Results: In 30 patients (age 63 years, 47% male), uncomplicated
PFA was performed, with all PVS acutely isolated. Skin-to-skin
procedure time was 120 ± 21 min. Total LA dwell time was
109 ± 22 min. LA dwell time of the PFA catheter was 31 ± 12 min.
Fluoroscopy time was 23 ± 7 min. Dose-area product was
4.96 ± 3.54 Gy.cm². Number of applications per patient until
complete PVI was 32 ± 1. In 1 patient with roof dependent flutter, a
roof line was intentionally created with 8 additional applications.
In 2 patients, unintentional bidirectional mitral ischmus block was
created. In 10 patients, temporary pacing due to vagal
bradycardia after LSPV ablation was needed. There was no
phrenic nerve palsy. In 1 patient who had repeated, difficult CS-
catheter placement, 6 hours after the procedure a cardiac
tamponade with uncomplicated pericardial drainage of 250 ml
blood occurred. Further in-hospital stay was uneventful, on day 2
all patients were discharged in SR. On day 30, all patients were
free of complaints and there were no groin complaints. 29
Patients were in SR, 1 patient had a cardioversion because of
asymptomatic AT with 4:1 conduction. On day 90, 27 (90%)
patients were in SR, 3 patients had AF/AT recurrence. During
redo LA procedure, 2 patients with isolated PVSs had inducable LA
macro-reentrant tachycardia (1 roof and 1 mitral ischmus
dependent) and 1 patient had LIPV reconduction. All 3 patients
had uncomplicated RF ablation. On day 180, all 30 patients were
off anti-arrythmic drugs and in SR.
Conclusion: PVI using PFA for paroxysmal AF in a „real-world“
setting is safe and feasible. Post-ablation clinical course and 6-
month follow-up are favorable.

ABSTRACT CA-537:
A Critical Appraisal of Tools for Improving Success
or Safety of Atrial Fibrillation Ablation
Sunday, May 1, 2022
2:15 PM - 3:15 PM

CA-537-01
ACUTE CHANGE OF CARDIAC AUTONOMIC
REGULATIONS AFTER THERMAL AND NON-THERMAL
PULMONARY VEIN ABATION
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Vojtech Nejedlo; Jana Haskova and Josef Kautzner MD, PhD

Background: Pulmonary vein isolation (PVI) by thermal energy
(radiofrequency energy or cryoenergy) results in collateral
ganglionic plexi ablation. On the contrary, pulsed electric field
(PEF) energy presumably spares neural tissue.

Objective: We investigated and compared the effect of PVI on
parasympathetic input into the sinus node (SAN) and AV node
(AVN) when four different ablation strategies were used.

Methods: A study enrolled 49 patients who underwent PVI in
general anesthesia (age: 57 ± 13 years, 71% males). In 17
patients, point-by-point radiofrequency energy delivery by the
irritated-tip catheter was used for ablation while 7 patients were
ablated using a second-generation cryoballoon catheter. In 7
patients, PEF energy was delivered using a single-shot Farawave
catheter (Boston Scientific) while 18 patients were ablated using
Sphere9 lattice-tip catheter (Affera, Inc.); both subgroups with
manufacturer-specific PEF settings. Before and after PVI, the
responsiveness of the SAN and AVN was assessed by
extracardiac vagal nerve stimulation (ECVS) via a diagnostic
catheter in the right internal jugular vein. Five-second stimulation
trains were delivered with a frequency of 50 Hz, pulse width of
0.05 ms, and output of 1 V/kg (<70V) both in sinus rhythm and
during atrial pacing. Substantial reduction of response to ECVS
was arbitrarily defined as a maximum induced pause of <1.5
seconds.

Results: At baseline, physiological response to ECVS (long
sinus arrest and/or AV block) was demonstrated. After PVI, a
substantial reduction of SAN response was observed in 21/24
(88%) patients after thermal PVI and 7/25 (25%) patients after
non-thermal PVI (P = 0.0001). Similarly, a substantial reduction
of AVN response was observed in 21/24 (88%) patients after
thermal PVI and 9/25 (36%) patients after non-thermal PVI (P =
0.0003). The Figure shows on the continuous scale the post-PVI
pauses in sinus rhythm (maximum P-P interval) and atrial pacing
(maximum R-R interval) induced by ECVS.

Conclusion: Vagal responses of SAN and AVN are preserved in
most AF patients after non-thermal PVI. This contrasts with the
more substantial effect of thermal PVI. Whether this may influence
the clinical outcome of AF ablation procedures remains to be
investigated in future studies.

CA-537-02
MARKED DISCREPANCY IN LEFT ATRIAL LATE
GADOLINIUM ENHANCEMENT QUANTIFICATION BETWEEN
TWO COMMONLY USED TECHNIQUES
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Shouvik Halder MBBS, MD

Background: Left atrial (LA) fibrosis, estimated by late
gadolinium enhancement (LGE) on cardiac magnetic resonance
imaging (CMR), is a predictor of recurrent atrial fibrillation (AF)
following catheter ablation. The two prevailing techniques for
identification of LA LGE at present are 1) image intensity ratio
(IIR) method, normalising intensity of the atrial wall by mean
value of the atrial blood pool, and 2) standard deviation (SD)
method analysing signal intensity distribution of the LA wall.
However, there is a paucity of data comparing these techniques
and no consensus exists as to the optimal quantification tool for
LA LGE.

Objective: To evaluate the concordance in quantification of LA
LGE between the IIR and SD techniques.

Methods: Respiratory- and ECG-gated CMR scans were
obtained using a 1.5 Tesla scanner, in ten ablation naive subjects
with persistent AF (PsAF). Scans were analysed using the open
source CEMRG software (Kings College London, UK) and LA
LGE identified using an IIR threshold of 1.2 and SD method at intensity values 3 SD above mean blood pool signal. **Results:** Mean LGE burden, calculated as percentage of LA surface area, varied widely between patients with PsAF. LGE area differed significantly between the two methods, with higher mean LGE using the IIR method compared with the SD approach (42.15 ± 17.81% vs. 17.12 ± 12.25%, p < 0.005) and poor agreement on interclass correlation coefficient analysis (ICC = 0.33). However, despite the intra-patient differences, the LGE burden well between the two approaches (r = 0.82, p < 0.005). When categorised according to the Utah LGE classification (stage I 0-10%, stage II 10-20%, stage III 20-30%, stage IV > 30%), mean stage using IIR vs. SD was 3.50 ± 1.12 vs. 2.20 ± 1.14 (p < 0.05). Eight of ten (80%) subjects were assigned to different classification stages depending on the quantification technique employed. **Conclusion:** The extent of LA LGE varies significantly amongst PsAF patients. LGE burden and hence Utah classification stage is highly dependent on the quantification approach utilised. Given LGE quantification may aid prognostication and patient selection for rhythm control intervention, further validation studies are required to identify the optimal technique and correlate with clinical outcomes.

CA-537-04

**INTRACARDIAC ECHOCARDIOGRAPHY USE AND IMPACT ON OUTCOMES FOR ATRIAL FIBRILLATION CATHETER ABLATION**

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**Background:** Impact on outcome associated with the use of intracardiac echocardiography (ICE) during catheter ablation of atrial fibrillation (AF) remains unclear.