EDITORIAL

Radiofrequency Catheter Ablation of Atrial Fibrillation: the Buenos Aires Version

La ablación de la fibrilación auricular en versión porteña

MIGUEL VALDERRÁBANO[1]

Radiofrequency catheter ablation of atrial fibrillation (AF) has become an unquestionable therapeutic option for this disease. The technique was initially described by Haissaguerre et al. in 1998, (1) after demonstrating that most atrial ectopic beats initiating paroxysmal AF (PAF) originated from the pulmonary veins (PV). This mechanistic finding -the onset of AF by an atrial premature beat originating from a PV- led to an authentic therapeutic revolution, converting PAF into a curable disease after several years of technical and procedural evolution. The initial procedure described by Haissaguerre consisted primarily in the ablation of the ectopic focus in the PV, a technique which cured PAF in 62% of patients. (1) As more experience was gained, it became evident that the ectopic beats could originate from ectopic foci in more than one PV and that one PV could have single or multiple foci. (2) The technique thus rapidly evolved towards the complete isolation of all the PVs to achieve the full elimination of the electrical conduction towards and from each PV, using circular multielectrode ablation catheters to delineate their electrical activity. (3) Since then, the technique has been reproduced worldwide by many groups. (4-7) Although several variations and customizations of the procedure have been suggested with variable success rates -as the simple circumferential radiofrequency current application around the PV ostia, (8) or ablation guided by complex fractionated electrograms (9)-, PV isolation has been established as the cornerstone of the therapeutic procedure for PAF. (10)

In this process of international consolidation of the procedure, the collective experience has helped to standardize the technique and to establish the routine use of certain technologies, such as three-dimensional mapping, to guide the procedure.

The experience of Dr. Labadet et al. (11), published in this issue of the Journal, is highly commendable. This study arises from the convergence of multiple factors. First and foremost, an impeccable ethics and professionalism served as motivation to start the learning process of the radiofrequency ablation technique for AF to provide his patients with quality medical care consistent with state-of-the-art international standards in electrophysiology and with the historical electrophysiological background of Buenos Aires. Secondly, the important support provided by the different institutions, which have contributed to its success, and that of his co-workers and colleagues, to whom Dr. Labadet transmitted his faith and who entrusted their patients to this work. And, finally, a personal honesty that led him to ask international colleagues –amongst whom I humbly find myself- for cooperation and advice, to gather information about personal experience, to observe cases and share, even from a distance, in this adventure.

The results are comparable or superior to those from the best international centers. The procedure is complex from the point of view of technical skills -based on catheter manipulation and understanding of the three-dimensional anatomy of the left atrium- logistics and technology. It is necessary to bring together the cooperation of anesthesiologists, to obtain the distant blessing of cardiovascular surgery, to recruit the presence of mapping systems and to rely on the support of the radiology services. Obviously, this is neither easy nor cheap. In these circumstances, the results achieved are spectacular. The complications that obviously arose, which were those invariably expected anywhere in the world, could be attributed to the technique itself (or perhaps, I admit, to some foreign collaborator!) and were adequately solved.

The success of Dr. Labadet´s team in an environment which, for many reasons, has certainly not always been prone to cooperate, is simply categorical and inspirational, an example showing that wherever it may be the noble human spirit of self-improvement is contagious and can lead to success. The good news is that Argentine cardiology has a world class team to

Rev Argent Cardiol 2014;82:255-256. http://dx.doi.org/10.7775/rac.v82.i4.4711
SEE RELATED ARTICLE: Rev Argent Cardiol 2014;82:268-273 - http://dx.doi.org/10.7775/rac.v82.i4.3768

[1] Associate Professor of Medicine, Weill College of Medicine, Cornell University
Adjunct Associate Professor of Medicine, Baylor College of Medicine
Director, Division of Cardiac Electrophysiology, Department of Cardiology - Houston Methodist Hospital
6550 Fannin St, Suite 1901 - Houston, TX 77030 - Phone number: 713 441 5231 - Fax 713 793 7032 - e-mail: mvalderrabano@houstonmethodist.org

treat AF. One can only hope this study to be the first of many others and a strong cover letter to open the door to future international collaborations.

Conflicts of interest

None declared

REFERENCES

1. Haissaguerre M, Jais P, Shah DC, Takahashi A, Hocini M, Quiniou G, et al. Spontaneous initiation of atrial fibrillation by ectopic beats originating in the pulmonary veins. N Engl J Med 1998;339:659-66. http://doi.org/bddjdv

2. Hocini M, Haissaguerre M, Shah D, Jais P, Peng JT, Yamane T, et al. Multiple sources initiating atrial fibrillation from a single pulmonary vein identified by a circumferential catheter. Pacing Clin Electrophysiol 2000;23:1828-31. http://doi.org/tgs

3. Haissaguerre M, Jais P, Shah DC, Garrigue S, Takahashi A, Lavergne T, et al. Electrophysiological end point for catheter ablation of atrial fibrillation initiated from multiple pulmonary venous foci. Circulation 2000;101:1409-17.http://doi.org/sgm

4. Chen SA, Hsieh MH, Tai CT, Tsai CF, Prakash VS, Yu WC, et al. Initiation of atrial fibrillation by ectopic beats originating from the pulmonary veins: Electrophysiological characteristics, pharmacological responses, and effects of radiofrequency ablation. Circulation 1999;100:1879-86. http://doi.org/tgt

5. Oral H, Knight BP, Tada H, Ozaydin M, Chugh A, Hassan S, et al. Pulmonary vein isolation for paroxysmal and persistent atrial fibrillation. Circulation 2002;105:1077-81.http://doi.org/btbtrv

6. Marchlinski FE, Callans D, Dixit S, Gerstenfeld EP, Rho R, Ren JF, et al. Efficacy and safety of targeted focal ablation versus PV isolation assisted by magnetic electroanatomic mapping. J Cardiovasc Electrophysiol 2003;14:358-65.http://doi.org/fbk5bs

7. Ouyang F, Bansch D, Ernst S, Schaumann A, Hachiya H, Chen M, Chun J, et al. Complete isolation of left atrium surrounding the pulmonary veins: New insights from the double-lasso technique in paroxysmal atrial fibrillation. Circulation 2004;110:2090-6.http://doi.org/fjhxhv

8. Pappone C, Rosanio S, Oreto G, Tocchi M, Gugliotta F, Vicedomini G, et al. Circumferential radiofrequency ablation of pulmonary vein ostia: A new anatomic approach for curing atrial fibrillation. Circulation 2000;102:2619-28.http://doi.org/tgv

9. Nademanee K, McKenzie J, Kosar E, Schwab M, Sunsaneewitayakul B, Vasavakul T, et al. A new approach for catheter ablation of atrial fibrillation: Mapping of the electrophysiologic substrate. J Am Coll Cardiol 2004;43:2044-53.http://doi.org/bktd9s

10. Calkins H, Kuck KH, Cappato R, Brugada J, Camm AJ, Chen SA. 2012 HRS/EHRA/ECAS expert consensus statement on catheter and surgical ablation of atrial fibrillation: Recommendations for patient selection, procedural techniques, patient management and follow-up, definitions, endpoints, and research trial design. Heart Rhythm 2012;9:632-96.e21.

11. Labadet C, Dubner S, Hadid C, Azocar D, Di Toro D, Valsecchi C et al. Efficacy and Safety of Radiofrequency Catheter Ablation in Patients with Atrial Fibrillation. Rev Argent Cardiol 2014;82:268-273.