Safe and rapid isolation of pulmonary veins using a novel circular ablation catheter and duty-cycled RF generator.

BACKGROUND: Ablation of atrial fibrillation (AF) has been one of the most difficult and time-consuming electrophysiological procedures. Due to the rapidly increasing demand for ablation procedures, technical advances would be helpful to reduce complexity and procedure time in AF ablation. Therefore, we investigated the feasibility of a single-catheter technique for pulmonary vein (PV) isolation utilizing a decapolar catheter combined with a duty-cycled, unipolar-bipolar radiofrequency (RF) generator. METHODS: AF mapping and ablation was performed in 21 consecutive patients (mean age 59 +/- 12 years, 9 males) with paroxysmal AF (n = 17) and persistent AF (n = 4). The ablation catheter was forwarded to the LA via single-transseptal puncture. All electrodes were energized in 2 to 5 applications per vein, followed by segmental RF applications, as needed, to achieve electrical isolation. To assess left atrial anatomy for purposes of catheter manipulation, and later evaluate the possibility of asymptomatic PV-stenosis, CT or MR imaging was performed both prior to ablation and at 6-month follow-up. RESULTS: Isolation could be achieved in 85/86 veins (99%). Procedure time for ablation was 81 +/- 13 minutes, and fluoroscopy time was 30 +/- 11 minutes. There were no procedural complications. Success rate at 6 months was 86% (18/21). MR or CT
imaging excluded asymptomatic PV-stenosis. CONCLUSION: Mapping and ablation of PVs can be performed in a safe and efficient manner using a single-catheter technique, with short procedure times and minimal learning curve. Thus, this system may be of high interest not only for high volume but all centers performing AF ablation.