Conclusion: The standard model can hasten identification of VT channels compared to other frequently employed electrogram characteristics. This will reduce the difficulties in the current substrate based ablation strategies.

P4893 | BEDSIDE
Long-term outcome of catheter ablation of idiopathic ventricular arrhythmia originating from right ventricular outflow tract guided by a Lasso catheter
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Purpose: Radiofrequency Catheter Ablation (RFCA) has become primary therapy for idiopathic Ventricular Arrhythmias (VAs) originating from Right Ventricular Outflow Tract (RVOT). This study was to investigate the clinical outcome of catheter ablation of VAs originating from RVOT guided by a multielectrode circular mapping catheter (Lasso catheter).

Methods: Among 358 consecutive patients who underwent ablation for idiopathic VAs, 199 patients (55.6%) were found to have an ablation site at RVOT area. RFCA using Lasso catheter (25 mm size adjustable or 30 mm fixed diameter) was performed in 138 patients (69.3%; 43±13.6 months, M/F: 52/86). The remaining 61 patients (31.7%) were performed with 3 dimensions noncontact mapping system (ESI). We divided Lasso-guided ablation as two groups according to clinical outcome during follow-up: successful group vs. unsuccessful group.

Results: In 138 patients with Lasso-guided ablation, 97 PVCs, 28 non-sustained VTs, and 13 sustained VT were confirmed as presenting arrhythmia. In 29 patients (15.9%), a Lasso catheter was not beneficial to identify adequate ablation site because of large RVOT dimension (n=14) or inadequate position of Lasso catheter (n=15). The ablation was failed in 1 patient and 34 patients had recurrent VAs after ablation. VAs recurrence was not different between Lasso-guided ablation and ESI-guided ablation (34/138, 24.6% vs. 18/61, 34.5%, P=0.47). However, shorter fluoroscopic and procedure time were observed in Lasso-guided ablation (654±237 vs. 288±133 minutes, P<0.001, 327±130 vs. 227±114 minutes, P=0.021, respectively). In 8 of 34 patients with VAs recurrence, redo ablation procedure was also performed guided by a Lasso catheter. A fragmented potential during VAs at ablation site was seen in 12.5% (15/128) of successful group, but none in unsuccessful group (P=0.03). No patients had procedure-related complications.

Conclusion: Lasso-guided catheter is useful for determining the optimal ablation site in most patients with idiopathic RVOT VAs. VAs recurrence after Lasso-guided ablation was not different from ESI-guided ablation. The shorter fluoroscopic and procedure time was benefit of Lasso-guided ablation. The presence of fragmented potential at successful ablation site was related to better clinical outcome.

P4940 | BENCH
Serum markers of collagen turnover predict future shocks in ICD recipients with dilated cardiomyopathy on optimal treatment

Objectives: We investigated prospectively whether serum markers of collagen turnover could be used as predictors for the occurrence of malignant ventricular arrhythmias in patients with non-ischemic dilated cardiomyopathy (NICD) implanted with an implantable cardioverter defibrillator (ICD) for primary prevention.

Methods: Extracellular matrix (ECM) alterations in NICD may provide electrical heterogeneity, thus potentially contributing to the occurrence of ventricular arrhythmia and subsequent SCD.

Results: Serum C-terminal propeptide of collagen type-I (C1CP), C-terminal telopeptide of collagen type-II (C2CT), matrix metalloproteinase (MMP)-1, and tissue inhibitor of matrix metalloproteinase (TIMP)-1 were measured as markers of collagen synthesis and degradation in 70 patients with mild to moderate symptomatic heart failure due to NICD with LVEF <35%, who received an ICD for primary prevention of SCD. Patients were evaluated for any appropriate device therapy delivered, whether shock or anti-tachycardia pacing, during a 1-year follow-up period.

Results: Appropriate device therapies were delivered in 14 of the 70 patients during the follow-up period, with anti-tachycardia pacing in 2, anti-tachycardia pacing with shocks in 4, and shocks in 8. Preimplantation MMP-1 levels were significantly higher in patients who had appropriate ICD-delivered therapy than in those who did not have any therapy (27.7±1.6 ng/ml vs. 24.1±2.5 ng/ml, respectively, P<0.001). The same was true for baseline serum concentrations of TIMP-1 and C2CT (88.1±14 ng/ml vs. 58±18 ng/ml, p=0.008 and 0.46±0.19 ng/ml vs. 0.19±0.07 ng/ml, p=0.001, respectively).

Conclusions: Undoubtedly, ECM alterations play a crucial role in the constitution of ventricular arrhythmogenic substrate in NICD and, given the availability of therapies to prevent fatal ventricular tachyarrhythmias, the quest for factors that have a very good correlation with appropriate ICD discharges in these patients is logical. Our results confirm the role of serum markers of collagen turnover as predictors of arrhythmic events in ICD recipients and could provide an auxiliary

P4941 | BEDSIDE
Early repolarization increases the occurrence of life-threatening ventricular tachyarrhythmia in patients with non-ischemic heart disease
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Background: Recent studies showed that early repolarization (ER) was associated with higher incidence of ventricular tachyarrhythmia (VT/VF) in patients with idiopathic ventricular fibrillation, Brugada syndrome, and ischemic heart disease. However, it is unknown whether there is an association between ER and VT/VF occurrences in patients with non-ischemic heart disease.

Methods: This study included 100 consecutive patients with non-ischemic heart disease (59±16 years; 71 men; 29 women) who underwent implantable cardioverter defibrillator (ICD) implantation. The primary endpoint was the occurrence of appropriate device therapy (shock or anti-tachycardia pacing) due to VT/VF. We evaluated the presence of ER from the ECG recorded before ICD implantation. ER was electrocardiographically defined as an elevation of the QT- ST junction of >0.1 mV from baseline at least 2 inferior or lateral leads, manifested as QRS slurring or notching. We also analyzed the localization (inferior or lateral leads), amplitude, morphology, and extent (APQ <20%) of ER. The presence of fragmented potentials (<0.1 mV from baseline in at least 2 inferior or lateral leads, manifested as QRS slurring or notching) was also analyzed.

Results: Among 100 patients with non-ischemic heart disease, 26 patients (26%) were positive for ER. ER was present in 58% of patients who had VT/VF (13 of 22 patients) compared to 35% of those who did not have any therapy (27.7±10.5% vs. 18.3±10.8%, respectively, p=0.036). The prevalence of ER was an independent predictor of VT/VF occurrence (OR 5.93; 95% confidence interval, 2.69–13.12; p<0.001). The presence of fragmented potentials (<0.1 mV from baseline in at least 2 inferior or lateral leads, manifested as QRS slurring or notching) was present in 19% of patients who had VT/VF (4 of 22 patients) compared to 10% of those who did not have any therapy (2.5±1.2% vs. 4.7±1.9%, respectively, p=0.055). The presence of fragmented potentials was an independent predictor of VT/VF occurrence (OR 7.93; 95% confidence interval, 1.84–35.06; p=0.006).

Conclusion: The presence of ER increases the risk for occurrence of life-threatening VT/VF in patients with non-ischemic heart disease.