic tall R in V2 larger than V1 and V3 along with either (i) R/S < 1 in V3, or (ii) S wave in V3 > 4 mV.

Results: Among 66 cases [Age: 32 ± 12 year, 40 males], 53 were ablated endocardially and 13 cases epically (12 inside a CS diverticulum, one in epicardium after gaining pericardial access). The baseline characteristics were comparable. RPB was present in 10/13 of Group Ep, but only in 6/53 cases of Group En. The sensitivity and specificity of RPB for epicardial location were 83% and 94% respectively, while the positive predictive value (PPV) was 77%. The negative predictive value (NPV) was 89% and the accuracy was 87%.

Conclusion: Among the patients who underwent ablation for PS accessory pathways, RPB was more often observed on the preexcited ECGs in patients having epicardial APs. This pattern may indicate the need for mapping within the CS/CSD or endocardium. The objectively isoelectric or biphasic delta wave in V1 is a new accurate predictor for epicardial location of posteroseptal accessory pathway.

CE-542-03

CANNON A WAVE VALIDATION AS A DIAGNOSTIC TOOL IN PAROXYSMAL SUPRAVENTRICULAR TACHYCARDIAS

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Background: Atrioventricular nodal re-entrant tachycardia (AVNRTs) and orthodromic reciprocating tachycardias (ORTs) are major mechanisms of paroxysmal supraventricular tachycardias. Cannon A waves, rapid and regular pulsations with bulging of the internal jugular veins, is traditionally associated with AVNRTs.

Objective: The aim was to assess the diagnostic utility of the cannon A wave in cases of paroxysmal supraventricular tachycardias.

Methods: We prospectively included 100 patients with paroxysmal supraventricular tachycardias. Videos of the jugular venous pulse were obtained after tachycardia induction. Two independent experts visualized the videos in a blindly manner and classified patients into two groups whether de sign was present or not. Central venous pressure (CVP) was continuously monitored.