Differences in acute pulmonary vein reconnections with ablation using the same ablation index value, but different power settings.

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Introduction: Ablation index (AI) guided pulmonary vein isolation (PVI) is widely used. One of the reasons is considered to be the guarantee of the safety of a high-power radiofrequency ablation. However, it is unclear whether the same AI value, but with a different power setting for the ablation can lead to similar clinical results.

Methods: We aimed to investigate the efficacy of AI guided high-power and short-duration PVI. We prospectively analyzed 180 consecutive atrial fibrillation patients that underwent an AI guided PVI. We performed a point by point ablation with a 3mm distance under an AI value setting of 350 on the anterior wall and an AI value setting of 300 on the posterior wall. We defined that in the high-power (HP) group 40 Watts were used and in the standard power group (SP group) 35 Watts. We compared the acute procedural results between the HP group (n=32) and SP group (n=148).

Result: The baseline characteristics were similar between the 2 groups. The initial PVI time was significantly shorter in the HP group than SP group (28±8 vs. 36±13min, p<0.01) despite no difference in the first-pass PVI rate (48% vs. 48%, p=NS). However, the incidence of acute PV reconnections after 20 minutes from the initial PVI was significantly higher in the HP group than SP group (40% vs. 9.6%, p<0.01). There was 1 cardiac tamponade and 1 steam pop without any adverse events in the SP group, but no major complications occurred in the HP group.

Conclusion: An AI guided high-power and short-duration ablation might increase incomplete lesions but it could allow for a quicker PVI.