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## 5213 : On wire technology for pulmonary veins isolation: comparison between phased array radiofrequency ablation and ballon-cryotherapy

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**Introduction:** Pulmonary vein (PV) electric isolation is a cornerstone of any ablative technique for atrial fibrillation (AF) treatment. Different on- wire technologies have emerged for PV catheterization and hence ablation avoiding the risk of perforation especially for complex left atrial (LA) anatomy. Evaluation of 2 different on- wire technologies for PV isolation; namely the ballon-cryotherapy (BCT) and the circular multiphase array radiofrequency therapy (CMART) is the aim of this study.

**Methods:** Seventy-two consecutive symptomatic drug-resistant paroxysmal AF patients (mean age  $54 \pm 9$  years; 55 men) were randomly subjected to either BCT or CMART. All patients were subjected to a 64- multislice CT-scan prior to the ablation procedure (to observe LA anatomy) and 48 hours after (to detect early PV stenosis). For the BCT group, a maximum of 4 applications (4 min each application) per PV were delivered. For the CMART group, a maximum of 10 applications (1 min each application) were applied per PV.

By the end of the procedure using either of the 2 technologies, disconnection was assessed for all the PV using a circular LASSO® catheter. If disconnection wasn't achieved for any of the targeted PV, radiofrequency ablation using a 4mm irrigated-tip catheter was then performed to achieve complete PV electric isolation.

**Results:** A shorter procedure time ( $188 \pm 56$  vs.  $230 \pm 52$  min) and fluoroscopic exposure time ( $34 \pm 12$  vs.  $43 \pm 13$ ) was observed with the CMART compared to BCT. Ninety-six percent of the targeted PV (142/146) were isolated using CMART alone, compared to 67% (97/144) with BCT alone ( $p < 0.01$ ). Over a follow up period of  $8 \pm 3$  months, no significant difference regarding the number of patients free of arrhythmia was observed; 72% with CMART (26/36 patients, 3 on antiarrhythmic treatment) compared to 83% with BCT (30/36 patients, 6 on antiarrhythmic treatment). No complications occurred apart from a case of phrenic nerve injury with BCT and a case of transient ischemic attack with CMART.

**Conclusion:** Both the BCT and the CMART proved to be equally safe for PV isolation. CMART is effective as a single therapy without the need of hybrid ablation therapy in the majority of cases for PV isolation.