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Ablation of Persistent Atrial Fibrillation Substrate in Sinus Rhythm Does Not Lead to an Underestimation of Fibrotic Atrial Myopathy: A Pilot Study

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Introduction

- With the increasing prevalence of Atrial Fibrillation and the advancement of treatment methods and techniques, the most successful methods are being sought.

Background

- Ablation of persistent atrial fibrillation (peAF) is associated with a worse outcome.
- Fibrotic atrial myopathy (FAM) is thought to play a role in the progression of AF.
- Estimation of left atrial voltage can vary significantly based on whether mapping is performed in fibrillatory conduction or sinus rhythm (SR).
- Selection of a voltage scale (VS) may lead to an over/under estimation of FAM.
- Clinical question: What is the true distribution of atrial myopathy in persistent atrial fibrillation ablation in patients undergoing ablation during sinus rhythm.

Methods

- A homogenous group of peAF patients who underwent ablation in SR following cardioversion were analyzed, followed prospectively.
- There were no significant differences in clinical covariates compared to a historical cohort of peAF.
- For uniformity the Arruda scale of 0.1-0.5mV was used for the VS (CARTO-Biosense Webster, USA). The lesion set was primarily WACA ± posterior box for both groups.
- We determined the prevalence of advanced atrial myopathy (FAM ≥2) in SR compared to historical cohort ablated in peAF.

	Historical Cohort Ablation AF (n=54)	Prospective Cohort Ablation-SR (n=26)	P-Value
Age	67.2	68.8	0.49
Gender (male)	57%	57%	0.90
FAM Mean	2.037	1.77	0.35
% of FAM ≥ 2	74.10%	61.50%	
Atrial size (mm)	41.9	41.2	0.57
P-wave duration(sec)	0.14	0.145	0.29
Average following time (days)	278	128	0.00031
Sinus rhythm	80%	81%	0.89
LVEF < 50%	27.80%	34.60%	0.54
% OSA	44.40%	50%	0.65

Results

- 26 patients were followed prospectively and compared to 54 historical peAF patients.
- There was no statistical difference in the major clinical variables between both groups (Fig. 1).
- The historical cohort 74% [95% CI, 60-85] had FAM ≥2, while the SR group exhibited 62% [95% CI, 41-80].
- There was no difference in clinical outcome achieving SR with 80% and 81% for the historical and study groups (p=0.89).

Conclusion

- Preliminary data would suggest that mapping either in AF or SR is acceptable for determining the extent of FAM in this population to guide a substrate-based ablation strategy.

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