Objective: We report on the first “real-world” experience with PVI using PFA for paroxysmal AF.

Methods: Pre and post ablation, phrenic nerve function was assessed. A high-density LA bipolar voltage map was created. All PVs were individually isolated using a steerable sheath and a pentaspline over-the-wire PFA catheter. After ablation, mapping was repeated to assess lesion formation.

Results: In 30 patients (63 years; 47% male), uncomplicated PFA was performed, with all PVs isolated. Procedure time was 116 min. PFA catheter LA dwell time was 29 min. Fluoroscopy time was 26 min. (All values are median). In 1 patient with roof dependent flutter, a roof line was intentionally created. In 2 patients, unintentional bidirectional mitral isthmus block was created. There was no phrenic nerve or esophageal damage. In 1 patient, pericardial drainage after cardiac tamponade was performed. In-hospital stay, and 30-day follow-up were uneventful. After 90 days, 97% of patients were in sinus rhythm. Procedure and ablation times are short. Atrial ablation lines can easily be created. Unintentional ablation of atrial tissue can occur, accurate catheter alignment to the PV ostium and PV axis should be ensured.

Conclusion: PVI using PFA for paroxysmal AF in a “real-world” setting is safe and feasible. Procedure and ablation times are short. Atrial ablation lines can easily be created. Unintentional ablation of atrial tissue can occur, accurate catheter alignment to the PV ostium and PV axis should be ensured.

Figure: Postero-anterior view of a LA bipolar voltage 3D map. Left panel: pre ablation. Magenta areas in the PVs are conducting and red (<0.5 mV). Right panel: post ablation. Non-magenta (<0.5 mV) and red (<0.1 mV) areas in the PVs are ablated and electrically silent.

POSTER-PO-623:
Featured Posters: Catheter Ablation at Pod 10
Friday, April 29, 2022
12:30 PM - 2:30 PM

PO-623-01

ABLATION STRATEGIES IN PATIENTS WITH CONGENITAL HEART DISEASE AND ATRIAL BAFFLES
Anca Chiriac MD, PhD; Kamal Preet Cheema MD; Malini Madhavan MBBS and Christopher J. McLeod MBChB, PhD, FHRS

Background: Patients with D-Transposition of the Great Arteries (D-TGA) palliated with atrial switch have a high incidence of atrial arrhythmias and pose a particular challenge for ablation.

Objective: We sought to analyze ablation strategies in this population.

Methods: An in-depth analysis of ablation data in patients with D-TGA, atrial baffles, and atrial arrhythmia ablations performed at a large tertiary care institution.

Results: A cohort of 26 patients with D-TGA and atrial switch (73% male; systemic RV EF 35±11%, mean age at first ablation 37.4±7.2 years) underwent a total of 31 procedures, 26 de novo and 5 redo ablations. For patients with no prior intervention (21, 81%), ablation revealed cavitricuspid isthmus dependent flutter (CTI-flutter, 71%), scar-related intra-atrial reentry (IART, 57%), and focal atrial tachycardia (FAT, 9.5%) (Figure A). Patients with prior outside interventions for CTI-flutter (5, 29%) demonstrated conduction across the CTI in 3/5 (60%) cases. However, patients requiring redo ablation after an index ablation at our institution (5, 29%) demonstrated bi-directional block across the CTI and different, new arrhythmia substrates at the next procedure (80% IART, 40% FAT). Intracardiac echocardiography and electroanatomic mapping were used in all contemporary cases. A screw-in atrial lead was used in 4 procedures as a stable fiduciary reference for mapping, as the coronary sinus ostium was inaccessible. Achieving bi-directional block across the CTI often required ablating on both sides of the baffle (retroaortic access, 81%; using a baffle leak, 11.5%; trans-baffle puncture, 7.7%, or using a VSD, 3.8%). Combined approaches were necessary in 23% of patients to reach critical tissue and achieve optimal contact force (Figure B). Irrigated contact force sensing catheters were used, targeting a significant effect on the electrograms and demonstration of bi-directional CTI block (Figure C).

Conclusion: Despite the complex anatomy and atrial reconstruction, cavitricuspid isthmus flutter is still the most common arrhythmia in this population, and bi-directional block often requires additional ablation approaches to reach the target tissue on either side of the baffle. Once CTI block is achieved, further recurrences are due to different, new arrhythmia substrates- IART and FAT.

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PO-623-02

OUTCOME OF REPEAT ABLATION FOR PREMATURE VENTRICULAR CONTRACTIONS IN PATIENTS WITH PRIOR ABLATION FAILURE: IMPACT OF ADVANCED TECHNIQUES
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Background: The utility of advanced ablation (investigational needle ablation, epicardial, and simultaneous two site unipolar radiofrequency ablation) for premature ventricular contractions (PVCs) in patients with prior ablation failure is not clear.

Objective: To evaluate long-term outcomes of advanced ablation techniques in patients who failed prior PVI ablation.

Methods: We reviewed 239 consecutive patients who underwent PVC ablation. When standard endocardial ablation with normal or half normal saline failed, we considered an advanced ablation technique. Acute success was defined as abolition of the target...