

SALA BIANCA

16.30-17.30

COMUNICAZIONI ORALI 7 – ABLAZIONE DI TACHICARDIE VENTRICOLARI

Moderatori: Giuseppe Sgarito (Palermo), Paolo China (Venezia, Mestre)

CO.07.01

FIRST ITALIAN EXPERIENCE WITH DUAL-ENERGY LATTICE-TIP FOCAL CATHETER AS A BAIL-OUT FOR VENTRICULAR TACHYCARDIA PATIENTS WITH ADVANCED CARDIOMYOPATHY

Mariano Sabatino, Marco Schiavone, Lorenzo Bianchini, Fabrizio Tundo, Benedetta Majocchi, Gaetano Fassini, Massimo Moltrasio, Nicoletta Ventrella, Selene Cellucci, Claudio Tondo, Corrado Carbucicchio
Centro Cardiologico Monzino IRCCS, Milano, ITALY

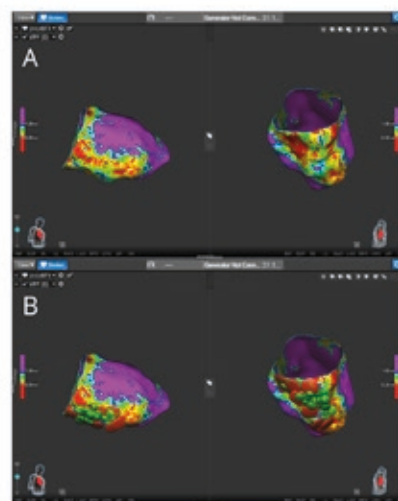
Conventional techniques of catheter ablation may be ineffective in case of complex ventricular arrhythmogenic substrates. The Sphere-9 (SpCat) (Medtronic, Minneapolis) large-tip catheter, integrated in a compatible electroanatomical mapping system (Affera, Medtronic), has the potential to deliver high-energy radiofrequency (RF) pulses together with pulsed-field (PF) energy, in a sequential mode, with the purpose to optimize ablation lesions maintaining a high safety profile.

Objectives: Aim of the study was to evaluate safety and efficacy of the Sp9Cat by a retrospective analysis of acute procedural outcomes, mid-term recurrences and complication rates, in a series of selected pts with advanced cardiomyopathy and refractory ventricular tachycardia (VT).

Patients and Methods: Between 11.2024 and 03.2025, 6 ICD patients (72 ± 8 yrs; 5/6 M; LVEF $29 \pm 7\%$) were enrolled: 4/6 pts had non-ischemic dilated cardiomyopathy (NICM), 2/6 had ischemic cardiomyopathy (ICM). 4/6 pts presented with clinical non-tolerated VTs, 4/6 with an electrical storm. 3/6 pts had undergone a prior ablation procedure (in 1 case with stereotactic radioablation); 1 pt had a LVAD implanted (Jarwick 2000). Dual energy CA was preferred with regard to patient characteristics together with the evidence of a deep intramural (4pts with NICM) or epicardial (2pts with ICM and prior ACBPG) substrate, based on ECGs and late-enhancement CT. One patient was supported during the procedure by pre-emptive ECMO. Endocardial LV electroanatomical mapping (EAM) integrated by intracardiac echography was employed in combination with conventional EP maneuvers and activation mapping, aiming at the suppression of any VT plus substrate modification. Lesion creation was obtained by high-power RF delivery (series of 30s pulses), followed by a variable number of sequence of 4 pulses (5s each) of PF for each ablation site.

Acute and mid-term outcomes: 5/6 pts were treated as planned: in one patient with previous chordal replacement, due to the entrapment of the tip of SpCat in the new chordae during the mapping phase, the procedure was switched to an ordinary ablation after catheter releasing with dedicated manipulation. EAM was accomplished in 4/5 pts (4464 ± 1052 points); in the patient with LVAD, due to electrical interferences, EAM was achieved only by SpCat signals. 3 tolerated VTs were induced and terminated by RF in 2 pts; in the remaining 3 pts ablation sites were defined by EAM and pacemapping. EGM abatement was obtained in 4/5 pts. No VT was induced in $\frac{3}{4}$ pts undergoing end-study programmed ventricular stimulation; in $\frac{1}{4}$ a non-clinical VT was induced. 20 ± 29 RF and 57 ± 26 PF pulses sequences were delivered. Procedure time was 257 ± 84 m, fluoroscopy time 64 ± 34 m. No major complication occurred. At a median FU of 3mo no VT episode occurred at ICD monitoring; 2/6 pts were hospitalized due to progression of heart failure.

Conclusions: Preliminary findings suggest that Sphere-9 large-tip catheter can be effective and safe in the treatment of complex arrhythmogenic substrates in patients with advanced cardiomyopathies. In this setting, the combination of RF + PF energy may represent the key for a more appropriate ablation lesion; further evaluation is however required to validate feasibility and safety in larger groups of patients.



Panel A: A high density endocardial electroanatomical map of the LV in a patient with NICM and infero-septal scar is shown (two different projections with cut-off values for dense scar and healthy tissue < 0.2 mV and > 1.0 mV respectively). The map was acquired with the Sphere-9 catheter integrated in the Affera system and comprised > 3000 mapping points. Panel B: same projections. A substrate guided strategy of ablation was applied; red and green dots refer to RF and PF-E pulses respectively at the end of procedure.