

PO06-26 - Cryoballoon Isolation of the Pulmonary Veins: What Determines Freedom of Atrial Fibrillation Recurrence?

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Introduction: Pulmonary vein (PV) isolation with the cryoballoon technique (ARCTIC FRONT ®) is an effective and safe method to treat patients with paroxysmal atrial fibrillation (AF). Freedom from AF without drugs following a single ablation procedure can be achieved in about 70-80%. However, the determinants of a recurrence-free survival following a cryoablation procedure have not been investigated yet.

Methods: Successful isolation of all PV's with a 23 mm or 28 mm cryoballoon device was performed in 350 patients with highly symptomatic, drug refractory, paroxysmal AF. After a blanking period of 3 months, all patients underwent follow-up visits at 3, 6, 9 and 12 months, including a 7-day Holter ECG recording, symptom-driven ECG recordings and questionnaires. Of these patients 208 have completed 6 months follow up until now and are eligible for statistical analysis. In all patients, various clinical, anatomical, and procedural parameters were analyzed.

Results: In 43 patients, AF recurrence occurred within the 3 to 6 months follow-up period (group A). In 165 patients, no recurrences were found (group B). Between the two groups no significant differences were detectable with regard to age, LV ejection fraction, LA diameter, PV diameters, incidence of PV anomalies, and rate of initially isolated PV's. However, in group A significantly more patients were treated exclusively with a smaller balloon (23 mm) as compared to group B (40 vs. 25%). The difference between the balloon size and PV diameters was significantly lower in group A ($10,2 \pm 2,38$ vs. $11,4 \pm 3,0$ mm; $p < 0,01$). Early AF recurrences during the 3 months blanking period occurred in 74% of group A patients, but only in 3% of group B patients. Early AF recurrence and an exclusive utilization of a small balloon were independent predictors of long-term AF recurrences.

Conclusions: The results of this study demonstrate that absence of an early recurrence and the use of bigger balloons is associated with a better outcome after PV cryoablation. This suggests that an antral substrate modification by the big balloon adds to the effect of PV isolation and that "late beneficial effects" of cryoballoon ablation are rare.

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