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PROSPECTIVE USE OF ABLATION INDEX FOR RIGHT VENTRICLE OUTFLOW TRACT PREMATURE VENTRICULAR CONTRACTIONS ABLATION

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Background: Radiofrequency catheter ablation (RFCA) represents an effective option for frequent and symptomatic idiopathic premature ventricular contractions (PVCs) treatment. Ablation Index (AI) is a novel ablation marker incorporating RF power, contact force and time of delivery into a single weighted formula. AI-guided RFCA has been shown effective in atrial arrhythmia setting, however data regarding AI-guided PVCs RFCA are currently lacking.

Objective: to compare AI-guided and standard RFCA outcomes in patients with PVCs originating from the RVOT.

Methods: consecutive patients undergoing RFCA of RVOT idiopathic PVCs were enrolled [AI-guided pts]. RFCA was performed using pre-defined AI cut-offs, according to different target area (RVOT Free Wall AI cut-off: 590; RVOT Septum AI cut-off: 610). These patients were compared to an historical cohort using the propensity match score (age, sex, EF, site of PVC). Procedural success and 6 months success have been evaluated.

Results: 57 AI-guided patients (44.9±18.1 y.o., 58.8% male, LVEF 56.55.9 %) were enrolled; 32 (56.2%) were ablated in RVOT septum and 25 (43.8%) patients in the RVOT free wall area. Propensity match with 57 non AI-guided patients was performed. [Figure1]. Acute outcomes and complications resulted comparable between groups.
At 6-months, arrhythmic recurrence was more common in non-AI guided pts whether in general (31.6% vs 7.0% p = 0.002) or by ablated area (RVOT Free Wall: 32.0% vs 4.0%, p = 0.023; RVOT Septum 31.2% vs 9.3% p = 0.06). AI-guidance was associated with improved odds of survival from arrhythmic recurrence (Overall OR 7.22 [2.15 – 24.19], p = 0.001; RVOT Septum 5.99 [1.21 – 29.65], p = 0.028; RVOT Free Wall 12.74 [1.30 – 124.85], p = 0.029) (figure).

Conclusion: AI-guided RFCA for idiopathic PVCs ablation was strongly associated with better arrhythmic outcomes at 6-months follow up.