Real world Data collection in subjects treated with the FARAPULSE* Pulsed Field Ablation system

Published: 01-06-2023
Last updated: 19-08-2024

Primary Objective: To obtain real world data on the use of, and provide continued evidence on safety and effectiveness of the FARAPULSE* Pulsed Field Ablation (PFA) system, when used per hospitals* standard of care.Secondary Objective: To understand...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Cardiac arrhythmias
Study type	Observational non invasive

Summary

ID

NL-OMON53941

Source
ToetsingOnline

Brief title
FARADISE

Condition

- Cardiac arrhythmias

Synonym
Atrial fibrillation, irregular heartbeat

Research involving
Human

Sponsors and support

Primary sponsor: Boston Scientific
Source(s) of monetary or material Support: Boston Scientific Corporation

Intervention

Keyword: Cardiac pulsed field ablation, Paroxysmal atrial fibrillation, Pulmonary vein isolation

Outcome measures

Primary outcome

The Primary Effectiveness Endpoints are:

Failure-free rate at 12 Month post index procedure.

Failure is defined as:

1. Not achieving Acute Success during index procedure

2. Not achieving Chronic Success

• After Blanking period (i.e., 90 days post-index procedure) until 12 Month

follow-up:

o Documented Atrial Fibrillation, or new onset of atrial flutter or

atrial tachycardia event (> 30 sec for any approved clinical arrhythmia

recording system, > 10 sec for 12-lead ECG)

o Interventions for Atrial Fibrillation, or new onset of atrial flutter

or atrial tachycardia event:

* Electrical and/or Pharmacological Cardioversion for AF/AFL/AT

* Repeat Procedures

* AV node ablation

* Administration of amiodarone (except intra-procedurally)

* Change in AAD medication: • Prescribed a higher dose of any AAD

documented at baseline, • Prescribed a new AAD not documented at baseline

The Primary Safety endpoints are:

1. Composite of the following device- or procedure-related SAEs:

• Early onset: Any of the following with an Onset Date within 7 days of the

Index procedure:

o Death

o Myocardial infarction

o Persistent phrenic nerve palsy

o Stroke

o Transient ischemic attack (TIA)

o Peripheral or organ (systemic) thromboembolism

o Cardiac tamponade / perforation

o Pericarditis

o Pulmonary edema

o Vascular access complications

o Heart block

o Gastric motility/pyloric spasm disorders

• Late onset: Either of the following with an Onset Date at any time through

the completion of 12 Month follow-up visit:

o Pulmonary vein stenosis (PVS)

o Atrio-esophageal fistula

2. All FARAPULSE* PFA procedure- and device related adverse events at 12 Month,

2 Year and 3 Year follow-up.

Secondary outcome

Additional Endpoints/analyses may include and are, not limited to the following:

• Failure-free rate from AF recurrence after blanking period to 12 Month

• Failure-free rate (as defined per section 6.2 in the protocol), assessed at 2 years and 3 years post index procedure

• Failure-free rate at 12 months, 2-years and 3-years post index procedure between subjects off AAD after blanking period versus on AAD after blanking period

• AF burden, defined as percentage of time spent in atrial arrhythmia, assessed in the subset of subjects having any device (wearable or implantable) capable of continuous monitoring of the heart rhythm

• Procedural Times, including but not limited to total procedure time (defined as the recorded time of initiation of venous access to the recorded time of venous access closure completion), total fluoroscopy time and dose and LA dwell time (defined as the time between insertion of the first device into the left atrium and removal of the last device from the left atrium)

• Rates of device- or procedure-related SAEs

• Assessment of operator variability and learning curve in different outcome measures including: procedure times, acute procedural success, device- or procedure-related SAEs and failure-free rate.

• Quality of Life using the following assessments:

o EuroQoL 5-Dimension 5-Level (EQ-5D-5L) Health Status Instrument - required baseline versus 12 Month

o Atrial Fibrillation Effect on Quality of Life (AFEQT) Questionnaire -

required baseline versus 12 Month

• Analysis of study variables (e.g., Procedural workflow, procedural time)

for different countries, if needed

• Reconnection of Pulmonary veins during repeat procedure

• Number of applications performed per pulmonary vein

• Pain management

Study description

Background summary

1. Atrial Fibrillation

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, affecting approximately 2.2 million people in the United States and 4.5 million in the European Union. The incidence increases with advancing age, affecting 6% of the population over age 60 and 10% of the population over age 80. It is estimated that the number of patients with AF in 2030 in Europe will be 14-17 million, and the number of new cases of AF per year at 120,000-215,000. In Asia, the estimates prevalence of AF have suggested that, by 2050, 72 million individuals in Asia will be diagnosed with AF, more than double the combined numbers of patients in Europe and the United States. This estimate increase is attributed to the proportionally larger aged population in Asian countries. AF symptoms arise from the rapid, irregular rhythm as well as cardiac hemodynamic changes related to uncoordinated atrial contractions. These uncoordinated contractions also allow blood to pool in the atria and may ultimately lead to thromboembolism and stroke. AF impairs quality of life, associates with a five-fold risk of stroke, a three-fold incidence of congestive heart failure, and higher mortality.

Atrial fibrillation remains a significant cause of morbidity and mortality in industrialized societies. The annual risk of AF-related stroke is 5% per year and one of every six strokes diagnosed occurs in the presence of AF. Therefore, patients with AF require long-term anticoagulation to prevent embolic events. Failure to manage AF may also lead to anatomic and electrical remodeling of the left atrium, tachycardia-induced cardiomyopathy, and reduced left ventricular function (heart failure). AF remains an extremely costly public health burden,

with annual per patient cost of care approaching approximately USD 3200 or ¤3000.

The Heart Rhythm Society (HRS) 2017 Consensus Statement on Catheter and Surgical Ablation of Atrial Fibrillation as well as the European Society of Cardiology (ESC) 2020 guidelines for the Diagnosis and Management of Atrial Fibrillation, defines several different stages of AF based on its duration and include:
• Paroxysmal AF (PAF): AF that terminates spontaneously or with intervention within 7 days of onset
• Persistent AF (PersAF): continuous AF that is sustained beyond 7 days
• Long-standing PersAF: continuous AF of greater than 12 months* duration
In ESC, HRS, and JCS/JHRS guidelines catheter ablation is strongly recommended for patients with symptomatic AF after an adequate trial of AAD therapy. Several studies have demonstrated that AF catheter ablation is a safe and superior alternative to anti-arrhythmic drugs (AADs) for maintenance of sinus rhythm and symptom improvement. In particular, the isolation of the pulmonary veins (PVI), where the majority of arrhythmogenic triggers is found, has been shown to be a safe and effective technique to reduce arrhythmia recurrence and related symptoms. Over the last 20 years PVI has remained the cornerstone catheter ablation technique for AF ablation in subjects with recurrent and symptomatic PAF refractory or intolerant to AADs. More recently, PVI for the treatment of PAF is increasingly being performed as first line therapy, and clinical evidence is accruing that this may well become an accepted first line treatment.

2. Irreversible Electroporation

Al-Sakere 2007 described irreversible electroporation (IRE) as a non-thermal tissue ablation technique in which intense short duration electrical fields are used to permanently open pores in cell membranes, thus producing non-thermal tissue ablation. Their study, using a mouse model, showed complete regression in 92% of treated tumors. IRE ablation has a tissue-specific mechanism of ablation. The tissue injury from IRE ablation occurs at the cellular level with loss of homeostasis leading to necrosis or apoptosis. IRE ablation typically spares the extracellular matrix, which facilitates rapid wound healing.

With respect to cardiac tissue, multiple studies have been described reporting the effects of IRE in a porcine model. Across the studies, no stenosis was observed at 3-weeks and 3-months of follow-up, and the lesion depth was further characterized in the proximity of the phrenic nerve and coronary arteries, with no damage to the adjacent structures or tissues noted. These animal studies suggest that IRE can safely create deep lesions in heart tissue without harming adjacent tissues.

3. FARAPULSE* Pulsed Field Ablation Study overview

The initial safety and feasibility human clinical studies of the FARAWAVE* PFA Catheter were conducted in Europe in a paroxysmal atrial fibrillation (PAF) population, including the IMPULSE, PEFCAT, and PEFCAT II trials. All studies supported the safety and feasibility of the FARAPULSE* PFA System using the FARAWAVE* PFA Catheter in the treatment of patients with PAF, with a low rate of acute and long-term primary safety endpoint events and a high rate (100%) of acute procedural success resulting in CE Mark approval for the treatment of PAF in early 2021.

The randomized ADVENT Trial (A Prospective Randomized Pivotal Trial of the FARAPULSE* PFA System Compared with Standard of Care Ablation in Patients with Paroxysmal Atrial Fibrillation) is being conducted in the United States to establish the safety and effectiveness of the FARAPULSE* PFA System using the FARAWAVE* PFA Catheter in a drug refractory symptomatic PAF patient population. Subjects in the study are either randomized to catheter ablation with the FARAPULSE* PFA system or conventional thermal ablation (radiofrequency or cryoballoon ablation). The data will be used to gain initial market approval of the FARAPULSE* PFA System using the FARAWAVE* PFA Catheter in the US for the PAF population.

The FARA FREEDOM study, a Post Market Clinical Follow-up study, is being conducted in Europe, with the objective to provide ongoing demonstration of safety and performance of the FARAPULSE* Pulsed Field Ablation system in the treatment of subjects with Paroxysmal Atrial Fibrillation. Approximately 180 subjects will be enrolled and followed for 1 year.

In addition, the ADVANTAGE-AF study is an IDE pivotal study utilizing the FARAPULSE* Pulsed Field Ablation system in the treatment of subjects with persistent atrial fibrillation. This IDE is being conducted in the United States, Europe and Asia and will enroll approximately 339 treated subjects, followed for 1 year.

Study objective

Primary Objective:
To obtain real world data on the use of, and provide continued evidence on safety and effectiveness of the FARAPULSE* Pulsed Field Ablation (PFA) system, when used per hospitals* standard of care.

Secondary Objective:
To understand the effect of Pulsed Field Ablation treatment on Quality of Life from the general population indicated for a treatment with PFA in a real-world setting.

Study design

The FARADISE study is an observational, prospective, non-randomized, single-arm, multi-center post-market study.
All subjects signing the informed consent, undergoing the index procedure and being treated with the study device, will be followed-up for 3 years.
Each subject will be followed at specific time point after index procedure: at pre-discharge, 3 Month, 6 Month (Phone call only), 12 Month (in-clinic visit mandatory), 24 Month (2 Year) and 36 Month (3 Year) after index procedure. It is recommended to perform the 3 Month, 2 Year and 3 Year Follow-up visit in-clinic. The study duration for each treatment subject is expected to be approximately 3 years. Study enrollment is expected to be completed in approximately 18 months. Treatment subjects will be followed for 3 years. Finally, study closure is expected to take an additional 6 months. In total, the study duration is expected to be 5 years.

Study burden and risks

Patients who take part in this study are subject to similar risks shared by all patients who have an ablation procedure but are not in this study.

Contacts

Public
Boston Scientific

Lambroekstraat (Green Square) 5D
Diegem 1831
BE
Scientific
Boston Scientific

Lambroekstraat (Green Square) 5D
Diegem 1831
BE

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

1. Subjects intended to be treated with the FARAPULSE* Pulsed Field Ablation system for cardiac tissue ablation, per physician*s medical judgement, and as per hospitals* standard of care
2. Subjects who are willing and capable of providing informed consent
3. Subjects who are willing and capable of participating in all testing associated with this clinical study at an approved clinical investigational center
4. Subjects whose age is 18 years or above, or who are of legal age to give informed consent specific to state and national law

Exclusion criteria

1. Subjects with a current interatrial baffle or patch
2. Subjects with a known or suspected atrial myxoma
3. Subjects with a myocardial infarction within 14 days prior to enrollment
4. Subjects with a recent (within 30 days prior to enrollment) Cerebral Vascular Accident (CVA)
5. Subjects who do not tolerate anticoagulation therapy
6. Subjects with an active systemic infection
7. Subjects with a presence of atrial known thrombus
8. Subjects with a known inability to obtain vascular access
9. Subjects who are pregnant or planning to be pregnant
10. Subjects with atrial fibrillation that is secondary to electrolyte imbalance, thyroid disease, alcohol, or other reversible / non-cardiac causes
11. Subjects with any prosthetic heart valve, ring or repair including balloon aortic valvuloplasty
12. Subjects with a contraindication to an invasive electrophysiology procedure where insertion or manipulation of a catheter in the cardiac chambers is deemed unsafe per physician*s medical judgement, such as, but not limited to, a recent previous cardiac surgery (e.g., ventriculotomy or atriotomy, CABG, PTCA/PCI/coronary stent procedure/unstable angina) and/or in patients with congenital heart disease where the underlying abnormality increases the risk of the ablation (e.g., severe rotational anomalies of the heart or great vessels)
13. Subjects with a life expectancy of <= 1 year per investigator*s opinion
14. Subjects who are currently enrolled in another investigational study or registry that would directly interfere with the current study, except when the

subject is participating in a mandatory governmental registry, or a purely observational registry with no associated treatments. Each instance must be brought to the attention of the sponsor to determine eligibility.

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	11-08-2023
Enrollment:	120
Type:	Actual

Medical products/devices used

Generic name:	FARAPULSE Pulsed Field Ablation System
Registration:	Yes - CE intended use

Ethics review

Approved WMO

Date:	01-06-2023
Application type:	First submission
Review commission:	MEC-U: Medical Research Ethics Committees United (Nieuwegein)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
ClinicalTrials.gov	NCT05501873
CCMO	NL82863.100.23