Atrial fibrillation high power radiofrequency ablation: efficiency and safety

M. Martinho¹, J. Grade Santos¹, S. Almeida¹, R. Miranda¹, B. Ferreira¹, D. Santos Cunha¹, O. Baltazar¹, N. Ilichyshyn¹, J. Mirinha Luz¹, K. Budzak¹, R. Cale¹, A. Briosa¹, D. Sebaiti¹, L. Brandao Alves¹, H. Pereira¹
¹Hospital Garcia de Orta, Almada, Portugal

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Introduction: High power-ablation index (HP-AI) guided radiofrequency (RF) ablation of atrial fibrillation (AF) is increasingly being used as an alternative to conventional power (CP) ablation due to its better procedural performance and similar safety profile. Some evidence suggests that the lower RF time used in HP-AI may also have a protective effect in contact related complications. Despite this evidence, this strategy is still not widely used.

Purpose: Compare procedural efficiency and safety between HP-AI vs CP-AI-guided ablation in AF patients (pts).

Methods: Retrospective single-center study of consecutive pts submitted to AI-guided ablation, between 05/2018 and 10/2022. RF power and AI were 25W/500 and 45W/500 for the anterior wall and 20W/380 and 35W/380 for the posterior wall in CP-AI and HP-AI, respectively. Procedure related complications incidence were checked at 1 month.

Results: Of a total of 83 pts included in the study, mean age was 62±10y and 57.8% were males. HP-AI was performed in 61.4% (n=51). 39.2% had persistent AF (vs 25% in CP-AP, p=0.235). HP-AI was associated with significantly lower median procedure duration (150.0[140.0-180.0] min vs 192.0[180.0-235.0] min, p<0.001), fluoroscopy time (9.2[7.3-11.3] min vs 12.2[9.7-14.3] min, p=0.003) and RF time (26.3[20.4-28.4] min vs 34.3[30.1-39.6] min, p<0.001). These times were significantly reduced for both paroxysmal and persistent AF (figure 1). Electrical isolation of all the pulmonary veins was achieved in all patients. There were no early complications related to the procedure in either CP-AI or HP-AI groups.

Conclusion: HP-AI guided AF ablation significantly reduced procedure duration without impairing safety. It was also associated with lower RF application time, which may potentially lead to a reduction in procedure related complications. Data regarding long-term effectiveness will eventually support HP-AI as the best option for RF AF ablation.
Comparison of median procedural times