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NEW KODEX-EPD OCCLUSION TOOL SOFTWARE FOR PULMONARY VEIN OCCLUSION VERIFICATION IN ATRIAL FIBRILLATION CRYOBALLOON ABLATION

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Background: Optimal pulmonary vein (PV) occlusion, checked with selective contrast injection, is mandatory to obtain an effective PV isolation with a cryoballoon.

Objective: The purpose of this study was to verify the feasibility of a new dielectric sensing system in assessing PV occlusion during cryoballoon ablation in patients with atrial fibrillation (AF).

Methods: We enrolled 25 consecutive patients with paroxysmal or persistent AF. After transseptal access a detailed image reconstruction of left atrium and PVs was achieved with a decapolar mapping catheter (Achieve catheter, Medtronic Inc.) and KODEX-EPD system (EPD Solutions, a Philips company). The degree of PV occlusion with the inflated Arctic Front Advance (Medtronic Inc.) cryoballoon was verified by a new occlusion tool (EPD Solutions, a Philips company) software and compared to the angiography with dye injection in each PV.

Results: A total of 114 PV cryoballoon occlusion were tested. The new occlusion tool software showed a 91.7% sensitivity and 81.5% specificity in assessing a complete PV occlusion verified with dye injection. The positive predictive value was 84.6% and the negative predictive value was 89.8%. Acute isolation was achieved in all PVs. No 30 days complications were observed.

Conclusion: This is the first study that demonstrates the feasibility of a new occlusion tool software, using the novel KODEX-EPD system, in verifying the degree of PV occlusion during a cryoballoon ablation.