

Comments on Long-term Results of Cryoballoon Ablation in the Treatment of Atrial Fibrillation in a Low-volume Center



Comentario a resultados a largo plazo de la crioablación con balón para el tratamiento de la fibrilación auricular en un centro de bajo volumen

To the Editor,

We have read with interest the report by Martí-Almor et al,¹ who describe the results of their learning curve in the performance of atrial fibrillation (AF) ablation using a cryoballoon in 63 patients. We wish to congratulate the authors, as we consider that their study reflects the difficulties posed by the successful introduction of a complex program like AF ablation. However, we feel that these results should be put into perspective and be understood in the context of a small, local series, and thus should not be generalized. Since electrical pulmonary vein isolation was established as the cornerstone of the invasive treatment of AF, a number of different catheters have been developed for the purpose of simplifying a complex technique that requires time and specific training to achieve acceptable outcomes and complication rates. Cryoballoon ablation pursues this aim, presumably with a short learning curve and few complications. Thus, it is highly attractive to centers that commence AF ablation, and even for interventional cardiologists with no training in electrophysiology. It has been shown that successful AF ablation does not depend only on the experience of the operator, but also on the population undergoing the procedure, the definition of success applied (more or less restrictive), and the intensity of the follow-up for AF documentation (from clinical follow-up to implantable devices). In a series of 605 patients with paroxysmal AF in a single center with great experience in cryoablation, Vogt et al² reported a success rate of 61.6% and required 2 catheters (23-mm and 28-mm balloons) in 47.7% cases. In the STOP AF trial,³ the success rate was similar to that reported by Martí-Almor et al, but 5% of the patients required a second balloon for the closure of tears and 19% early repeat cryoablation. Finally, the COR trial,⁴ in which the procedure was limited to two 300-second applications in each pulmonary vein, achieved immediate bidirectional block in only 83% of the veins and the final success rate was 48%. All these reports reflect the fact that it is not as "simple" to achieve acceptable results with the cryoballoon technique as it may seem *a priori*. The discrepancy between the findings of Martí-Almor et al and those in other larger series may be due to the definition of success (not specified in this report) and the intensity of the follow-up. In a series of patients subjected to radiofrequency AF ablation and followed using an insertable cardiac monitor 3 months prior to and 1 year after ablation,⁵ we observed that, due to the clustering of AF episodes, many patients

have a low arrhythmia burden even before undergoing the procedure. This circumstance, together with the increase in asymptomatic episodes following ablation, may lead to an overestimation of the success rate. On the other hand, the incidence of complications associated with the learning curve is considerable.⁶ Although atrioesophageal fistula is a fatal –but incidental– development, phrenic nerve paralysis, stroke, and hemoptysis are also major complications, even when they do not leave sequelae.

We agree on the need to continue making efforts to simplify a complex procedure. However, an incorrect interpretation of the results reported in this study could convey a false idea about the efficacy and lack of consequences of cryoablation in the treatment of AF.

Eduardo Arana-Rueda* and Alonso Pedrote

Unidad de Arritmias, Servicio de Cardiología,
Hospital Universitario Virgen del Rocío, Seville, Spain

*Corresponding author:

E-mail address: eduaru@hotmail.com (E. Arana-Rueda).

Available online 29 October 2014

REFERENCES

- Martí-Almor J, Bazan V, Vallès E, Benito B, Jauregui-Abularach ME, Bruguera-Cortada J. Resultados a largo plazo de la crioablación con balón para el tratamiento de la fibrilación auricular en un centro de bajo volumen. Rev Esp Cardiol. 2014;67:577–8.
- Vogt J, Heintze J, Gutleben K, Muntean B, Horstkotte D, Nolker G. Long term outcomes after cryoballoon pulmonary vein isolation: Results from a prospective study in 605 patients. J Am Coll Cardiol. 2013;61:1707–12.
- Packer DL, Kowal RC, Wheelan KR, Irwin JM, Champagne J, Guerra PG, et al. Cryoballoon ablation of pulmonary veins for paroxysmal atrial fibrillation: first results of the North American Arctic Front (STOP AF) pivotal trial. J Am Coll Cardiol. 2013;61:1713–23.
- Pérez-Castellano N, Fernández-Cavazos R, Moreno J, Cañadas V, Conde A, González Ferrer J, et al. The COR trial: A randomized study with continuous rhythm monitoring to compare the efficacy of cryoenergy and radiofrequency for pulmonary vein isolation. Heart Rhythm. 2014;11:8–14.
- Pedrote A, Arana-Rueda E, García-Riesco L, Sánchez-Brotons J, Duran Guerrero M, Gómez-Pulido F, et al. Paroxysmal atrial fibrillation burden before and after pulmonary veins isolation: an observational study through a subcutaneous leadless cardiac monitor. J Cardiovasc Electrophysiol. 2013;24:1075–82.
- Calvo N, Nadal M, Berrueto A, Andreu D, Arbelo E, Tolosana JM, et al. Evolución de la mejora en los resultados y las complicaciones de la ablación por catéter de la fibrilación auricular: aprendizaje, técnicas y metodología. Rev Esp Cardiol. 2012;65:131–8.

SEE RELATED ARTICLES:

<http://dx.doi.org/10.1016/j.rec.2014.02.012>

<http://dx.doi.org/10.1016/j.rec.2014.07.020>

<http://dx.doi.org/10.1016/j.rec.2014.07.015>

Comments on Long-term Results of Cryoballoon Ablation in the Treatment of Atrial Fibrillation in a Low-volume Center. Response



Comentario a resultados a largo plazo de la crioablación con balón para el tratamiento de la fibrilación auricular en un centro de bajo volumen. Respuesta

To the Editor,

We were pleased to read the Letter to the Editor about our series on cryoballoon ablation (CA) for atrial fibrillation (AF) at a low-volume hospital.¹ In the current economic crisis, health managers

are debating the advisability of pooling resources and restricting diagnostic or therapeutic procedures (including complex ablations) to centers of excellence. An additional factor in this debate is the fact that 80% of arrhythmia units perform fewer than 50 ablations for AF annually; but how do their results compare to the success rates of high-volume centers?

We selected candidates without heart disease and with highly symptomatic and refractory AF because they would be most likely to show a clinical and electrophysiological response to ablation. In our opinion, the good results for acute efficacy observed in our series are more related to these very strict selection criteria than to any incorrect assessment of pulmonary vein isolation or incomplete follow-up, which included 24-hour Holter monitoring 4 times

during the first year. Following current consensus, we defined relapse as documented AF episodes lasting more than 30 seconds. We also agree that an implantable Holter monitor is useful to detect clinically silent AF episodes, which are often underdiagnosed.² However, our main goal in AF ablation is simply to provide symptomatic relief and discontinue antiarrhythmic agents.

Our series does not prove that the learning curve is less steep for CA than radiofrequency ablation, although our findings appear to suggest this. At high-volume hospitals, there is no difference because the cardiologists are already highly experienced in radiofrequency ablations, and can actually perform them faster than CA techniques.³

Post-CA electroanatomic mapping confirms the formation of dense, confluent scarring, which is electrically silent, on 40% of the left atrial surface, particularly on the posterior wall.⁴ This helps to minimize the formation of conduction blocks, which cause AF relapse. In our series, post-CA reablation procedures (performed with radiofrequency) confirmed the presence of two conduction blocks in most cases, which simplifies the reablation procedure (unpublished data).

In terms of complications, our safety results were positive, and comparable with the findings of other series. We do not feel they were “negligible”. It is certainly not our intention to discuss whether serious complications (including death) are acceptable when treating theoretically nonserious arrhythmias in healthy patients without heart disease.

Julio Martí-Almor and Víctor Bazan*

Unidad de Arritmias, Servicio de Cardiología, Hospital del Mar, Universidad Autónoma de Barcelona, Barcelona, Spain

* Corresponding author:

E-mail address: vbazan@hospitaldelmar.cat (V. Bazan).

Available online 29 October 2014

REFERENCES

1. Martí-Almor J, Bazan V, Vallès E, Benito B, Jauregui-Abularach ME, Bruguera-Cortada J. Resultados a largo plazo de la crioablación con balón para el tratamiento de la fibrilación auricular en un centro de bajo volumen. *Rev Esp Cardiol*. 2014;67:577–8.
2. Israel CW, Gronefeld G, Ehrlich JR, Li YG, Hohnloser SH. Long-term risk of recurrent atrial fibrillation as documented by an implantable monitoring device: implications for optimal patient care. *J Am Coll Cardiol*. 2004;43:47–52.
3. Schmidt M, Dorwarth U, Andersen D, Brachmann J, Kuck KH, Kuniss M. Cryoballoon versus RF ablation in paroxysmal atrial fibrillation: results from the German Ablation Registry. *J Cardiovasc Electrophysiol*. 2014;25:1–7.
4. Chierchia GB, De Asmundis C, Sorgente A, Paparella G, Sarkozy A, Müller-Burri SA. Anatomical extent of pulmonary vein isolation after cryoballoon ablation for atrial fibrillation: comparison of 23 and 28 mm balloons. *J Cardiovasc Med*. 2011;12:162–6.

SEE RELATED ARTICLE:

<http://dx.doi.org/10.1016/j.rec.2014.07.015>

<http://dx.doi.org/10.1016/j.rec.2014.07.020>