



Contents lists available at ScienceDirect

Indian Pacing and Electrophysiology Journal

journal homepage: www.elsevier.com/locate/IPEJ

Catheter ablation in the treatment of electrical storm: Integrative review

Ricardo Teixeira Leal, Gabriel Costa Monteiro, Antônio da Silva Menezes Júnior*

Pontifícia Universidade Católica de Goiás, Escola de Ciências Médicas, Farmacêuticas e Biomédicas, Avenida Universitária 1440, Goiânia, Goiás, Brazil

ARTICLE INFO

Article history:

Received 28 May 2017

Received in revised form

20 July 2017

Accepted 26 July 2017

Available online xxx

Keywords:

Electrical storm

Arrhythmogenic storm

Catheter ablation

ABSTRACT

Background: The incidence of electrical storm (ES) has been increasing with the rise of the indicated uses of implantable cardioverter defibrillators (ICDs). It is estimated that 20% of patients will evolve to have this complication. Ablative therapy stands out as the treatment for this condition when it is refractory to antiarrhythmic treatment. The objective was to define the current role of catheter ablation in the treatment of electrical storm.

Methods: An integrative literature review was performed using the PubMed and BVS databases. All identified articles were screened and verified for eligibility by the authors.

Results: Twenty-five out of the initial 951 articles were used in the final analysis. The categories listed for analysis included indication for ablation in ES, modality of the approach, therapeutic success, complications related to the procedure, mortality and cardiovascular follow-up and alternative therapeutic modalities by frequency of these categories in the articles researched.

Conclusion: Catheter ablation is the initial therapy for patients with ischemic cardiomyopathy (ICM) and ES. The endocardial approach presents more relevant success rates than the other therapeutic methods presented.

Copyright © 2017, Indian Heart Rhythm Society. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

According to some authors, electrical storm (ES) can be defined as the occurrence of three or more episodes of ventricular tachycardia (VT) separated by 5 min during one day or the presence of incessant VT despite the optimization of antiarrhythmic drug therapy. Its incidence has been increasing gradually, mainly in relation to the increased indications for the use of implantable cardioverter defibrillators (ICD) as non-pharmacological therapy for severe ventricular arrhythmias and prevention of sudden cardiac death [1–7].

Currently, it is estimated that 20% of patients with an ICD will evolve to such a condition that translates to a medical emergency in clinical practice [3]. However, when we only analyze the incidence of ES in patients with ischemic cardiomyopathy (ICM) and ICD, these numbers can reach 40% if the device is indicated for the prevention of secondary sudden death [8].

It is believed that the main triggering mechanism in acute

ischemic heart disease is premature ventricular contractions (PVCs) that end up perpetuating the focus of reentry. However, this same explanation does not seem to correspond to the mechanism of ES in chronic ischemic heart disease or in addition to other cardiopathies that may hinder the understanding and treatment of this condition [9].

Epidemiological studies have shown that the occurrence of ES in patients with structural heart disease is associated with increases in their morbidity and mortality and that 50% of patients will progress to death within two years. These data demonstrate that the presence of ES is an important predictor of mortality in these patients, with a significant worsening in their quality of life [10].

Currently, ablative therapy stands out as the initial treatment for patients with ischemic heart disease who develop this condition refractory to antiarrhythmic treatment, as it is an effective and safe method to be performed in these patients [8]. Recent literature reviews consider catheter ablation to be promising in ES, but it still is not defined as the definitive treatment for this condition [4,5,7].

Based on the increasing number of ICDs in use currently [11], the high rates of patients who develop ES, the emergence of new techniques for the treatment of ES and current treatment using

* Corresponding author. Tel.: +55 62982711177; fax: +55 6232245813.

E-mail address: a.menezes.junior@uol.com.br (A. da Silva Menezes Júnior).

Peer review under responsibility of Indian Heart Rhythm Society.

<http://dx.doi.org/10.1016/j.ipej.2017.07.012>

0972-6292/Copyright © 2017, Indian Heart Rhythm Society. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

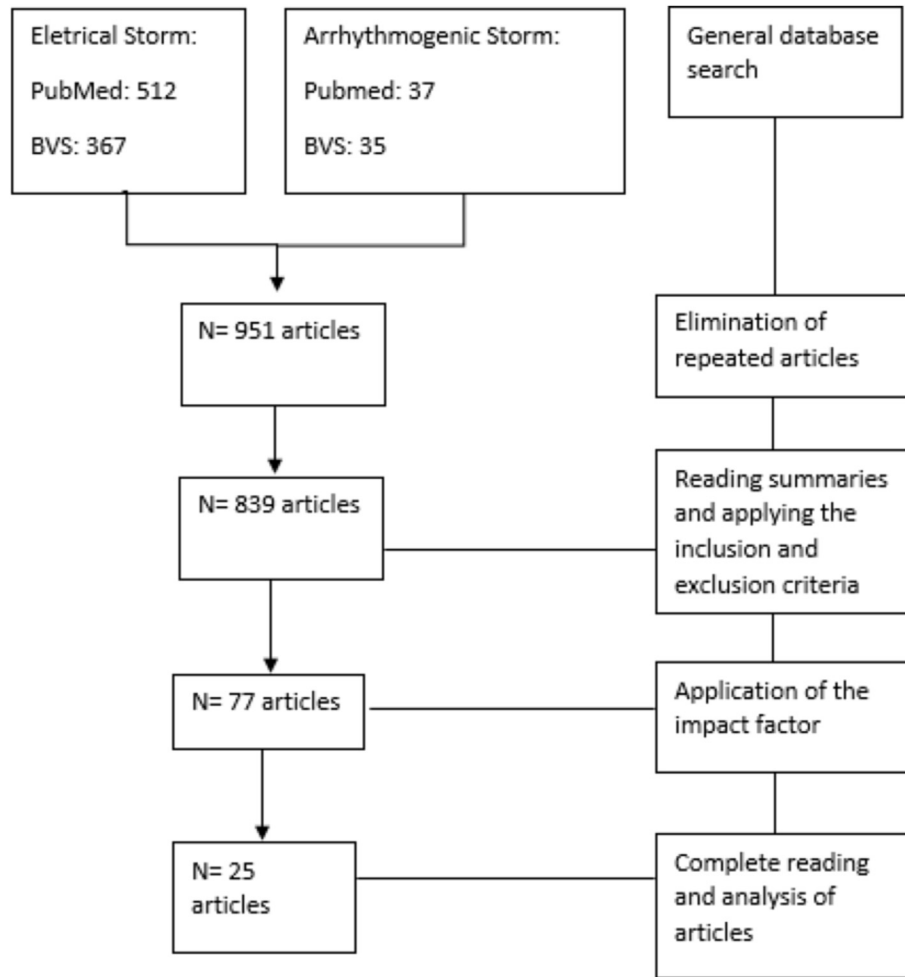


Fig. 1. Flowchart of literature search in PubMed/BVS and selection of articles.

ablative therapy, we proposed a study with the main objective of defining the current role of catheter ablation in the treatment of ES.

2. Methods

The research followed the standard [12,13] for performing an integrative review using the PubMed and BVS databases. Key words were used in both databases in order to evaluate all of the articles related to the subject, i.e., electrical storm, arrhythmogenic storm and their correspondents in Portuguese. The survey was supplemented by manual analysis of the list of articles.

The inclusion of articles resulted from a four-step process that consisted of initial bibliographic research, screening of the literature resulting from the research (through the reading of abstracts), evaluation of the eligibility of the articles provided by the screening and complete reading of the articles for final selection. In this sampling, only English and Portuguese languages were included.

We considered articles that were published beginning in 2010, and the last access for verification of new articles on the site was made on 09/20/16. All articles reporting ES were considered eligible, thus establishing a single inclusion criterion. Initially, the abstracts and titles were selected and read, and then the following exclusion criteria were applied: articles that only mentioned ES, articles that did not address ablation, and articles

that were published in journals whose impact factor (IF) was lower than 1.

This impact factor has been chosen because we have observed that the publications were approaching the issue from similar analyzes. By using this exclusion criterion to arrange an analysis in this study, those items have gone through more rigorous review filters before publication, thus regarding their content.

3. Results

We found 951 abstracts of articles published in the period of analysis with the aforementioned key words, 549 in the PubMed database and 402 in the BVS database. After exclusion of the repeated articles, 839 articles remained, and their abstracts were read. In these, the inclusion and exclusion criteria were applied, leaving 25 articles as the final number of articles to be analyzed in this study (see Fig. 1).

The categories listed for analysis included indication of ablation in ES, modality of the approach, therapeutic success, complications related to the procedure, mortality and cardiovascular follow-up, and alternative therapeutic modalities. These categories of analysis were selected by the frequency of themes in the articles that were surveyed and based on previous reviews by Chan et al. (9), Yamada et al. (14) and Tsuji et al. [15] on the subject; these reviews addressed the issue in a similar way.

Download English Version:

<https://daneshyari.com/en/article/8661671>

Download Persian Version:

<https://daneshyari.com/article/8661671>

[Daneshyari.com](https://daneshyari.com)