How to achieve real time recordings during cryoballoon ablation – a comparison between novel Artic Front Advanced Pro and second generation cryoballoon device

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Introduction: The dosing strategies for cryoballoon (CB) ablation rely on adequate real time (RT) visualization of pulmonary vein potentials. In order to improve incidence of RT recordings Cryoballoon Advance Short-tip was designed, but soon withdrawn from the market due to technical problems with the catheter. Recently, Artic Front Advanced Pro (AFA-Pro) was introduced, with the tip that is 5.5 mm shorter than its predecessor. Ideally, a shorter tip should permit an improved visualization of real-time recordings in the pulmonary vein (PV) due to a more proximal positioning of the inner lumen mapping catheter. We sought to compare the incidence of visualization of real-time recordings in patients having undergone ablation with the AFA-Pro with patients having received older second generation device (AFA).

Methods: All patients having undergone CB ablation using AFA-Pro technology and the last 100 consecutive patients having undergone AFA ablation were analyzed. Procedures were performed under conscious sedation, with a 28 mm cryoballoon. Single transeptal puncture was used guided by intracardial ultrasound. A single 180 seconds freeze strategy was employed.

Result: A total of 160 consecutive patients (72.5% male, 58.5±12.3 years) were evaluated (60 AFA-Pro and last 100 AFA ablations). Real-time recordings were significantly more prevalent in the AFA Pro population compared with AFA group (86.6 vs 74 %, p = 0.0001). Real-time recordings could be more frequently visualized in the AF-A group in all types of veins, but only LIPV reached statistical significance: LSPV 88.3 vs 76 %, p = 0.064; LIPV 85 vs 70 %, p =0.037; RSPV 90 vs 79 %, p = 0.083; RIPV 83 vs 71 %, p = 0.089.

Conclusion: The rate of visualization of real-time recordings is significantly higher during AFA-Pro ablation if compared to the second-generation AFA device. Real-time recordings can be visualized in approximately 86.6% of veins with this novel cryoballoon.