Comparison Of Visualization Of Left Atrial Appendage Using Intracardiac Echocardiography From Right Atrium And Right Ventricular Outflow Tract During Atrial Fibrillation Ablation Procedure


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Abstract

Comparison of visualization of left atrial appendage using intracardiac echocardiography from right atrium and right ventricular outflow tract during atrial fibrillation ablation procedure.

Introduction: The aim of this study was to compare visualization of left atrial appendage (LAA) using intracardiac echocardiography (ICE) from right atrium (RA) and right ventricular outflow tract (RVOT) during atrial fibrillation ablation procedure.

Methods: Study population included 45 patients (38 men, mean age 59.6 ± 11.3 years), in whom ICE was performed during atrial fibrillation ablation procedure. Thirty two patients were on sinus rhythm during ICE. Transesophageal echocardiography (TEE) was performed in all patients before procedure, patients with LAA thrombus were excluded from our study. Visualization of LAA was performed from RA and RVOT in all cases. Possibility of visualization of LAA from both positions was assessed.

Results: Visualization of LAA was appropriate in 36 of 45 (80%) patients from RA and in 44 of 45 patients (98%) from RVOT (p = 0.02). Mean ICE procedure time was 10.5 ± 6.2 minutes, Mean ICE fluoroscopy time was 1.4 ± 1.0 min. No thrombi, underdetermined by TEE were found in LAA by ICE. There were no statistically significantly differences in cardiac chamber volumes and left ventricular wall thickness, assessed by transthoracic echocardiography, between patients with good and bad visualization from RA.

Conclusions: Probability of appropriate visualization of LAA from RVOT is statistically significantly higher, then from RA.
Comparison Of Initial La Patterns As The Road To Successful Endocardial “Box Lesion” Ablation

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Abstract

Introduction: Despite the clinical recommendations we decided to find the initial clinical electro-mechanical patterns in patients with successful RFA in the late postoperative period.

Methods: The clinical cohort study was held in 2010-2012 and includes 94 patients (49 male) with lone paroxysmal (36,2%), persistent (31,9%) and long standing persistent (31,9%) AF. All patients underwent electroanatomical CFAE mapping and PVI with endocardial linear “box lesion” ablation. The evaluation of initial electroanatomical patterns was assessed after the end of clinical trial (up to 3 years of follow-up).

Results: Only 34 (36,2%) patients had sinus rhythm in the end of the study without AAT. In this group LA parameters were less than in patient with AF after procedure (M(q1q3)): surface area - 99,21 (71,81;124,91) and 129,11 (112,75;172,51) cm²; volume – 91 (82,75;123) and 140 (120;195,5) ml; CFAE duration – 87 (79,5;118,5) and 158 (118;185,5) msec; CFAE area size – 10,3 (9,7;20,2) and 25,7 (16,2;30,35) cm², HR 0,339 (0,145;0,793) and 4,6 (1,57;13,5).

Conclusions: Endocardial “box lesion” ablation can be reasonable in patients with paroxysmal and early persistent AF and possible reverse remodeling of LA.
Pulmonary Vein Reconnection: Is Contact Force More Important Than Stability?

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Abstract

Background: Pulmonary vein reconnection has been described as a frequent cause for atrial fibrillation recurrence after ablation. Contact force catheters have been recently developed and radiofrequency delivery with over 10gr of force related to improved outcomes. Also, recent technology value pressure and radiofrequency power to determine a better lesion. The aim of our study was to compare the pulmonary vein reconnection rate after pulmonary vein isolation with magnetic navigation (contact force under 5 gr and high catheter stability) with manual catheter (higher pressure, lower stability).

Methods and results: Two groups were compared. 124 consecutive patients submitted to atrial fibrillation re-ablation with magnetic navigation and 125 consecutive patients submitted to re-ablation with manual navigation catheter. Pulmonary vein reconnection rates were analyzed and the more common veins to recur were described. At least one pulmonary vein was reconnected in 116 procedures (93.6%) of the magnetic group versus 114 (91.2%) in manual navigation group. The number of reconnected veins on the different groups were (magnetic vs manual respectively) four veins in 40 procedures (32.3%) vs 52 (41.6%), three veins in 29 procedures (23.4%) vs 11 (8.9%), two in 30 procedures (24.2%) vs 37 (29.6%) and one in 17 procedures (13.7%) vs 14 (11.2%) (p=NS). In the manual group, the first procedure was performed with contact force catheter in 21 procedures (16.8%). During re-ablation, in the manual group, the number of reconnected veins was not different whether the first procedure was performed with contact force catheter or not (at least one reconnected vein in 90.5% of the procedures and four reconnected veins in 52.6%).

In both groups (magnetic and manual) the commonest reconnected vein was the right superior (75.6% vs 72.8%) followed by the right inferior (65.3% vs 71.2%). The left superior vein was reconnected in 61.3% vs 58.3% of the procedures and the left inferior in 59.7% vs 60.8% (p=NS).

Conclusions: The majority of patients submitted to atrial fibrillation re-ablation had more than one reconnected vein. We did not observe a significant difference whether first ablation was performed with magnetic navigation (lower pressure and high stability) or manual navigation catheters and thus a higher pressure during radiofrequency delivery did not correlate with lower prevalence of reconnected veins. Long term efficacy of the radiofrequency lesion depends on an equation with many variables and new algorithms should also include catheter stability.
Contact Force Technology Is Associated With Better Outcome In Persistent Compared With Paroxysmal Atrial Fibrillation Catheter Ablation: 1 Year Follow Up

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Abstract

Introduction: Persistent atrial fibrillation (PeAF) is associated with higher incidence of AF recurrences after radiofrequency catheter ablation (RFCA) compared to paroxysmal AF (PAF). Real-time measurement of contact force (CF) during RFCA potentially impacts outcome.

Methods: 260 patients, affected by PAF (165) and PeAF (95), underwent first RFCA based on pulmonary vein isolation (PVI). Left atrial lines were performed on top of PVI in PeAF. Of all patients, 102 underwent CF (CF group) and 158 non CF (non-CF group) guided RFCA.

Results: Patients were followed for 23±11 months. At 1-year follow up, CF group showed lower incidence rate of AF recurrence than conventional RFCA (10.8% vs 20.8%, respectively; log rank P=0.04). In non CF group, PeAF was associated with higher incidence rate of AF recurrence than PAF (p=0.046), while in CF group, there was no difference between the two types of AF. In PeAF patients, use of CF technology significantly reduced AF recurrences at 1-year follow up compared with conventional RFCA (42% vs 22%, p=0.01).

Conclusions: CF technology is associated with better outcome when integrates conventional AF RFCA and this effect seems higher in PeAF than in PAF context after 1-year follow up.
Adenosine In Atrial Fibrillation Ablation: Does It Improve The Outcome?

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Abstract

Background: Pulmonary vein isolation is an essential part of the standard ablative treatment for atrial fibrillation. Vein reconnection has been referred as one of the main causes of recurrence after ablation. Adenosine testing at the end of the procedure allows to check for dormant conduction and to further deliver radiofrequency energy at the sites of reconnection aiming to achieve better efficacy and long lasting pulmonary vein isolation. The impact of this strategy during follow up after ablation is not well established.

Methods: We evaluated 305 consecutive patients submitted to pulmonary vein isolation since 1st January 2013, 60±11 years old, 47.5% hypertensive, 80.3% paroxysmal atrial fibrillation. The average left atrium volume was 101±28ml. At the end of the procedure, adenosine iv bolus was used in 162 pts (64.5%). Reconnection in at least one vein was observed in 43 pts (26.5%) and further radiofrequency energy was applied. During 173±128 days of follow up recurrence free was present in 90.5% of patients in adenosine group vs 95.3% in the control group (p=0.76, multivariate, adjusted for difference between groups). Having reconnection and further radiofrequency energy applied in the adenosine group didn’t correlate with better prognosis, 93% free of recurrence in reconnection subgroup vs 89.6% in non-reconnection subgroup (p=0.5).

Conclusions: In our registry of patients submitted to pulmonary vein isolation, further radiofrequency delivery in areas of adenosine inducible reconnection did not improve success rates during follow up. These results do not support the routine use of adenosine during atrial fibrillation ablation.

References

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