Utility of high power and short duration ablation in paroxysmal atrial fibrillation patients.

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Introduction: Pulmonary vein isolation is the cornerstone of atrial fibrillation ablation. However, pulmonary vein reconnection is frequent and is often the result of catheter instability, tissue edema, and a reversible nontransmural injury. High power and short duration ablation has been proved to increase lesion-to-lesion uniformity and transmurality in animal studies. We try to verify its effectiveness in clinical practice.

Methods: This study included 60 paroxysmal atrial fibrillation patients from January 2018 to January 2019, who were randomized to HP-SD (high power and short duration) and standard ablation group. HP-SD settings: 50W, lesion index (LSI) to 5.0 in anterior wall and 4.5 in posterior wall. Standard ablation group settings: 35W, lesion index (LSI) to 5.0 in anterior wall and 4.5 in posterior wall. Compare pulmonary vein isolation rate, ablation time, cardiac tamponade rate, stroke rate and 1 year atrial fibrillation survival rate between two groups.

Result: Ablation with high power and short duration method can achieve pulmonary vein isolation in 90% patients by one circle ablation, the mean ablation time of two sides pulmonary veins is 35 minutes, and one year atrial fibrillation survival rate is 90%. Pulmonary vein isolation rate by one circle ablation, mean ablation time and one year atrial fibrillation survival rate in the standard group are 86%, 50 minutes and 85%. HP-SD ablation have higher pulmonary vein isolation rate, shorter ablation time and less atrial fibrillation recurrence rate compared to standard ablation method (P<0.05). There are no differences in cardiac tamponade rate, and stroke rate between two groups.

Conclusion: HP-SD ablation method can help increase pulmonary vein isolation rate, save ablation time and improve 1 year atrial fibrillation survival rate without increasing complication rate in paroxysmal atrial fibrillation patients.