FUNCTIONAL PERMANENT 2:1 ATRIOVENERTRIC BLOCK TREATED WITH CARDIOVIRTUAL BLOCK ABLATION: CASE REPORT

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A 54-year-old woman had undergone slow pathway ablation for AVNRT 3 years ago. Before admission she had started to present with recurrent tachycardia to due to 2:1 AV block and was referred for pacemaker implantation. She was asymptomatic and had no signs of AV conduction abnormalities until 2 weeks ago. AV conduction abnormality resolved with atropine infusion and at stage 2 of a treadmill exercise test. Electrophysiology study showed supraventricular 2:1 AV block. Using a 4-mm-open-tip irrigated RF catheter the 3-dimensional geometry of the right and left atrium was created using a 3-dimensional electroanatomic mapping system. Bipolar endocardial electrograms were displayed at fiber settings of 30-500 Hz and 300-500 Hz (for EPS and online special analysis, respectively) and measured at a sweep-speed of 400 mm/s. Localization of the ganglia was detected by high-frequency stimulation. The ablation procedure was performed only via the RA. The RA sites showing a parasympathetic response and bilateral atrial myocardium pattern were assigned as targets and ablated until atrial electrical potential was almost completely eliminated. A high degree AV block was seen during RF application at targeted sites. After AV node ablation by ablation of ganglia A and C via the RA approach, AV conduction was not restored (Figure 1). The result of our case indicates that cardiomodulation in patients with functional AV block is feasible and may be a valuable adjunctive therapy in patients without can be adequately treated by conventional modalities and refuse pacemaker implantation. Figure 1 Electropogram-guided ablation. Left lateral (left) and anteroposterior (right) views a 3-dimensional reconstruction of the right atrium (blue) and left atrium (gray). Focal applications of radiofrequency energy were delivered at sites that displayed birefringent electrograms. Brown tags indicate ablation sites.

Conflict of interest: none

CLINICAL IMPACT OF SLOW-PATHWAY ABLATION IN PATIENTS WITH CLINICAL ON-OFF TACHYCARDIA SYMPTOMS; FROM A STANDPOINT OF SYMPTOMATIC IMPROVEMENT

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Purpose: Slow pathway modulation (SPM) in patients with atrioventricular nodal reentrant tachycardia (AVNRT) has already been established as a standard therapy. However, in clinical practice, it is sometimes difficult to prove the presence of AVNRT during electrophysiological study. In this case, empirical SPM has recently been reported to be effective. The aim of this study was to evaluate the efficacy of SPM from a perspective of symptomatic improvement.

Methods: Study population consisted of 240 patients who underwent SPM between 2012 and 2014 (70 male, 47.3 ± 18.0 years). All patients had clinical on-off tachycardia or palpitation. The patients were arbitrary divided into two groups depending on the presence of 2 or more atrioventricular nodal echo beats during EPS with or without administration of metoprolol.

Summary: SPM was successfully performed in all patients without major complications. During mean follow-up of 1054 ± 425 days, 78% (94/121) of the patients had no more clinical symptoms, and recurrence of AVNRT was demonstrated in 3 patients (2.1%). In 159 patients (66%), a dual AV-nodal conduction property and 2 or more AV-nodal echo beats with or without metoprolol administration were proved (Group-1). Remaining 81 patients without dual AV-nodal conduction property or up to 1 AV-nodal echo beat were assigned to Group-2. The recurrence rate of AVNRT was not significantly different between groups (2/159 [1.3%] vs 1/81 [1.2%], respectively for Group-1 and Group-2, P = 0.99). The rate of subjective symptom persistence (no improvement) was significantly lower in Group-1 (2/159 [1.3%] vs 7/81 [8.6%], P = 0.0078). Moreover, the incidence of other documented atrial tachycardia was significantly lower in Group-1 (0/159 [0%] vs 3/81 [3.7%], P = 0.038).

Conclusion: Higher persistence of subjective symptoms after SPM was noted in patients without or 2 or more AV-nodal echo, although the SPM improved clinical symptoms in over 90% of patients. Our data underscores the importance of a careful follow-up in this patient population to document other clinical true tachycardia in spite of empirical SPM.

Conflict of interest: none

HIGH MORTALITY AFTER ABLATION OF VENTRICULAR TACHYCARDIA IN PATIENTS WITH DILATED CARDIOMYOPATHY

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Background: In patients with dilated cardiomyopathy, ventricular tachycardia (VT) causes significant morbidity and mortality. Implantable cardioverter defibrillators (ICDs) shocks terminate VT but confer a significant morbidity and mortality risk. Therefore, VT ablation is increasingly common. Outcome data following ablation is sparse. We present long-term outcome data following ablation for VT in patients with DCM.

Methods: Long-term follow up was performed in all patients (pts) with DCM undergoing VT ablation at our institution between 2004 and 2015.

Results: VT ablation was performed in 96 pts with DCM who underwent VT ablation at our institution and follow-up (FU) data were analysed in 94 pts. Two pts were lost to FU. Mean age was 58 ± 13 years, 76/94 pts (81%) were male, mean left ventricular ejection fraction was 35%: 26/94 pts (27.4%), 31 (31/94 (32.9%) had primary cardiac indication, 984 days 31 (31/94 (32.9%) pts), in 3 (3/94 [3.4%]) pts a Left Ventricular Assist Device (LVAD) was implanted and 5/31 (16.7%) pts were listed for heart transplantation after index procedure during FU. Recurrence of VT was observed in 18/31 pts (58%).

Conclusions: In patients with DCM and VT, morbidity and mortality VT recurrence rates after catheter ablation are high. Therefore, in these patients high quality care is mandatory.

Conflict of interest: none

LONG-TERM BENEFIT OF FIRST-LINE PERI-ICD IMPLANT VT-SUBSTRATE ABLATION IN SECONDARY PREVENTION PATIENTS

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Purpose: This study assessed the benefit of peri-ICD implant VT-substrate ablation in patients with monomorphic VT due to structural heart disease.

Methods: Patients with structural heart disease and indication for secondary-prevention ICD implant were included in this prospective cohort study. Patients presenting incessant/slow VT or frequent (2 or more) VT episodes who underwent peri-ICD VT-substrate ablation (separate shock channels) were compared with patients who received ICD alone and did not meet ablation criteria. Primary endpoint was any sustained VT/ICD therapy during follow-up.

Results: Of 206 patients included (43.2% non-ischemic), 70 were assigned to ablation and 136 received ICD implant alone. During a mean follow-up of 45.6 ± 24.7 months, the primary endpoint was more frequent in the non-ischemic (47/33%) vs. ablation group (22/91) [p = 0.001]; Higher VT recurrence-free survival [log-Rank p = 0.001; HR = 0.42 (0.24-0.73), p = 0.002] and ICD shock-free survival [log-Rank p = 0.007; HR = 0.36 (0.17-0.78), p = 0.01] were observed in the ablation group. Higher relative risk reduction was observed in ischemic [HR = 0.38 (0.18-0.80), p = 0.015] vs non-ischemic patients [HR = 0.49 (0.23-1.01), p = 0.08]. Patients with left ventricular ejection fraction <35% showed no differences in VT recurrence between treatment groups [log-Rank p = 0.213].

Conclusion: First-line peri-ICD implant VT-substrate ablation was associated with decreased VT recurrence and ICD shocks during long-term follow-up in patients with structural heart disease and indication for secondary prevention ICD implant, especially in patients with ischemic heart disease. No benefit was observed in patients with left ventricular ejection fraction <35%.

Conflict of interest: none