

ATRIAL FIBRILLATION CATHETER TREATMENT WITHOUT THE USE OF NAVIGATION SYSTEMS AND IRRIGATED CATHETERS.

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In this article we analyzed the efficiency of atrial fibrillation (AF) catheter ablation without navigation systems and irrigated catheters using. It is shown that the AF ablation without the use of navigation systems and irrigated catheters can be an adequate alternative to traditional ablation methods.

Key words: *atrial fibrillation, catheter ablation, ablation results.*

Currently proposed a number of techniques for atrial fibrillation (AF) catheter treatment. Most authors use the pulmonary veins isolation (PVI), irrigated catheters and navigation systems [1].

The usage of navigation systems is reduced X-ray exposure time, but it significantly increases the cost of the procedure. AF ablation can be performed without the use of navigation systems quickly, successfully and with small number of complications [2].

There was no clear evidence for the irrigated catheters impact on the number of complications and duration of the procedure [3]. A. Natale and colleagues compared the incidence of complications during using 8 mm tip non-irrigated catheters and irrigated catheters. They analyzed more than 3500 cases. It was found, that in a group where irrigated catheters were used, the number of complications was less for 0.2 % (1.1 % and 0.9 %), but the number of significant bleeding and pericardial effusion was more for 0.8% (0.4% and 0.8%, 0.4% and

0.8% respectively). These authors explain this by saline dilution of blood as a result of irrigated catheters using [4].

Objective. The purpose of this study was to analyze the efficacy of AF catheter ablations without using a navigation systems and irrigated catheters using.

Methods. Between July 2012 to April 2013 in Ukrainian Children's Cardiac Center were performed 41 AF catheter ablations in consecutive primary patients aging up to 70 years, with the left atrium (LA) size not more than 5 cm and the left ventricle ejection fraction (LVEF) at least 50%.

Paroxysmal AF was observed in 25 (62.5%) patients, persistent - in 8 (20.0%), long-standing persistent - in 7 (17.5%) patients. The duration of the arrhythmia was 1-43 years (mean – 5.5 ± 3.5 years). Maximum absence of sinus rhythm was observed for 6 years.

There were 12 (30%) female patients. The median age was 51.0 ± 11 years (from 17 to 66 years). In 18 patients was diagnosed arterial hypertension, in 2 - thyroid hyperplasia with normal thyroid function, in 1 - hypothyroidism, in 1 - obstructive form of hypertrophic cardiomyopathy, in 2 – coronary artery disease (1 - after coronary artery bypass grafting), 1 patient underwent mitral valve replacement because of rheumatic heart disease. One patient had a two-chamber pacemaker, implanted due to sick sinus syndrome (bradycardia-tachycardia syndrome).

All procedures were performed under general anesthesia with endotracheal intubation, through a double transseptal puncture, which was performed with guidance of transesophageal echocardiography. Radiofrequency (RF) energy for pulmonary vein isolation was delivered using single 4 mm non-irrigated tip ablation catheter. We also used circular mapping decapolar catheters "Lasso" for guidance of PVI. After every 20 applications ablation catheter was removed and cleaned with a damp cloth, transseptal catheter was flushed with saline, supplemented with heparin.

Additionally we applied RF applications in the left and right atrium in sights of unusual atrial potentials registration in sinus rhythm, or in sites of complex

fractionated atrial electrograms registration in AF. In patients with persistent AF we applied applications line between the superior and inferior cava veins, and then sinus rhythm was restored by electrical cardioversion.

RF energy was limited with a maximum power of 35W, target temperature of 55°C and time of application 40 seconds. Average time of X-ray exposure was 43 ± 6 min. (26 to 54 min.), number of applications – 118.5 ± 34.8 , procedure duration – 2.6 ± 1.5 hours (2 to 3.5).

Results and discussion. Arrhythmia recurrence occurred in 9 patients. There was 1 atrial flutter and 1 atrial tachycardia. Overall efficacy after the first procedure without the use of antiarrhythmic drugs was 72.5% (29 of 40 patients). Antiarrhythmic drugs was able to control tachycardia in 4 patients (overall efficacy - 83.5% (33 of 40)). We performed a second catheter ablation in 1 patient, and after 5 months he was in sinus rhythm without antiarrhythmic drugs.

Remains in sinus rhythm after a single procedure without the use of antiarrhythmic drugs in paroxysmal AF 19 (76.0%) of 25 patients, in persistent AF - 6 (75.0%) of 8 patients, in long-standing persistent AF - 4 (57.1%) of 7 patients. The majority of patients with residual cardiac arrhythmias noted improvement in tolerance for them.

The disadvantage of this study is the small number of patients and short term of follow-up. However, a high enough efficiency of this method and the improvement of health in patients as a result enable its further use.

Relatively long X-ray exposure tends to shortening with the experience accumulation. Adequate transseptal sheath manipulations, which are only visible by fluoroscopy, during the pulmonary vein isolation improve the positioning of the ablation catheter. Relatively large number of applications is balanced by the fact that they are applied mainly at the pulmonary veins orifices, which gives reason to hope for the preservation of atrial contractile function. Another advantage of this technique is its relative low cost, that allow treat more patients.

Conclusions.

1. AF catheter ablation is an effective and safe procedure.

2. AF catheter ablation without the use of navigation systems and irrigated catheters can be an adequate alternative to traditional ablation methods.

Literature.

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КАТЕТЕРНЕ ЛІКУВАННЯ ФІБРИЛЯЦІЇ ПЕРЕДСЕРДЬ БЕЗ ВИКОРИСТАННЯ НАВІГАЦІЙНИХ СИСТЕМ ТА ЕЛЕКТРОДІВ З ОХОЛОДЖЕННЯМ

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У роботі аналізується ефективність катетерної деструкції фібриляції передсердь шляхом ізоляції легневих вен та нанесення аплікацій у місцях реєстрації фрагментованих та високочастотних потенціалів у лівому та правому передсерді. Показано, що катетерна деструкція ФП без використання навігаційних систем та електродів з охолодженням може бути адекватною альтернативою традиційним методам деструкції.

Ключові слова: фібриляція передсердь, катетерна деструкція, результативність.

КАТЕТЕРНОЕ ЛЕЧЕНИЕ ФИБРИЛЛЯЦИИ ПРЕДСЕРДИЙ БЕЗ ИСПОЛЬЗОВАНИЯ НАВИГАЦИОННЫХ СИСТЕМ И ОХЛАЖДАЕМЫХ ЭЛЕКТРОДОВ

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В работе анализируется эффективность катетерной деструкции фибрилляции предсердий (ФП) без применения навигационных систем и охлаждаемых электродов. Показано, что катетерная деструкция ФП без применения навигационных систем и охлаждаемых электродов может служить адекватной альтернативой традиционным методам деструкции.

Ключевые слова: фибрилляция предсердий, катетерная деструкция, результаты абляции.