

Recurrence of atrial fibrillation after catheter ablation with cryoenergy: effectiveness of redo procedures with a cryoballoon

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Introduction: Pulmonary vein isolation (PVI) has been accepted as treatment of highly symptomatic patients with atrial fibrillation (AF) using different approaches and techniques. Balloon-based cryoablation could be established as an alternative energy source, resulting in success rates similar to those with radiofrequency (RF) ablation. In the case of AF recurrence a second RF ablation procedure increases the success rate by additional 5-15%, but there are limited data concerning the effectiveness of a second treatment with the cryoballoon.

Methods: We report on a consecutive series of patients (pts) with paroxysmal AF, treated with a percutaneous balloon-based cryothermal ablation catheter (ARCTIC FRONT[®], CryoCath Technologies Inc). All pts were followed up after 3, 6, 9 and 12 months (M) with ECG, Holter-ECG and event-recording. For pts with symptomatic AF recurrence a second procedure was recommended. It was performed as a second cryoablation, if an incomplete isolation (due to reconnection) of at least one PV could be documented. Cryoenergy was then applied with a 23- or 28mm balloon. Final PV isolation was proved with a LASSO catheter.

Results: During a period of 19 months 192 pts (129m; 58,8±11,3y) underwent cryothermal ablation for paroxysmal AF. AF recurrence was documented in 33 pts (20pts within 6 M, 12pts within 7-9 M, 1 pt after 10 M). In 16/33 pts stable sinus rhythm (SR) could be achieved by optimizing the antiarrhythmic drug therapy. 15 pts were treated with a second ablation procedure, 1 pt underwent substrate modification due to the meanwhile persistent AF. Incomplete isolation of at least one PV was demonstrated in all the remaining 14 pts (9x LSPV, 5x LIPV, 3x RSPV, 5xRIPV). Continuing the follow up we found 8/14pts in stable SR (mean FU 7,8 M), 6/14 were treated within the last 3 M, thus missing FU data. None of the pts suffered from AF recurrence after the second cryoablation.

Conclusions: Incomplete isolation of pulmonary veins is often associated with the recurrence of AF after cryoablation. A second intervention with the cryoballoon is highly effective in these patients and can be recommended as a redo procedure.

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