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Real-world observational data confirm the efficacy of atrial antitachycardia pacing in terminating slow and regular atrial tachyarrhythmias in patients wearing implantable cardiac electronic devices

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Background: Atrial tachyarrhythmias (AT/AF) are frequently observed and are associated with worse prognosis in patients with cardiac implantable electronic devices (CIED). The international MINERVA trial showed that atrial antitachycardia pacing (ATP) terminates slow and regular AT/AF and this translates in a significant prevention of permanent AT/AF in comparison with standard dual-chamber pacing in patients who received a dual-chamber pacemaker for sinus node disease.

Purpose: To evaluate this evidence also in pacemaker patients with AV block, in patients wearing implantable cardioverter defibrillators (ICD), and in patients with cardiac resynchronization therapy (CRT) ICD.

Methods: Consecutive patients with CIED were prospectively followed by 26 Italian cardiologic centers in an observational research. Clinical and device data were collected through in clinic visit and/or remote transmissions of device data. Research endpoints were AF episode cycle length, ATP therapy efficacy in terminating treated AF episodes, AF episode rhythm regularity and number of transitions among different AF detection zones in each AF episode (the 10 AF detection zones comprise 7 zones of 50 ms length for regular rhythms and 3 zones of 100 ms length for irregular rhythms). The ATP efficacy was adjusted by means of the generalized estimating equation (GEE) method and reported together with the 95% Confidence Interval (CI). Logistic regression was used to compare ATP efficacy in AT/AF with median cycle length lower vs. equal to or higher than 200 ms and the odds ratio (OR) together with the 95% CI was reported.

Results: The cohort of 1047 patients with dual-chamber and triple-chamber CIED was composed by 394 patients with dual-chamber pacemaker, 234 patients with dual-chamber ICD and 419 patients with CRT ICD. In a median follow-up of 10.7 months (inter-quartile range: 3.5-16.9 months), 602/1047 (57.5%) patients suffered AT/AF episodes. Device diagnostics stored detailed AT/AF data for 87721 episodes; 33414 episodes were treated by atrial ATP in 356 patients and 11169 (33.4%) episodes were terminated (GEE-adjusted ATP efficacy was 27.3% (95%CI=24.9-29.8%). AT/AF median atrial cycle length was 260 (inter-quartile range: 220-320). ATP efficacy showed a dichotomous behaviour being 23.7% (95%CI=20.4-27.3%) in AT/AF with median cycle length lower than 200 ms and 28.9% (95%CI=26.3-31.5%) in AT/AF with median cycle length higher than or equal to 200 ms (OR: 0.76, 95%CI=0.63-0.91, p=0.002). Many AF episodes showed rate and rhythm temporal transitions, as shown by a median value of transitions per episode among the 10 detection windows equal to 2.6±1.4.

Conclusions: In a large cohort of patients with dual-chamber and triple-chamber CIED, followed in real-world clinical practice, we confirmed that atrial ATP does terminate a relevant portion of tachyarrhythmic episodes and that ATP efficacy is associated with arrhythmia transitions to slower rates or more regular rhythms.

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Are the Use of Imaging Technologies before the Procedure Impactful in Outcome of Pulmonary Vein Cryoablation for Recurrent AF ?

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Background: Pulmonary Vein Cryoablation (PVC) is an approved and standard of care therapy for treating paroxysmal, symptomatic, recurrent atrial fibrillation (AF). However, one of the factors that make AF ablation procedure difficult could be the complex and variable anatomy of left atrium and pulmonary vein (PV). The usefulness of the imaging before the procedure on the long term success of cryoablation is still unknown.

Purpose: To evaluate the impact of imaging before the cryoablation on procedure time, acute complication and long term AF recurrence.

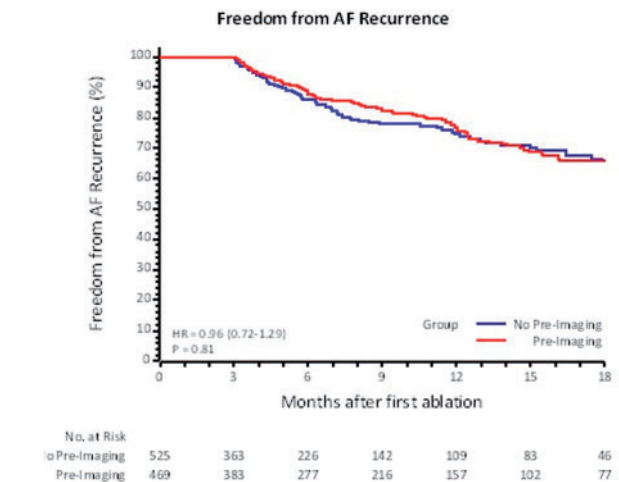
Methods: From April 2012, 994 paroxysmal AF patients (70% male, 59 ± 11 years; mean left atrial diameter 41±6 mm) underwent index PVC. Data were collected prospectively in the framework of the One Shot TO Pulmonary vein isolation (1STOP)

ClinicalService® project, involving 36 Italian Cardiologic Centers. All patients were divided into two groups according to the availability and usage of imaging data (Computer tomography- CT- or Magnetic Resonance -MR) of PV anatomy during the procedure.

Results: Out of 994 patients, 469 were evaluated with CT or MR before the PVC (Imaging Group), while for 525 patients no imaging information were requested (No Imaging Group). The patient baseline characteristics are comparable between the two groups. The acute success rate were similar between the 2 groups (98.6 % in the Imaging Group vs 98.5% in the No Imaging Group). In overall population the rate of acute procedural complications is 4.7%, driven by transient diaphragmatic paralysis, occurred in 24 patients. Total procedural time is 119.0 ± 42.2 minutes in the Imaging Group vs 90.0 ± 33.2 minutes in the other group (p=0.01). The presence of PV anomalies were detected in 61 patients (13.6%) in the Imaging Group and in 41 patients (8.2%) in the other group.

The 12month freedom of AF recurrence probability was 76.5% in the imaging group as compared with 74.5% in the No imaging group (p=NS) as shown in fig 1.

Conclusions: In our experience, in the 47% of procedures imaging data of left atrium were available in order to acquire adequate PV anatomical information for AF ablation. PVC seem to be effective regardless the availability of imaging data of PV anatomy.



Abstract P895 Figure.

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Acute Pericarditis following Second Generation Cryoballoon Ablation for Atrial Fibrillation

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Purpose: Acute pericarditis is a minor complication following atrial fibrillation (AF) ablation procedure. The aim of the study was to evaluate the incidence and clinical aspects of pericarditis following cryoballoon (CB) ablation of AF investigating a possible association with procedural characteristics and a possible relationship with post-ablation AF recurrence.

Methods: One hundred fifty consecutive patients (male 72%, age 59.9±11.2 years) with drug resistant paroxysmal AF who underwent CB ablation as index procedure were enrolled.

Results: Acute pericarditis following CB ablation occurred in 18 patients (4%) of our study population. Pericardial effusion occurred in 14 patients (78%) and was mild/moderate. The total number of cryoapplications and the total freeze duration were significantly higher in patients with pericarditis compared with those without (respectively, p=0.0006 and p=0.01). Specifically, the number of applications and freeze duration in right inferior pulmonary vein were found significantly higher in patients with pericarditis (p=0.007). The recurrence rate did not significantly differ between the 2 study groups (respectively, 16.7% vs 18.1%; p=0.9).

Conclusions: The incidence of acute pericarditis following CB ablation in our study population accounted for 4% and was associated with both total freezing time and number of cryoapplications. The clinical course was favourable in all these patients and the occurrence of acute pericarditis did not affect the outcome during the follow-up period.

WITHDRAWN

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