

Impact of a time-to-effect guided ablation protocol in cryoballoon ablation on durability of pulmonary vein isolation

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Abstract

Background: Cryoballoon (CB) based pulmonary vein isolation (PVI) has proven to be as effective as radiofrequency (RF) based ablation. Different ablation protocols took the individual time-to-isolation (TTI) into account aiming at shorter but equally or even more effective freeze-cycles. The current study sought to assess the impact of the TTI on PVI durability in patients undergoing a repeat procedure for recurrence of atrial tachyarrhythmia (ATA). Methods and Results: In 205 patients with ATA recurrence after previous CB-based PVI a total of 806 PVs were identified. One hundred-twenty-six out of 806 PVs (16%) were previously treated with a TTI guided ablation (protocol #1; TTI+120 sec.), in 92/806 (11%) PVs TTI was only monitored (m) but fixed freeze-cycles were applied (protocol #2; mTTI) and in 588/806 (73%) a fixed freeze-cycle was applied without TTI-monitoring. There was no difference in the PV-reconduction rate between the groups ($P=0.23$). The right inferior pulmonary vein (RIPV) showed overall significantly higher reconduction rates compared to the other PVs (RIPV – left inferior PV (LIPV) $p<0.003$, -left superior PV (LSPV) $p<0.001$, - right superior PV RSPV $p<0.013$). In 21 patients (10%) only for the RIPV reconduction was assessed. Conclusions: TTI based CB ablation did not show significant differences regarding PV-reconduction rates compared to the other protocols.

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