ABLATION OF ATRIAL FIBRILLATION BEYOND PULMONARY VEIN ISOLATION: DO ADDITIONAL ABLATION LESIONS IMPACT LEFT ATRIAL FUNCTION?
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Background: Electrical isolation of pulmonary veins (PVI) is a cornerstone for Atrial Fibrillation (AF) ablation therapy. Elimination of non-pulmonary vein (NPV) triggers in addition to PVI was shown to decrease long-term AF recurrence. The overall effect of AF ablation on left atrial (LA) function is poorly understood and it is unknown if additional ablation lesions can affect it.

Objective: Our aim was to determine if LA function is different in patients after extensive LA ablation compared to PVI only. We hypothesized that addition of NPV ablation lesions in LA do not further deteriorate LA function compared to PVI alone.

Methods: Out of consecutive 994 patients who underwent AF ablation at our center in years 2018-2019, we included 68 patients in our retrospective analysis who had echocardiograms (TTE) performed within 12 months prior to AF ablation and 1-12 months after. Redo ablations, history of mitral valve interventions were excluded. Patients were stratified into 2 groups: PVI only and PVI with additional LA ablation lesions (PVI+). Primary outcome was LA reservoir strain (LASr). We applied non-inferiority analysis with 90% CI for an overall alpha level of 0.05. Mean LASr in patients after AF ablation is reported ±9%. We used a conservative 6% to define non-inferiority as a change in LASr.

Results: Patients in our study cohort had higher rates of history of HTN, HFrEF, DM, HLD, ESRD compared to all patients who underwent AF ablation. A higher rate of paroxysmal AF in the PVI only group was noted (70% vs 30%). The PVI+ group was observed to have a slightly higher increase in LASr compared to PVI alone (5.0%vs 4.3%), with 90% CI (-4.2 to 2.9). The upper bound for the true difference of 2.9% did not cross the pre-set margin of 6% (p<0.01 for test of non-inferiority). These findings were consistent when adjusted for clinical predictors of LASr. Mean LASr in patients after AF ablation was reported 19 ±9%. We used a conservative 6% to define non-inferiority as a change in LASr.

Conclusion: LA functional improvement evaluated by LASr is statistically non inferior after PVI with additional LA ablation lesions compared to PVI alone. These findings were confirmed when adjusted for confounding clinical variables.

PO-636-06
DOES RENAL ARTERY DENERVATION IN ADDITION TO PVI REDUCE AF BURDEN? RESULTS OF THE MULTICENTER ERADICATE-AF RANDOMIZED CLINICAL TRIAL
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Background: First pass isolation (FPI) has been shown to be associated with improved long-term freedom from atrial arrhythmia recurrence following atrial fibrillation ablation (AFA). The clinical and procedural predictors of FPI are not as well described.

Objective: Determine the clinical and procedural predictors of pulmonary vein first pass isolation.

Methods: REAL AF is a prospective registry of AFA procedures performed at centers utilizing low fluoroscopy with high procedural volumes. The first 1539 ablation procedures were reviewed to determine clinical and procedural predictors of FPI using logistic regression.

Results: We analyzed 2939 vein sets that had the required data available. The FPI rate for the entire cohort was 80.3% (86.5% on the left and 73.9% on the right).

Significant predictors include: Age was associated with increased odds of FPI (OR: 1.009 [1.001 - 1.016]), while BMI (OR: 0.976 [0.963-0.989]) and CHF (0.674 [0.502-0.907]) were negative predictors. Procedurally, higher ablation index targets anteriorly (OR: 1.003 [1.001 - 1.006]), higher power targets anteriorly (OR: 1.027 [1.004 - 1.049]), and higher maximum contact forces posteriorly (OR: 1.014 [1.002-1.026]) were all associated with increased FPI rates (Table 1).

Conclusion: The use of higher ablation index and power targets anteriorly as well as higher force posteriorly was related to increased odds of FPI. Further research may clarify ideal targets to optimize ablation effectiveness.

Clinically, advanced age was a positive predictor, while obesity and CHF were negative predictors of FPI. Worsened clinical outcomes in these populations may be partially related to reduced intra-procedural efficacy, demonstrated here by worsened FPI rates.

Table 1. Univariate Predictors of First Pass Isolation

<table>
<thead>
<tr>
<th>Predictors of FPI</th>
<th>P-Value</th>
<th>Odds Ratio</th>
<th>95% CI for ORs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Clinical Variables</td>
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<tr>
<td>Age</td>
<td>0.032</td>
<td>1.009</td>
<td>1.001</td>
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<tr>
<td>BMI</td>
<td>&lt;0.001</td>
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<tr>
<td>CHF</td>
<td>0.009</td>
<td>0.674</td>
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<tr>
<td>Significant Procedural Variables</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Anterior AI Targets</td>
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<td>1.003</td>
<td>1.001</td>
</tr>
<tr>
<td>Anterior Power Target</td>
<td>0.001</td>
<td>1.027</td>
<td>1.004</td>
</tr>
<tr>
<td>Posterior Max Force</td>
<td>0.024</td>
<td>1.014</td>
<td>1.002</td>
</tr>
</tbody>
</table>

*OR for continuous variables are given for a single unit increase in that variable. Only significant predictors are listed. Non-significant variables included gender; HTN, DM, renal failure, vascular disease, COA, degree of LA scar, force targets anteriorly, Ablation Index targets posteriorly, power targets posteriorly, and maximum lesion duration anteriorly and posteriorly.

PO-636-05
CLINICAL AND PROCEDURAL PREDICTORS OF FIRST PASS PULMONARY VEIN ISOLATION- FINDINGS FROM THE ANALYSIS OF 1539 FIRST TIME ATRIAL FIBRILLATION ABLATIONS IN THE REAL-AF REGISTRY

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Objective: Surgical epicardial ablation of the PVs and LAPW in all patients.

Conclusion: Surgical epicardial ablation of the PVs and LAPW in association with a high rate of chronic reconnection. A third of patients have PV reconnection, with majority involving RPV reconnection. Additional endocardial mapping and ablation is necessary to achieve durable isolation.