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Atrial fibrillation ablation: Limitations of pulmonary vein ablation catheter technology

We read with interest the paper by Koźluk et al. [1], which brings several points about multi-electrode duty-cycled radiofrequency ablation:

— The outcome in patients with paroxysmal atrial fibrillation (AF) was lower when compared to 1- and 5-year follow-up after single cryoballoon ablation procedure performed with higher follow-up regime (7- and not 1-day Holter ECG) [2]. Most triggers originate in left atrium (LA)-pulmonary vein (PV) junction [3]. Pulmonary vein isolation (PVI)-focused ablation, which eliminates triggers, and partially eliminates substrate located near LA-PVs junction, results in high success rate in such patients. Failure of PVI in this group is rather a result of incomplete isolation of LA-PVs triggers or existing non-LA-PVs triggers. Therefore, it would be interesting to know the percentage and PV anatomy pattern of reconnections in these patients. Was AF recurrence more often observed in atypical PVs?

— Pulmonary vein ablation catheter (PVAC) [1] focuses on PVs only. Unfavorable results in patients with persistent AF are not surprising. AF has tendency to become more persistent over time [4]. The progression of electrical and structural remodeling of atria promotes both reentry and ectopic activity which can serve both as substrate and trigger for AF [4]. Sole PVs isolation has low effectiveness in such not-PV-trigger-dependent AF.

— Recently, safety precautions for PVAC-procedures have been reported [5], which makes trans-septal puncture with uninterrupted warfarin more demanding and the PVAC-procedure more dependent on operator's experience.

— Consequently, PVAC ablation, with a tantalizing "single-shot" approach, should be rather reserved for carefully selected population of patients with PV-trigger-dependent AF and performed by an experienced operator.

Conflict of interest: None declared

References

1. Kozluk E, Balsam P, Peller M et al. Efficacy of multi-electrode duty-cycled radiofrequency ablation in patients with paroxysmal and persistent atrial fibrillation. Cardiol J, 2013; 20: 618–625.
2. Neumann T, Wojcik M, Berkowitsch A et al. Cryoballoon ablation of paroxysmal atrial fibrillation: 5-year outcome after single procedure and predictors of success. Europace, 2013; 15: 1143–1149.
3. Weerasooriya R, Khairy P, Litalien J et al. Catheter ablation for atrial fibrillation: Are results maintained at 5 years of follow-up? J Am Coll Cardiol, 2011; 57: 160–166.
4. Xu Y, Sharma D, Li G, Liu Y. Atrial remodeling: New pathophysiological mechanism of atrial fibrillation. Med Hypotheses, 2013; 80: 53–56.
5. Verma A, Debruyne P, Nardi S et al. Evaluation and reduction of asymptomatic cerebral embolism in ablation of atrial fibrillation, but high prevalence of chronic silent infarction: Results of the evaluation of reduction of asymptomatic cerebral embolism trial. Circulation Arrhythmia Electrophysiol, 2013; 6: 835–842.

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