Distribution of triggers in the left atrial posterior wall in AF patients undergoing catheter ablation

S. Mohanty¹, V.M. La Fazia¹, P.G. Torlapati¹, CAROLA Gianni¹, B. Macdonald¹, A. Mayedo¹, D.G. Della Rocca¹, M. Bassiouny¹, G.J. Gallinghouse¹, J.D. Burkhardt¹, R. Horton¹, A. Al-Ahmad¹, L. Di Biase¹, ANDREA Natale¹

¹St. David's Medical Center, Austin, United States of America

Funding Acknowledgements: None.

Introduction: Having a common embryologic origin with the pulmonary veins (PVs), left atrial posterior wall (LAPW) is considered to be a source of non-PV triggers that facilitate maintenance of atrial fibrillation (AF). However, the benefits of electrical isolation of the posterior wall (PWI) is still debated with contradictory data originating from different ablation approaches.

Purpose: We report the distribution of triggers in the LAPW area in AF patients undergoing repeat ablation.

Methods: Consecutive AF patients undergoing catheter ablation between 2015 and 2022 were included in this analysis. PVs were isolated first. Next, high-dose isoproterenol challenge (up to 30µg/min) was used to disclose triggers in the PW by moving the circular mapping catheter along the PW down to the level of coronary sinus, which were targeted using additional RF energy. We defined lower part of LAPW as the area between the line joining the inferior borders of the inferior PV-encircling lesions and the coronary sinus. The endpoint was to achieve electrical isolation, as documented by absence of any electrical activity in the PW.

Results: Of the 10,963 AF ablations performed during the specified time period, 6249 (57%) had triggers mapped and ablated in the LAPW area.

Triggers were seen to be originating from the part of the PW between the PVs in 4124 (66%) and from the lower part of the PW in 2125 (34%) patients. Of these, 1624 (26%) patients had focal triggers detected in both the area between the PVs and the lower PW. All triggers from in between PVs were targeted for ablation, whereas lower PW sites were ablated in 1296 (61%) and not targeted for ablation the remaining 829 (39%). Figure 1 demonstrates the triggers arising from lower PW.

At 1 year, amongst patients with lower PW triggers, 1049/1296 (81%) vs 326/829 (39.3%) (p<0.001) were arrhythmia-free.

Conclusion: Ectopic triggers in the LAPW were documented to be arising from the lower part of the PW in approximately 1/3rd of cases and ablation of those sites resulted in significantly higher success rate.