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Abstract: 292

Duty-cycled bipolar/unipolar antrum ablation in drug-refractory paroxysmal atrial fibrillation using a novel multielectrode ablation catheter system

Authors:

M. Wieczorek¹, R. Hoeltgen¹, P. Braun¹, ¹Herzzentrum Duisburg - Duisburg - Germany,

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Introduction: The electrical disconnection of the pulmonary veins (PV) plays an important role in the ablation therapy of paroxysmal AF (AF). Circumferential antral ablation (Abl) with a conventional ablation technique using a steerable ablation catheter does not always lead to an electrical disconnection (dis) of the related PV.

Objective: The purpose of this study was to evaluate if an effective electrical disconnection of the treated veins can be achieved acutely and how the clinical course of the patients would be during their follow-up. The catheter used is a novel spiral 10 pole ablation catheter (PVAC) which can be used for mapping and ablation.

Methods: The antral Abl with the intention of electrical PV dis was done using a PVAC catheter. The power-modulated bipolar/unipolar Abl was performed with the GENius RF-generator 5 electrode pairs were individually controlled with a maximum power of 8W. All reachable PV were electrophysiologically checked and antral applications were delivered if PV potential could be demonstrated spontaneously or by stimulation. A complete PV dis was assumed, if the PVAC did not show any PV signals at the ostium, or if the PV-rhythm was dissociated from the atrium. Residual PV-potential and atrial far-field activity were differentiated by differential pacing techniques. Follow up was performed by using either an implantable event recorder (Reveal) which was implanted before the ablation procedure, or by a 7 days Holter monitoring after 3 month.

Results: In 55 patients 220 PV could be detected. 218 PV were electrophysiologically examined with the PVAC- catheter. An antral ablation was performed in 171 PV. Acutely 169 PV could be disconnected from the LA. The mean fluoro time was 18±13min. Total procedure time was 119±26min. No complications were observed. Follow-up: 46 patients are at the moment in the follow-up period of 3-6 months. The data analysis from the reveal group (n=17) and the patients who received a 7 day Holter after 3 month (n=29) showed the following results: 38 patients (83%) are free of AF without taking antiarrhythmic drugs. 8 patients still had AF, 4 (23%) were in the Reveal group and 4 (13%) were in the Holter group.

Conclusion: The power modulated bipolar/unipolar antrum ablation is an effective and save electrophysiological measure for electrical PV-dis in patients with AF. In 83% of the patients it results in freedom of arrhythmia without antiarrhythmic drugs. An appropriate procedure-time and fluoro-time points out the clinical value of this ablation method in this patient group.

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