The Best Out of Two Worlds- Impact of Low Voltage Zones After Cryoballoon Based Pulmonary Vein Isolation Detected with High-Density Mapping

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OBJECTIVE:

This study sought to investigate the extension of lesions at the posterior wall and the roof of the left atrium after AF ablation with the fourth generation Cryoballoon.

METHODS AND RESULTS:

30 patients with paroxysmal or persistent AF underwent ablation with the fourth generation CB. Individual freeze-cycle duration was set at TTI+120 seconds. No bonus freeze was applied. A total of 120 pulmonary veins (PV) were identified and all PVs were successfully isolated. 3D electroanatomical high density (HD) Maps of the LA were performed in every patient before and after PVI. Surface area of the posterior wall and LA- roof were measured before ablation and correlated to lesion extension after PVI. After CB Ablation 65.6±16.9 % of the posterior wall and 75.4±18.4% of the LA roof remained electrically intact and unablated. In addition, in every patient in at least one PV a non-antral lesion formation was observed. Anterior antral parts of the superior PVs showed after CB Ablation greatest areas of electrically intact electrograms.

CONCLUSION:

High Density Re-Maps after CB based PVI demonstrated that main parts of the posterior wall and roof remained electrically normal and unaffected. Unablated antral areas were predominantly in the anterior parts of the superior PVs and may translate into recurrence of AF.

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