antral PV lesions. Clinical course was uneventful, no patient had chest discomfort, coughing or hematemesis. All patients underwent uncomplicated esophagoscopy, without thermal lesions or ulcers. At 30-day follow-up, all patients were asymptomatic.

**Conclusion:** In a real-world, non-clinical study setting, PVI using PFA for paroxysmal AF is safe for the esophagus.

**Figure:** Postero-anterior LA view before (left) and after (right) ablation with the esophagus (dark grey) projected over the posterior wall. The right bipolar voltage 3D map shows extensive, non-magenta antral ablation lesions.

**POSTER PO-635:**
**Posters: Catheter Ablation at Pod 7**

Friday, April 29, 2022
3:00 PM - 5:00 PM

**PO-635-01**

REDUCTION OF FAR-FIELD POTENTIALS USING CLOSE-UNIPOLAR ELECTROGRAMS IN A NOVEL ULTRA-HIGH RESOLUTION CATHETER MAPPING SYSTEM: EVALUATION IN A SWINE ATRIAL LINEAR LESION MODEL

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**Background:** In complex atrial substrate with multiple atrial potentials, unipolar electrograms (EGM) referenced to the Wilson Central Terminal (WCT) are often timed to the wrong component due to large, steep far-field potentials (FP).

**Objective:** To evaluate the ability of close-unipolar electrograms (CUE) to reduce FP in a novel ultra-high resolution mapping system (IsoSense, Biosense Webster) using a swine model.

**Methods:** In 6 swine, linear RF ablation was performed in the RA to create complex patterns of activation. The RA was mapped during atrial pacing using an 8F catheter with deployable mini-basket (18 mm diameter) of 10 splines of 10 electrodes (total 100 outward facing tiny electrodes, 0.5 mm² area, 1.7 mm center-to-center) and a central non-contact electrode for CUE reference (Fig). The system generated chamber geometry and simultaneous activation maps using timing based on either: 1) CUE (between each of the 100 electrodes and the non-contact reference electrode); or 2) 100 conventional unipolar EGMs using the WCT reference (WCT-UE). CUE and WCT-UE maps were compared at sites exhibiting complex EGM.

**Results:** Fig. Activation maps of the entire RA (median 5,208 mapped points) were obtained in median 6.4 min. CUE significantly reduced far-field atrial and ventricular EGM while enhancing local near-field EGM. CUE provided more accurate timing of EGM based on maximum negative dv/dt at sites with complex atrial EGM. WCT-UE often falsely annotated timing on large FP. CUE activation maps accurately identified the location of lines of block with sharp demarcation in all 6 swine.

**Conclusion:** The new ultra-high resolution mapping system using CUE significantly reduced FP and improved mapping accuracy in the area of complex atrial EGM.

**PO-635-02**

FACTORS ASSOCIATED WITH INFUSION NEEDLE RADIOFREQUENCY ABLATION FAILURE IN PATIENTS WITH REFRACTORY VENTRICULAR TACHYCARDIA

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**Background:** We have previously described infusion needle catheter ablation (INCA) using endhole irrigation (Biosense Webster, Inc) for treatment of VT in 31 patients refractory to medications and conventional catheter ablation (CA). While INCA was safe with high procedural success, a significant number of patients had VT recurrence.

**Objective:** To identify the factors associated with unsuccessful INCA.
**Methods:** We reviewed INCA data to identify patients with successful (no VT recurrence at 6 months), partially successful (VT recurrence but no hospitalization for VT or defibrillator therapy), and unsuccessful procedures (VT requiring hospitalization or defibrillator therapy at 6 month follow up). Univariate logistic regression with SPSS software was used for analysis.

**Results:** In total, 57 patients underwent INCA, with 32 (56.1%) successful, 9 (15.8%) partially successful and 16 (28.1%) unsuccessful. The only clinical factor significantly associated with failure was VT storm (OR 4.3, CI 1.2,15.2, p=0.03). The procedural factor associated with failure was presence of any low power heating (<10 Watts to reach 60 degrees C) with infusion needle ablation during the procedure with OR 3.6 (1.04-12.9, p=0.04). There was no difference in type of cardiomyopathy, left ventricular systolic function, number of prior failed ablations, number and location of needle application, or use of antiarrhythmic medications (Figure 1).

**Conclusion:** In patients with recurrent VT and failed standard catheter ablation, refractory VT storm is 4.3-fold more likely to be associated with INCA failure, due to difficult, potentially diffuse intramural substrate. Low power heating is likely associated with densely fibrotic substrate that is difficult to intramuraally irrigate, limiting lesion size during INCA. Low power heating was 3.6 times more likely to be associated with INCA failure.

**Figure 1.** Clinical data and procedure data among patients with failed, partially successful, and successful infusion needle ablation.

**PO-635-03**

HIGH-DENSITY MAPPING GUIDES ABLATION STRATEGIES TO TREAT ATRIAL FLUTTER: RESULTS FROM THE ADVISOR™ HD GRID MAPPING CATHETER OBSERVATIONAL STUDY

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**Background:** Patients undergoing RF ablation to treat persistent AF (PersAF) may develop atrial flutter (AFL) during the procedure. Ablation of atypical AFL can be challenging but, recent advancements in high-density (HD) three-dimensional mapping strategies may help rapidly and accurately assess ablation targets to achieve successful outcomes in treating AFL.

**Objective:** The Advisor™ HD Grid Mapping Catheter Observational Study (NCT03733392) was designed to quantify and characterize the utility of mapping with a market-released HD mapping catheter in AFL subjects undergoing ablation. This study was sponsored by Abbott Laboratories.

**Methods:** Subjects undergoing mapping with the Advisor™ HD Grid Mapping Catheter, Sensor Enabled (HD Grid) for PersAF ablation were enrolled in this multi-center study, some of which were also in AFL. The aim of this study was to gather data regarding safety, mapping and ablation strategies, electrogram (EGM) quality, and outcomes.

**Results:** 15.2% (51/334) of enrolled subjects in this study were in AFL and of these subjects, 96.1% (49/51) were