

Ventricular tachycardia ablation in nonischemic cardiomyopathy

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Funding Acknowledgements: Type of funding sources: None.

INTRODUCTION: Catheter ablation outcomes for drug-resistant ventricular tachycardia (VT) in nonischemic cardiomyopathy (NICM) are suboptimal when compared to ischemic cardiomyopathy. We aimed to analyse the long-term efficacy and safety of percutaneous catheter ablation in this subset of patients.

METHODS: Single-center observational retrospective registry including consecutive NICM patients who underwent catheter ablation for drug-resistant VT during a 10-year period. The efficacy endpoint was defined as VT-free survival after catheter ablation, while safety outcomes were defined by 30-days mortality and procedure-related complications. Independent predictors of VT recurrence were assessed by Cox regression.

RESULTS: In a population of 68 patients, most were male (85%), mean left ventricular ejection fraction (LVEF) was $34 \pm 12\%$, and mean age was 58 ± 15 years. All patients had an implantable cardioverter-defibrillator. Twenty-six (38%) patients underwent epicardial ablation (table 1). Over a median follow-up of 3 years (IQR 1-8), 41% (n = 31) patients had VT recurrence and 28% died (n = 19). Multivariate survival analysis identified LVEF (HR= 0.98; 95%CI 0.92-0.99, p = 0.046) and VT storm at presentation (HR = 2.38; 95%CI 1.04-5.46, p = 0.041) as independent predictors of VT recurrence. The yearly rates of VT recurrence and overall mortality were 21%/year and 10%/year, respectively. No patients died at 30-days post-procedure, and mean hospital length of stay was 5 ± 6 days. The complication rate was 7% (n = 5, table 1), mostly in patients undergoing epicardial ablation (4 vs 1 in endocardial ablation, P = 0.046).

CONCLUSION: LVEF and VT storm at presentation were independent predictors of VT recurrence in NICM patients after catheter ablation. While clinical outcomes can be improved with further technical and scientific development, a tailored endocardial/epicardial approach was safe, with low overall number of complications and no 30-days mortality.

Abstract Figure.

Table 1: Baseline characteristics of the population

Baseline characteristics	Population (N=68)
Male sex – no. (%)	58 (85.3)
Age – mean \pm SD	58 ± 15
HTN – no. (%)	39 (57.4)
Dyslipidemia – no. (%)	28 (41.2)
Diabetes mellitus type 2 – no. (%)	11 (16.2)
History of tobacco consumption – no. (%)	23 (33.8)
Atrial fibrillation – no. (%)	7 (10.2)
NYHA class III or IV – no. (%)	36 (52.9)
Chronic kidney disease – no. (%)	26 (38.3)
Beta-blocker – no. (%)	66 (97.1)
Amiodarone – no. (%)	60 (88.2)
LVEF (%) – mean \pm SD	34 ± 12
RBBB-like VT morphology – no. (%)	47 (69.1)
Electrical storm at presentation – no. (%)	18 (26.5)
Epicardial ablation – no. (%)	26 (38.2)
Hospitalization duration (days) – mean \pm SD	5 ± 6
Complications – no. (%)	5 (7.3)
Pericardial effusion – no. (%)	2 (2.9)
Right ventricle puncture – no. (%)	1 (1.5)
Vascular complication – no. (%)	1 (1.5)
Complete heart block – no. (%)	1 (1.5)

HTN=arterial hypertension; ICD=implantable cardioverter-defibrillator; LVEF=left ventricle ejection fraction; NYHA=New York Heart Association functional class; RBBB=right bundle branch block; SD=standard deviation; VT=ventricular tachycardia.