Smart Touch Radiofrequency Catheter Ablation versus Cryoballoon Ablation of Pulmonary Veins in Patients with Paroxysmal AF

Thesis

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Abstract

Aims

Evaluation of the safety and efficacy of PVI in PAF patients using two new different technologies, cryoballoon ablation and RFA with contact force-sensing catheters.

Methods and results

We performed a prospective single centre non-randomized controlled clinical trial that was conducted during the period between January 2016 and June 2018 in Critical Care Medicine Department – Cairo University. Twenty patients were enrolled in this study and were subjected to standardized PVI using RFA with CF sensing catheter (Thermocool® SmartTouch™, Biosense Webster (CF group, n=10 patients) and CB ablation (Arctic Front Advance™, Medtronic) (CB group n=10 patients).Twelve months follow up was used to assess procedure long term outcome and complications rate. Procedure duration was significantly shorter for CB group than for CF group (171.7+15.24 vs. 199.3+18.94 min, P = 0.002), however fluoroscopy duration and X-ray exposure were longer in CB group than CF group , however was not statistically significant (P = 0.1 and P = 0.22, respectively). Overall complication rate was similar in both groups: 2 (20%) in each group. Transient right phrenic nerve palsy occurred only in CB group (1 patient, 10% vs none in the CF group); and transient ischemic acute stroke occurred only in one patient of the CB group (10% vs none in the CF group) ,severe non-lethal complications (Tamponade, and the uncommon complication, entrapment of circular mapping catheter into mitral valve) occurred only in CF group (2 patients, 20%). No periprocedural death occurred in either group. Single-procedure freedom from any atrial arrhythmias at 12 months post-ablation was comparable in CF group and CB group (70 vs. 60%, respectively, p>0.0.05).

Conclusion

Pulmonary vein isolation using CF-guided RF and second-generation CB leads to comparable single-procedure arrhythmia-free survival at up to 12 months with similar overall complication rate.

Keywords: Paroxysmal atrial fibrillation, radiofrequency, pulmonary veins, cryoballoon.