

Clinical Research

Ablation of Ventricular Tachycardia in the Very Elderly Patient With Cardiomyopathy: How Old Is Too Old?

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ABSTRACT

Background: Because of the disputable effectiveness of the implantable cardioverter-defibrillator (ICD) in very elderly patients, it is reasonable to consider catheter ablation of scar-related ventricular tachycardia (VT) at an earlier stage of the therapeutic cascade, especially in those who have refused ICD implantation.

Methods: Analysis of 53 VT ablations performed in our tertiary centre in patients with ischemic or nonischemic dilated cardiomyopathy who were ≥ 60 years of age. We assessed the safety and acute effectiveness of the procedure in 14 very elderly patients (age ≥ 80 years), follow-up all-cause mortality and rates of ICD therapies during follow-up. Furthermore, we established a comparison between very elderly patients and: (1) 34 patients aged 60–79 years having the same procedure; and (2) 11 octogenarian patients with ischemic or nonischemic cardiomyopathy, documented ventricular fibrillation or sustained VT, subsequent secondary prevention ICD implantation and at least 1 ICD therapy after implantation.

Ablation procedures for ventricular tachycardia (VT) have become the state of the art treatment for patients with refractory symptomatic VT in the context of ischemic or nonischemic cardiomyopathy. The few clinical studies on catheter ablation in elderly patients have shown outcomes similar to those previously reported for younger patients.¹ However, ablation for ischemic VT is usually a complex and longer-lasting procedure with a higher overall risk of complications. Two recent reports have suggested this procedure is relatively safe in patients ≥ 75 years of age and as effective as in their younger counterparts.^{2,3}

In this study we aimed to: (1) describe a cohort of very elderly patients (age ≥ 80 years) with ischemic or nonischemic dilated cardiomyopathy submitted to VT ablation; (2) assess the safety, and acute and postacute effectiveness of VT

RÉSUMÉ

Introduction : Puisque l'efficacité du défibrillateur cardiovertéur implantable (DCI) chez les patients très âgés est discutable, il est raisonnable de considérer l'ablation par cathéter de la tachycardie ventriculaire (TV) liée à une cicatrice à un stade précoce de la cascade du traitement, particulièrement chez ceux qui ont refusé l'implantation d'un DCI.

Méthodes : L'analyse de 53 ablations de la TV réalisées dans notre centre de soins tertiaires chez les patients souffrant de cardiomyopathie dilatée d'origine ischémique ou non-ischémique qui étaient âgés ≥ 60 ans. Nous avons évalué l'innocuité et l'efficacité à court terme de l'intervention chez 14 patients très âgés (≥ 80 ans), le suivi de la mortalité toutes causes confondues et des taux de traitements par DCI durant le suivi. De plus, nous avons établi une comparaison entre les patients très âgés et : 1) 34 patients de 60 à 79 ans ayant subi la même intervention; 2) 11 patients octogénaires souffrant de cardiomyopathie d'origine ischémique ou non-ischémique, de FV

ablation in the previously mentioned cohort and the post-procedural risk of all-cause mortality; (3) compare patients ≥ 80 years of age submitted to VT ablation with a younger cohort of individuals aged 60–79 years submitted to the same procedure; and (4) with a group of octogenarian patients with ischemic or nonischemic dilated cardiomyopathy having implantable cardioverter-defibrillator (ICD) implantation for secondary prevention of sudden cardiac death and with at least 1 ICD therapy (ICD-t) delivered during follow-up.

Methods

Study design

This was a retrospective analysis of a prospectively kept database of all VT ablations performed in our tertiary centre in patients ≥ 60 years of age with ischemic or nonischemic dilated cardiomyopathy between January 2008 and February 2014. We assessed the safety and effectiveness of the procedure in very elderly patients (age ≥ 80 years), follow-up all-cause mortality, and rates of ICD-t (antitachycardia pacing [ATP] and shocks) and/or symptomatic VT during follow-up.

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See page 722 for disclosure information.

Results: Complete acute success was achieved in 80% of procedures in very elderly patients vs 91.7% in younger individuals. Three complications occurred in the former, including 1 periprocedural death not directly related to the procedure itself, and 2 were seen in the latter. A 6-month 27.3% occurrence of any ICD therapy was seen in the very elderly group (with only 1 patient who required an ICD shock), and the 6-month incidence of ICD therapies in the younger group was 32%. All 11 control octogenarian ICD patients had further ICD therapies after their first ICD intervention.

Conclusions: Ablation of VT in very elderly patients seems relatively safe and as effective as in younger patients.

Furthermore, we established a comparison between very elderly patients and: (1) those aged 60-79 years having the same procedure; and (2) octogenarian patients with ischemic or nonischemic cardiomyopathy and history of ventricular fibrillation or sustained VT, previous secondary prevention ICD implantation (but no ablation), and at least 1 ICD-t after implantation.

Patients and eligibility criteria

Forty-eight patients aged ≥ 60 years and having a total of 53 VT ablations in the context of ischemic or nonischemic dilated cardiomyopathy and recurrent symptomatic VT and/or ICD shocks despite optimized medical treatment were included. Fifteen ablations were performed in 14 patients ≥ 80 years of age (mean age, 84 years; range, 80-92). All patients were included in the analysis.

The third group included 11 octogenarian patients with ischemic or nonischemic cardiomyopathy, previously documented ventricular fibrillation or sustained VT, and ICD implantation for secondary prevention of sudden cardiac death and who had at least 1 ICD-t during follow-up (but no ablation). These patients were followed after their first ICD-t. This group was among those described in our previous analysis of ICD implantation in octogenarian patients.⁴

Data collection

We collected data on medical history, medication, echocardiography, and device characteristics; procedural data, including procedural urgency and duration, fluoroscopy time, access type, number of inducible VTs, complications, and acute effectiveness; follow-up data including the occurrence of any appropriate ICD-t, time to first appropriate ICD-t, type (ATP and/or ICD shock), total number of episodes, and all-cause mortality. Procedures were considered emergent if the patient was in symptomatic incessant VT refractory to all standard therapeutic measures (including electrical cardioversion and intravenous antiarrhythmic treatment), and urgent procedures were those performed because of recurrent ICD storms leading to patient admission to hospital and subsequent transfer to our institution for VT ablation. Elective cases included patients seen at the ICD clinic who were

démontrée ou de TV soutenue, ayant subi l'implantation subséquente d'un DCI en prévention secondaire et au moins 1 traitement par DCI après l'implantation.

Résultats : Le taux de réussite complète à court terme était atteint dans 80 % des interventions chez les patients très âgés vs 91,7 % chez les individus plus jeunes. Trois complications sont apparues dans le premier groupe, dont 1 mort péri-interventionnelle non directement liée à l'intervention en soi, et 2 ont été observées dans le second groupe. Une fréquence de tout traitement par DCI de 27,3 % à 6 mois a été observée dans le groupe de patients très âgés (dont 1 seul patient qui a nécessité un choc par DCI) et une fréquence de traitements par DCI de 32 % à 6 mois dans le groupe de patients plus jeunes. Les 11 patients octogénaires témoins ayant un DCI ont subi davantage de traitements par DCI après leur première intervention de DCI.

Conclusion : L'ablation de la TV chez les patients très âgés semble relativement sécuritaire et aussi efficace que chez les jeunes patients.

admitted from home for VT ablation because of recurrent and frequent drug-refractory ICD-t.

Study end points and patient follow-up

The study end points were: (1) all-cause mortality; (2) the occurrence of any significant VT, defined as any ICD-t (ATP and/or ICD shock) or any symptomatic VT regardless of ICD-t; and (3) time to first appropriate ICD-t.

Patients in the very elderly group were followed for 12.2 ± 8 months (range, 1-30 months), and those aged 60-79 years were followed for 25 ± 21 months (range, 1-77 months). The 11 octogenarian ICD recipients with no ablation were followed for an average of 35 months (range, 3-62 months). Follow-up data were obtained through review of clinical records from outpatient and ICD clinics and hospital ward admissions. All patients had at least 1 follow-up with ICD storage data available (3 octogenarian patients who received VT ablation did not have an ICD).

Statistical analysis

Statistical analysis was done using IBM SPSS Statistics, version 22. When needed, baseline characteristics are described with mean \pm standard deviation for continuous data and counts and proportions for categorical data. The Kolmogorov-Smirnov test was used to test the normal distribution of continuous variables. The χ^2 test, Student *t* test and nonparametric equivalent tests were used when appropriate. *P* values < 0.05 (2-sided) were considered statistically significant.

Results

VT ablation in very elderly patients

Procedural and periprocedural data. Fifteen VT ablations in 14 patients were performed: mean age, 84 years (range, 80-92 years), 35.7% female, all but 1 with ischemic cardiomyopathy, 57.1% with severe left ventricular dysfunction, all patients receiving a β -blocker, 50% receiving amiodarone (the remaining 50% had received amiodarone in the past, but stopped it because of intolerance/toxicity), 9 with ICDs—3

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