

## V834 - Cryoballoon Ablation of Paroxysmal Atrial Fibrillation Guided by Intracardiac Echocardiography: Prediction of Acute Success by a Non-Fluoroscopic Imaging Technique

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**Background:** Cryoballoon ablation has been adopted for pulmonary vein (PV) isolation in many centers. Complete occlusion of PV and adequate balloon sizing are essential for effectiveness of cryoenergy delivery. Traditionally decision for balloon sizes and confirmation of PV occlusion is based on PV angiography. The aim of this study was to replace repetitive angiographic imaging by intracardiac echocardiography (ICE) and to demonstrate its usefulness for balloon guiding and monitoring of PV peak flow velocity.

**Methods:** Consecutive patients undergoing PV cryoballoon ablation or reablation for drug refractory paroxysmal atrial fibrillation were included in this study. Width of the PV antra was measured by ICE as well as in PV angiography and decision for an adequate balloon size was based on this. Ostium occlusion was proved by ICE color flow doppler (CFD). Ostial peak pulsed-wave doppler PV flow was measured before and after PV isolation.

**Results:** A total of 61 PVs were treated in 18 patients ( $58 \pm 13$  years, 13 males). Decision for the balloon size was similar either based upon angiography or on ICE ( $r=1.0$ ). Balloons were adequate in all patients. A single 23 mm or 28 mm balloon was chosen in 5 and 4 patients, respectively. Two different sized balloons were necessary in 9 patients. PVI was evaluated after 1-2 cryo applications. Total occlusion of the PV was confirmed by CFD before or during ablation (after pull-down maneuvers). Successful PVI was predicted in 129/137 (95%) and unsuccessful PVI in 8/8 cryo ablations (100%). Two pulse-wave doppler patterns were detected enabling to distinguish leak-flow (continuous high frequency) from adjacent PV flow (accelerated double peak PV flow). Pre- and postablation maximum peak flows were  $0.47 \pm 0.12$  m/s,  $0.50 \pm 0.12$  m/s respectively (n.s.) indicating no acute narrowing of PV ostia. PVI was finally confirmed by entrance block in all PVs after  $2.4 \pm 0.4$  cryo applications. No procedural complications occurred.

**Conclusions:** ICE is a novel imaging technique for cryoballoon ablation. It allows for prediction of acute success, decision for adequate balloon size, exact balloon placement and excludes acute narrowing of PV ostia.

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