Long-term follow-up of thoracoscopic ablation for long-standing persistent atrial fibrillation

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Background: Catheter ablation in patients with long-standing persistent AF (LSPAF) remains challenging and often requires repeated procedures with variable results. We report long-term outcomes of a bipolar thoracoscopic pulmonary vein and left atrial posterior wall ablation for LSPAF, and compare continuous and interval rhythm monitoring.

Methods: Seventy-seven LSPAF patients who underwent thoracoscopic pulmonary vein and box isolation between 2009–2017 in two Dutch centers were included. Follow-up consisted of continuous rhythm monitoring using an implanted loop recorder or 24-h Holter at 3/6/12/24/60 months.

Results: Mean age was 59±8 years with a median AF duration of 3.8 [1.2–6.3] years. In the total cohort, at 2-year follow-up, 86.0% of patients were in sinus rhythm, 12.3% were in paroxysmal AF and 1.6% in persistent AF. At 5 years, 62.9% of patients were in sinus rhythm, 20.0% in paroxysmal AF, 14.3% in persistent AF and 2.9% was experiencing atrial flutter. Continuous rhythm monitoring was performed in 46% of patients. Comparing continuous and interval rhythm monitoring, freedom from any atrial arrhythmia episode at 2- and 5 years was 60.0% and 49.9% in the continuous group and 93.8% and 51.9% in the interval monitoring group, respectively (p=0.02, Breslow-Wilcoxon test). In patients with continuous rhythm monitoring the mean atrial arrhythmia burden was reduced from 99.1% preoperatively to 0.1% at the end of the blanking period and 7.3% at 2-year follow-up.

Conclusions: Thoracoscopic box ablation is highly effective in restoring sinus rhythm at medium term follow-up. However, it is not a curative treatment as demonstrated by the 50% arrhythmia-free survival at long-term follow-up. Whether this is due to the progressive nature of AF needs further investigation. Continuous rhythm monitoring shows earlier recurrence detection with a potential early treatment adaptation.