

Special article

# Spanish Catheter Ablation Registry. 15th Official Report of the Spanish Society of Cardiology Working Group on Electrophysiology and Arrhythmias (2015)

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ABSTRACT

**Introduction and objectives:** This report presents the findings of the 2015 Spanish Catheter Ablation Registry. **Methods:** For data collection, each center was allowed to choose freely between 2 systems: retrospective, requiring the completion of a standardized questionnaire, and prospective, involving reporting to a central database.

**Results:** Data were collected from 82 centers. A total of 12 863 ablation procedures were performed, for a mean of  $157 \pm 119$  and a median of 138 procedures per center. The ablation target most frequently treated was cavotricuspid isthmus ( $n = 2992$  [23.2%]), followed by atrioventricular nodal reentrant tachycardia ( $n = 2966$  [23%]) and atrial fibrillation ( $n = 2640$  [20.5%]). There were fewer ablation procedures for atrial tachycardia, idiopathic ventricular tachycardia and accessory pathways, while those for ventricular tachycardia in ischemic cardiomyopathy remained steady. The overall success rate, excluding atrial fibrillation and ventricular tachycardia in cardiomyopathy, was 87.5%, the rate of major complications was 2%, and the mortality rate was 0.08%.

**Conclusions:** The 2015 registry is the first to show a slight reduction in the number of centers sending in their results and in the total number of ablation procedures performed. The most frequently treated substrate was the cavotricuspid isthmus. There was also a slight decrease in the success rate. The complications and mortality rates remained low.

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## Registro Español de Ablación con Catéter. XV Informe Oficial de la Sección de Electrofisiología y Arritmias de la Sociedad Española de Cardiología (2015)

RESUMEN

**Introducción y objetivos:** Se describen los resultados del Registro Español de Ablación con Catéter correspondientes al año 2015.

**Métodos:** La recogida de datos se llevó a cabo mediante dos sistemas: de manera retrospectiva con la cumplimentación de un formulario y de manera prospectiva a través de una base de datos común. La elección de una u otra fue voluntaria para cada uno de los centros.

**Resultados:** Se analizaron datos de 82 centros. El número total de procedimientos de ablación fue 12.863, con una media de  $157 \pm 119$  y una mediana de 138 procedimientos. El sustrato abordado con más frecuencia fue la ablación del istmo cavotricuspidé ( $n = 2.992$  [23,2%]), seguido de la taquicardia intranodular ( $n = 2.966$  [23%]) y la fibrilación auricular ( $n = 2.640$  [20,5%]). Las taquicardias auriculares han sufrido un descenso, al igual que la ablación de taquicardias ventriculares idiopáticas y las vías accesorias, mientras que permanecieron estables las asociadas a cicatriz posinfarto. La tasa total de éxito, excluidas la fibrilación auricular y las taquicardias ventriculares con cardiopatía, fue del 87,5%; la de complicaciones mayores, del 2% y la de mortalidad, del 0,08%.

**Conclusiones:** El registro del año 2015 es el primero en que hay una ligera reducción de los centros que envían sus resultados y del número total de ablaciones. El istmo cavotricuspidé pasa a ser el primer sustrato abordado. Hay también un ligero descenso de la tasa de éxito. Las complicaciones y la mortalidad permanecen bajas.

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◇ See [Appendix 1](#) for the complete list of collaborators.

## Abbreviations

AF: atrial fibrillation  
AVNRT: atrioventricular nodal reentrant tachycardia  
CTI: cavotricuspid isthmus  
FAT: focal atrial tachycardia  
IVT: idiopathic ventricular tachycardia  
MAT: macroreentrant atrial tachycardia  
VT-ICM: ventricular tachycardia in ischemic cardiomyopathy  
VT-NICM: ventricular tachycardia in nonischemic cardiomyopathy

## INTRODUCTION

The purpose of the present article is to communicate the findings of the Spanish Catheter Ablation Registry, the Official Report of the Working Group on Electrophysiology and Arrhythmias of the Spanish Society of Cardiology for 2015, thus marking the 15th year of uninterrupted activity by this group<sup>1-14</sup>. The registry is a voluntary nationwide record, published annually, that includes data from most of the arrhythmia units operating in Spain, making it one of the few large-scale, observational registries focusing on catheter ablation.

The main objectives of the registry are to observe and describe developments in the interventional treatment of cardiac arrhythmias in Spain and to provide reliable information on the type of activity carried out and the facilities available in Spanish arrhythmia units.

## METHODS

As in previous years, 2 different systems, 1 prospective and the other retrospective, were used for data collection. For the prospective method, the registry provided a standardized database that required the introduction of individual patient data. The retrospective approach involved completing a standardized questionnaire that was sent to all the participating interventional electrophysiology laboratories in January 2016; the questionnaire was also available on the website of the Working Group on Electrophysiology and Arrhythmias<sup>15</sup>. All the data compiled by both systems remained anonymous, even to the registry coordinators. The secretariat of the Spanish Society of Cardiology ensured that the participating centers could not be identified.

The information collected concerned the technical and human resources available in the arrhythmias units, the procedures performed, and the patients' demographic data. As in previous years, the data on human resources included information only from centers in the publicly-funded health system, and the epidemiologic variables included only those from patients treated in centers using the prospective data collection method.

We analyzed the same 10 arrhythmias and arrhythmogenic substrates that were examined in previous registries: atrioventricular nodal reentrant tachycardia (AVNRT), accessory pathway, atrioventricular node (AVN), focal atrial tachycardia (FAT), cavotricuspid isthmus (CTI), macroreentrant atrial tachycardia (MAT), atrial fibrillation (AF), idiopathic ventricular tachycardia (IVT), ventricular tachycardia in ischemic cardiomyopathy (VT-ICM), and ventricular tachycardia in nonischemic cardiomyopathy (VT-NICM). The following variables common to these 10 conditions were analyzed: number of patients and procedures performed, success rate, type of ablation catheter used, and number and type of procedure-related complications, including periprocedural death.

In addition, we analyzed a number of substrate-specific variables, such as the anatomic location and type of accessory pathway conduction, the location and mechanism of atrial tachycardia, and the type of ventricular tachycardia.

As in previous years, the success rate refers only to the immediate postprocedural data (acute success rate). The number of recurrences could not be determined because there was no follow-up analysis. Several therapeutic approaches with different objectives can be used to treat AF and VT-ICM, and the criteria for success/failure may differ depending on the technique applied. Thus, AF, VT-ICM, and VT-NICM were excluded from the analysis of the overall outcome of ablation procedures. As for complications, only those occurring during the hospital stay following the procedure were reported.

## Statistical Analysis

Continuous variables are expressed as the mean  $\pm$  standard deviation. Differences between continuous variables were evaluated using the Student *t* test for dependent or independent samples, as appropriate. Differences between categorical variables were assessed using the chi-square or Fisher exact test. Statistical significance was set at a *P* value of  $< .05$ . The statistical analysis was carried out using an SPSS (20.0) database.

## RESULTS

In contrast to the findings in previous registries, the number of participating centers did not increase this year. Eighty-two centers participated in the 2015 registry (Appendix 2) and, for the first time, the total number of procedures did not increase, but remained steady or decreased slightly compared with the previous year (Figure 1). The participating centers included 61 (74.4%) from the public health care system and 21 (25.6%) from the private sector.

As has been the case in previous years, the approach most widely used was retrospective data collection. Only 9 centers (11%) provided prospectively collected data.

The participating hospitals continued to be mainly tertiary (85.4%) and teaching (72%) centers. Patients were attended in cardiology departments in 81 centers (98.8%) and 63.8% had cardiac surgery units.

## Epidemiological Characteristics

The epidemiological characteristics were analyzed using only the prospective data collected in 9 centers, with a total of 1959 ablation procedures.

The overall mean age of the patients was  $58 \pm 31$  years; the youngest were those with an accessory pathway ( $43 \pm 16$  years) and the oldest, those who underwent AVN ablation ( $70 \pm 11$  years). Regarding the sex distribution, women predominated in AVNRT ablation (72%), whereas men predominated in ablation for ventricular tachycardia (74%), with or without associated structural heart disease, MAT (70%), and AF (66%).

In all, 18.3% of the patients had a history of structural heart disease, and left ventricular dysfunction was generally limited to patients undergoing ablation of AVN, VT-ICM, or VT-NICM.

## Infrastructure and Resources

The technical and human resources available in the participating laboratories and the activity carried out are presented in Table 1 and Table 2.

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