factors in AF would allow for rapid clinical assessment and appropriate patient education and referral.

**Objective:** This study aimed to develop a risk factor score to assess health behaviors among AF patients from physician and patient perspectives. The differences among physician and patient reported risk were evaluated to determine potential gaps in patient and provider communication.

**Methods:** At the East Carolina Heart Institute and University of Arkansas for Medical Sciences, patients completed the East Carolina University AF Behavioral Risk Factor Assessment System. This comprehensive battery assessed for AF symptoms, American Heart Association’s Life’s Simple 7, and associated AF specific behavioral risk factors as reported by patient and clinical cardiologist.

**Results:** 110 patients were enrolled in the study. Mean (SD) age of patients was 69 (10.18) years, 38.2% of the sample was female (n = 42), and most patients identified as White (71.8%) or Black (26.4%). Of all patients enrolled, no patients received a risk factor score of “0,” indicating that all patients had at least one potentially manageable AF risk factor. The total risk factor scores from both the patient ($M = 9.39, SD = 3.82, range = 2-21$) and the provider ($M = 9.94, SD = 3.37, range = 2-21$) were calculated. The patient and provider scores were found to be statistically different, $p = .04$. Approximately half of our sample had a BMI greater than 30 kg/m², two-thirds of the sample maintaining a poor diet, and only one-fourth of the sample reported engaging in weekly physical activity recommendations.

**Conclusion:** AF patients in two university clinics demonstrated high rates of lifestyle burden potential for risk factor management. The AF behavioral risk score can provide a “behavioral CHA₂DS₂-VASc” that proved successful at providing an efficient risk score. Behavioral risk assessment should be integrated into routine cardiac care for a patient-centric approach to AF management.

**ABSTRACT CA-536:**

Acute and Long-Term Outcomes after Pulsed Field Ablation for the Treatment of Atrial Fibrillation

Sunday, May 1, 2022

1:00 PM - 2:00 PM

CA-536-01

PULSED-FIELD ABLATION BASED PULMONARY VEIN ISOLATION: ACUTE SAFETY AND EFFICACY IN A MULTI-CENTER REAL WORLD SCENARIO

Marc D. Lemoine MD; Thomas Fink; Celine Mencke; Ruben Schleberger MD; Ilaria My; Laura Rottner; Julius Obergassel; Paula Muenkler MD; Leonard Bergau; Fabian Moser MD; Julia Moser MD; Leon Dinshaw; Bruno Reissmann; Feifan Ouyang MD; Paulus Kirchhof MD; Philipp Sommer MD, FHRS; Andreas Rillig MD; Christian Sohns MD and Andreas Metzner MD

**Background:** Pulsed-field ablation (PFA) is a new energy source to perform pulmonary vein isolation (PVI) by targeted electroporation of cardiomyocytes. Integrated into a single-shot device, PFA has the potential to increase efficacy and safety of PVI compared to thermal energy sources.

**Objective:** To assess feasibility, efficacy and safety of PFA for index PVI in a multi-center real world setting.

**Methods:** Consecutive patients with symptomatic paroxysmal or persistent atrial fibrillation (AF) underwent PVI using the PFA ablation catheter (Farawave®, Farapulse Inc, Menlo Park, CA, USA) at two high-volume ablation centers. The left atrium was accessed by a single transseptal puncture and PVs were located by selective PV mapping. 3D voltage mapping of the left atrium was performed before and after PVI.

**Results:** A total of 110 patients (mean age 67 ± 12 years, 62% male, 61% persistent AF) were included. PVI was achieved in all patients by deploying 3567 applications in 435 PVs (8.4 ± 3.1 per vein). Disappearance of PV signals after the first of eight applications was demonstrated in 433/435 PVs (99%). More than eight PFA applications were applied in 23/435 PVs (0.5%) due to difficulties in positioning (3x left superior PV, 7x right superior PV, 7x right inferior PV) or due to reconnection after remapping (2x LIPV, 3x RSPV, 1x RIPV). Mean procedure time was 81 ± 23 minutes including pre- and post PVI high-density voltage mapping. PF catheter left atrial dwell-time was 27 ± 10 min. Left atrial dwell-time reduced from 40 to 24 min during the first 50 procedures at UHZ. Total fluoroscopy time was 16.6 ± 9.2 minutes with a dose area product of 749 ± 79 Gy·cm². One pericardial tamponade occurred independent of PFA applications and two minor groin complications. No other complications occurred, especially no phrenic nerve palsy, stroke, hemoptysis, atrio-oesophageal fistula or acute symptomatic PV stenosis.

**Conclusion:** In this multi-center real world setting, pulsed field ablation achieves effective pulmonary vein isolation with low complication rates.

**CA-536-02**

PULSED FIELD ABLATION FOR PAROXYSMAL AND PERSISTENT ATRIAL FIBRILLATION USING AN OPTIMIZED BIPHASIC WAVEFORM: REAL CLINICAL DATA FROM SINGLE CENTER

Petr Neuzil MD; Jan Petru MD; Jan Skoda; Moritoshi Funasako MD, PhD; Lucie Sediva MD; Milan Chovanec; Pavel Hala; Pavel Hala MD; Stepan Kralovec MD and Vivek Y. Reddy MD

**Background:** Catheter ablation of atrial fibrillation (AF) using thermal energies such as radiofrequency or cryoablation is associated with indiscriminate tissue destruction. Pulsed field ablation (PFA) with adapted sub-second electric - fields create pores in cell membranes - caused irreversible electroporation. Analysis contained Farawave™ catheter PFA in single center high-volume center.

**Objective:** To evaluate a novel, focal PFA catheter in real clinical practise for catheter ablation paroxysmal and persistent AF.

**Methods:** Ablation was performed using proprietary biphasic bipolar PFA waveform with in two different configurations: basket and flower for PV isolation (in 2+2 after rotating strategy) and flower for posterior wall ablation. In the case of posterior wall ablation we navigate the catheter by integration of CT and fluoroscopy system. The index procedure was performed in deep sedation, intravenous atropin was administered prior PFA application.

**Results:** 179 patients (118 M/ 61 F), average age was 63,2 ± 10,9 years; BMI 28,9 ± 4,4 underwent procedure for paroxysmal AF (145 pts) and for persistent AF (34 pts). All PVs were acutely isolated with PFA ≤ 4,2 min elapsed delivery/patient, skin-to-skin procedure time for paroxysmal AF was 26,8 ± 8,9 min and fluoroscopy time of 7,11 ± 5,4 min. For persistent AF skin-to-skin procedure time was 53,3 ± 17,2 min and fluoroscopy time was 7,4 ± 4,9 min. There were no significant adverse event: including phrenic nerve and esophageal injury, PV stenosis. During mean 3,6 months follow-up the freedom from arrhythmia was 98,1 ± 4,8 % by repeated Holters and ECGs.

**Conclusion:** In these very first real clinical series of patients when PFA was used for the patients out of clinical studies, Farawave™ catheter proved very high effectiveness allowing to facilitate ultra-rapid ablation procedure with excellent durability and safety.
CA-536-03

FIRST REPORT OF LONG-TERM (3-YEAR) CLINICAL OUTCOMES IN PATIENTS TREATED WITH PULSED FIELD ABLATION FOR PAROXYSMAL ATRIAL FIBRILLATION

Daniel N. Pugliese MD MSc; Petr Neuzil MD; Pierre Jais MD; Ante Anic; Jan Petru MD; Ivan Sikirić; Moritoshi Funasako MD, PhD; Hubert Cochet MD, PhD; Toni Breskovic; Milan Chovanec; Srinivas R. Dukkipati MD, FHRS; Jacob S. Koruth MBBS, MD and Vivek Y. Reddy MD

Background: Pulsed field ablation (PFA) has gained prominence due to its enhanced safety profile, durable pulmonary vein isolation (PVI), and high 1-year rates of freedom from recurrent paroxysmal AF. However, the long-term (beyond 1 year) safety and efficacy outcomes of PFA in paroxysmal patients remains unknown.

Objective: To assess 3-year clinical safety and efficacy outcomes of PFA for paroxysmal AF.

Methods: In 3 multicenter trials (IMPULSE - NCT03714178, PEFCAT - NCT03714178, PEFCAT2 - NCT04170608), of similar design and utilizing a multielectrode penta-spline PFA catheter (Farawave, Farapulse Inc; Figure 1), paroxysmal AF patients underwent PVI. A protocol-driven remapping procedure at 2-3 months assessed PVI durability, and standardized rhythm monitoring to 1 year. Following study exit, patients returned to institutional standard-of-care monitoring. At a recent timepoint, 7-day Holter monitors and symptom and safety assessments were performed.

Results: The overall patient cohort included 121 patients enrolled at 3 centers. Long-term safety data is available for 112 of 121 patients, with follow-up of 1049 ± 205 days. Patients had no long-term ablation-related adverse events - including no deaths (1 patient had a brain tumor treated with radiation). Long-term efficacy data is available for 81 of 121 patients, with follow-up to 1116 ± 193 days. Repeat catheter ablation after the 1 year time point was performed on 10 of 78 (12.8%) patients. The mean time to re-ablation was 934 ± 269 days. Of these 10 patients, 3 patients had initially received the optimized PFA waveform at the index procedure - all PVs had remained isolated at both the protocol-mandated remapping procedure, as well as at the late re-ablation procedure. The remaining 7 patients had initially received the index PVI procedure with an early version of the PFA waveforms.

Data at re-ablation was available for 6 of the 7 patients: 1 patient had 2 PVs reconnected, 3 patients had 1 PV reconnected, and 2 patients had durable PVI.

Conclusion: In this long-term (3 years) evaluation of PFA, there were no untoward late safety events, and efficacy appears to remain good. During redo procedures, patients initially receiving the optimized PFA waveform retained durable PVI, while the patients receiving the earlier waveforms had a higher rate of PV reconnections.

CA-536-04

SIX-MONTH FOLLOW-UP OF FIRST REAL-WORLD EXPERIENCE WITH PULMONARY VEIN ISOLATION USING PULSED FIELD ABLATION FOR PAROXYSMAL ATRIAL FIBRILLATION

Anna Fütting MD; Nico Reinsch MD; Dennis Höwel MD; Lenny Brokkaar MD; Gilbert Rahe MD and Kars Neven MD, PhD

Background: Catheter ablation for AF using thermal energy can cause collateral damage. Pulsed field ablation (PFA) is a novel nonthermal energy source. Only a few small clinical studies have been published.

Objective: We report on the first real-world experience with 6-month follow-up with PVI with 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 penta-spline over-the-wire PFA catheter. After ablation, mapping was repeated to assess lesion formation. Patients had a scheduled follow-up visit at days 30, 90 and 180 after ablation.