High-Power Short-Duration (60W, 5-8s) Radiofrequency Catheter Ablation of Atrial Fibrillation: A Single-Center Experience

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Introduction: Radiofrequency (RF) ablation is widely accepted as a treatment for patients with atrial fibrillation (AF). High-power ablation can increase the damage range of lesion and shorten the ablation time, which will further reduce the occurrence of gaps and improve the ablation efficiency. However, there is no uniform definition for the “high-power”. Current research shows that 45-50W is a safer power for atrial fibrillation ablation, and our center has a wealth of experience in high-power (up to 100 W) ablation of premature ventricular contractions. Therefore, the purpose of this study was to evaluate safety and efficacy of AF ablations with 60W high-power short-duration (HPSD) RF energy.

Methods: A total of 42 patients underwent pulmonary vein isolation (PVI) were received HPSD ablation (60 W for 5-8 s) with Smart Touch Surround Flow (STSF) catheters, and irrigation was set up to 15 mL/min during ablation. Absence of pulmonary venous (PV) potential was defined as the endpoint of ablation, and waiting period of 30 minutes was observed to assess PV reconnection.

Result: Patients baseline data were age 66±9 years, male 52%, left atrial size 43 ± 6.1cm, paroxysmal AF 64%, persistent AF 36%, CHA2 DS2 -VASc score 2.7 ± 1.7, and HAS-BLED score 1.5 ± 0.8. Procedural time was 108 ± 30 minutes, and total RF ablation time was 979 ± 450 seconds. Twenty-eight patients were received only PVI, and 14 patients were received additional linear ablations. First-pass isolation (single-loop) were occurred in 15(36%) patients, whereas 27(64%) patients were added further ablation within the PVs or on the intervenous ridge between PVs. Finally, all the patients were reached the ablation endpoint with more than 30 minutes observation. No steam pop was occurred during procedural process, and no other complications were observed within 1 month's follow-up period.

Conclusion: High-power short-duration ablation (60 W for 5-8 s) was safe and effective for atrial fibrillation.