Comparison of Catheter Ablation Results between Irrigated and Nonirrigated Ablation Catheter in Patients with Atrial Fibrillation

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Aims: The relative efficacy of open irrigated tip catheters compared with conventional non-irrigated catheters for catheter ablation of atrial fibrillation (AF) is unknown. Methods: A total of 501 consecutive AF patients (age: 55 years, 453 males paroxysmal AF: 264 and persistent AF: 243) was included in the present study. Catheter ablation was performed with using open-irrigated and non-irrigated 8 mm catheters in 265 and 236 AF patients, respectively. Pulmonary veins (PVs) were isolated in all patients. The supplemental ablation, involving the electrogram-based ablation (n=148) or/and the linear ablation (n=134), was performed in persistent AF.

Results: The success rates of PV isolation, electrogram-based ablation (termination of AF), linear ablation (bi-directional block) did not differ between 2 groups. The duration and amount of radiofrequency energy delivery for PV isolation (1252±656 vs. 2171±1128 seconds, P<0.01 and 33485±17135 vs. 56118±28864 J, P<0.01), electrogram-based ablation (1072±920 vs. 2069±1729 seconds, P<0.01 and 30213±27477 vs. 49313±4047 joules, P<0.01) and linear ablation (1171±470 vs. 1413±550 seconds, P=0.02 and 36730±14400 vs. 43340±18141 joules, P=0.04) were significantly shorter in irrigation group compared to non-irrigation group. Conclusion: Although 8 mm non-irrigated ablation catheter was equivalent to irrigated catheter for AF ablation, using an irrigated ablation catheter reduced the radiofrequency energy achieving the endpoint of AF ablation.

Keywords: catheter ablation, irrigated catheter, atrial fibrillation