time of survey, AF burden as assessed by AF duration and frequency, and healthcare utilization including ER visits and hospitalizations due to AF.

**Results:** A total of 241 young adults (ages 16-50) were included (mean age 43.1 years, 17% female, 40.3% persistent AF). Prior to ablation, 39% of patients reported being in AF at the time of the baseline survey. Upon 1 year of follow-up, 77.2% of patients remained arrhythmia-free (80% in non-structural AF, 66% in structural AF; \( P < 0.0001 \)). Through the PRO survey, 90% of patients reported remarkable improvement in QoL throughout all survey time points up to 5 years post-ablation (\( P < 0.0001 \)). The baseline median AFSS was 14 and improved to between 2 and 4 on all follow-up after ablation (\( P < 0.0001 \)). Patients also reported lower AF burden as measured by duration and frequency, fewer ER visits secondary to AF, and fewer hospitalizations (\( P < 0.0001 \)).

**Conclusion:** Ablation remains an effective rhythm-control strategy in young adults with AF. Young adults also experience significant improvement in QoL and reduction of both AF burden and healthcare utilization secondary to AF.

**PO-637-04**

**BEYOND ACTIVATION AND VECTOR ARROW MAPPING: POWER OF OMNIPOLAR VOLTAGE TO DETECT BREAKOUT SITES**

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**Background:** Traditionally, LAT maps depicting earliest activation, derived star burst vector depictions, and QS patterns on unipoles have been used to detect breakout sites. In the ventricle such strategies may be limited due to indeterminate LAT annotation, myocardial thickness and tangential activation to the mapping surface.

**Objective:** We hypothesize that at breakout sites unipolar signals arrive nearly simultaneously, spread centrifugally, and thus locally due to cancellation at adjacent sites will produce low bipolar voltages when corrected for directional bias. As such, we tested if ratio of unipolar to omnipolar voltage will be high and provide an alternative tool to detect breakout sites from deep within the myocardium.

**Methods:** An animal study using 6 Langendorff-perfused swine hearts was conducted. An arrhythmic focus and breakout site at the adjacent mapping surface was created by plunging a pacing needle 4mm into the myocardium and pacing at that depth. The resulting activation was mapped at the myocardial surface using an electrode array and custom mapping system. Isochronal maps and vector fields were derived from LAT mapping. Uni-\( \text{OT}_{\text{Vmax}} \) index was defined as the ratio of unipole to omnipolar (OT) maximal voltage bipole amplitude and mapped to the same surface (Figure A). We compared breakout sites to non-breakout sites (Figure B) and deep intramural pacing to superficial sites from deep within the myocardium.

**Results:** At sites of breakout and radial spread, the median Uni-\( \text{OT}_{\text{Vmax}} \) index was 3.5 vs 1.46 at non-breakout regions (Figure B). Deep foci can be differentiated from superficial based on Uni-\( \text{OT}_{\text{Vmax}} \) index (mean from deep sources 3.50 versus 2.79 for superficial sources, \( p = 0.002 \)) (Figure C).

**Conclusion:** Unipolar to omnipolar voltage ratio may aid in detecting breakout from a deep arrhythmic focus and could potentially be an adjunct tool for this purpose. This concept needs additional testing prior to being developed as tool for mapping breakout rapidly and determining depth of foci.

**PO-637-05**

**OUTCOMES IN RADIOFREQUENCY ABLATION OF PERSISTENT ATRIAL FIBRILLATION IN PATIENTS WITH NORMAL LEFT ATRIAL ENDOCARDIAL VOLTAGE**

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**Background:** While radiofrequency ablation (RFA) is an established option for patients with persistent atrial fibrillation (PsAF), the ideal ablation strategy remains unknown. In patients with normal left atrial (LA) endocardial voltage on electroanatomical mapping (EAM), the question of whether pulmonary vein isolation (PVI) alone is sufficient remains unclear.

**Objective:** We aim to describe outcomes of RFA for PsAF in patients with normal LA endocardial voltage based on two different ablation strategies.

**Methods:** This is a retrospective analysis of prospectively collected data on patients undergoing RFA for PsAF at a single center from 2017 to 2019. All patients underwent LA endocardial bipolar voltage mapping, and only patients with normal voltage were included in this cohort. Normal bipolar voltage was defined as electrogram amplitude \( \geq 0.5 \text{ mV} \) in sinus or \( \geq 0.3 \text{ mV} \) in AF. PVI was performed in all patients, and additional lesion sets were performed at the operator’s discretion. Procedural data was collected at the time of the procedure. 4- to 7-day Holter monitoring was performed routinely at 6 and 12 months and additionally as needed based on symptoms. Efficacy was assessed at 12 months. The primary outcome was freedom from documented symptomatic AF/AT lasting at least 30 sec after a blanking period of 3 months. The cohort was divided into 2 groups: PVI only (PVI) and PVI plus additional lesion sets (PVI+).

**Results:** 160 patients were included in the PVI group and 70 patients in the PVI+ group. Additional lesions in the PVI+ group...