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Visualizable vs. non-visualizable steerable sheaths for AF procedures: randomized trial

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Steerable sheaths (SSs) are frequently used to improve catheter stability during atrial fibrillation (AF) procedures. A new type of visualizable (by electroanatomical mapping system) SS has become available in clinical treatment.

Purpose: We aimed to compare procedural and follow up data of visualizable vs. non-visualizable SS assisted pulmonary vein isolation procedures in patients with AF.

Methods: In this single-centre randomized study, we enrolled a total of 100 consecutive patients who underwent PVI due to AF.

Results: 100 consecutive patients were enrolled and randomized into 2 groups (visualizable SS group: 50; non-visualizable SS group: 50). With the use of visualizable SS, left atrial (LA) procedure time (53.1 [41.3; 73.1] min vs. 59.5 [47.6; 74.1] min.; $p = 0.04$), LA fluoroscopy time (0 [0; 0] s vs. 17.5 [5.5; 69.25] s; $p < 0.01$) and LA fluoroscopy dose (0 [0; 0.27] mGy vs. 0.74 [0.16; 2.34] mGy; $p < 0.01$) was significantly less, however, there was no difference in the total procedural time (90 ± 35.2 min vs. 99.5 ± 31.8 min; $p = 0.13$), total fluoroscopy time (184 ± 89 s vs. 193 ± 44 s; $p = 0.79$), and total fluoroscopy dose (9.12 ± 1.98 mGy vs. 9.97 ± 2.27 mGy; $p = 0.76$). Compared to standard SS group total ablation time was reduced (1049 sec. [853; 1175] vs. 1265 sec. [1085; 1441]; $p < 0.01$) using visualizable SS, and the number of radiofrequency ablations was fewer (69 [58; 80] vs. 79 [73; 86]; $p < 0.01$) in this group. There was no difference between the groups regarding acute ablation success (both group 100%) and first pass isolation rate (92% vs. 89%; $p = 0.88$). No major complications occurred in either group. During the 6 months follow up period there was no difference either in blanking period (visualizable SS: 3/50, standard SS: 4/50; $p = 0.70$) or at 6 months after the ablation (visualizable SS: 3/50, standard SS: 5/50; $p = 0.46$).

Conclusion: Visualizable SS significantly can reduce the left atrial procedure time, total ablation time and fluoroscopy exposure without compromising its safety or mid-term success in patients undergoing PVI procedures for AF.

Electroanatomical mapping-system guided vs. intracardiac echocardiography-guided slow pathway ablation: a randomized, single-center trial

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Introduction: Radiofrequency (RF) catheter ablation of the slow pathway (SP) in atrioventricular nodal reentry tachycardia (AVNRT) is highly effective; however, it may require prolonged fluoroscopy and RF time. Procedural outcomes may improve by using electroanatomical mapping systems (EAM), and/or intracardiac echocardiography (ICE).

Purpose: Our aim was to compare EAM-guided vs. ICE-guided approach for SP ablation in patients with AVNRT.

Methods: In our single-center study, 65 patients underwent SP ablation due to AVNRT were randomized to ICE-guided or EAM-guided groups. Procedural outcomes (total procedure time, puncture-to-mapping time, mapping-to-last ablation time), fluoroscopy parameters (total fluoroscopy time, radiation dose) and ablation data (number of RF applications, total ablation time) were analyzed.

Results: ICE guidance reduced puncture-to-mapping time (39.6 ± 7.6 min vs. 32.7 ± 8.2 min; $p < 0.001$) and total procedure time (68.5 (62.8; 75.3) min vs. 59.5 (56; 64) min; $p < 0.001$). Total fluoroscopy time was shorter (0 (0; 0) sec vs. 79 (61; 121.5) sec; $p < 0.001$), and radiation dose was lower (0 (0; 0) mGy vs. 3.1 (2.2; 4.5) mGy; $p < 0.001$) with the use of EAM. No significant difference was detected regarding mapping-to-last ablation time (6 (2.5; 17.0) min vs. 3 (2; 8.3) min; $p = 0.13$), the number of RF applications (5 (3; 7) vs. 3.5 (3; 5.5); $p = 0.30$), and total ablation energy (3625 (2513; 5402) J vs. 2676 (1912.5; 5291.5) J; $p = 0.10$), however total ablation time was shorter in the ICE-guided group (127.5 (86.8; 181) sec. vs. 98.5 (81; 193.5) sec; $p = 0.04$). No complication occurred. Acute success rate was 100% and there was no recurrence during the follow up.

Conclusions: In our randomized trial enrolled 65 patients underwent SP ablation due to AVNRT, EAM-guided approach reduced fluoroscopy time and fluoroscopy dose, however total procedural, puncture-to-mapping time, as well as total ablation time was longer compared to the ICE-guided group.