Long-term comparison of cryoballoon and radiofrequency ablation of paroxysmal atrial fibrillation: a propensity score matched analysis

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BACKGROUND
Although radiofrequency (RF) and cryoballoon (CB) based technologies for pulmonary vein isolation (PVI) have both individually been demonstrated to be effective and safe for the treatment of paroxysmal AF, head-to-head comparisons are lacking. The purpose of this study was to compare the outcome of cryoballoon versus radiofrequency ablation in patients with paroxysmal atrial fibrillation undergoing pulmonary vein isolation.

METHODS
Out of a prospective registry of 327 patients undergoing PVI, 208 patients (age 58±11 years, ejection fraction 59±6%, left atrial size 39±6 mm) with paroxysmal AF were identified. The presented dataset was obtained by 1:1 propensity score matching and contained 142 patients undergoing CB-PVI or RF-PVI in conjunction with a 3D mapping system, respectively. We compared single procedure efficacy of the two methods using a Cox proportional hazards model.

RESULTS
After a mean follow-up of 28 months and a single procedure, AF recurred in 37 of 71 (52%) in the CB-PVI group and in 31 of 71 patients (44%) in the RF-PVI group (HR [95% CI]=1.19 [0.74, 1.92], p=0.48). Recurrence of AF for PVI using solely the CB was observed in 23 of 51 (45%) patients and in 23 of 51 (45%) patients in the corresponding RF-PVI group (HR [95% CI]=0.93 [0.52, 1.66], p=0.81). Complication rate was not different between the groups.

CONCLUSION
A propensity score matched comparison between CB-PVI and RF-PVI using a 3D-mapping system for AF ablation showed similar long-term success rates.

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