Pulmonary vein isolation durability in patients undergoing very high-power short-duration temperature-controlled ablation

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Background: The very high-power short-duration (90W for 4 s) temperature-controlled ablation (vHPSD) improves the efficiency of pulmonary vein (PV) isolation procedures. However, atrial fibrillation (AF) recurrences directly related to PV reconnections are still a concern.

Purpose: The purpose of the current study was to assess PV lesion durability in patients undergoing a reablation procedure.

Methods: From September 2020 to July 2023, 327 patients with paroxysmal and persistent AF underwent first ablation aiming at PVI using vHPSD. During a mean follow-up of 25±11 months, 48 patients (14.7%) had an AF recurrence. Patients with reablation procedures were retrospectively consented and enrolled.

Results: Eighteen patients were included in this study. A PV reconnection was observed in 15/72 (21%) PVs, with a mean number of reconnected PV per patient of 0.8±0.7. In 7 patients no PV reconnection was observed, one PV reconnected was observed in 9 patients and 2 PVs in 3 patients. A PV reconnection was observed in 8/18 (44%) left superior PV, 1/18 (6%) left inferior PV, 3/18 (17%) right superior PV, and 3/18 (17%) right inferior PV (p=0.03).

Conclusions: PV isolation performed with vHPSD is highly effective and is associated with a low rate of late PV reconnection. A higher percentage of PV reconnection was observed in the left superior PV.