catheter and the CARTO® navigation system (Biosense Webster, Inc.). A specialized imaging program was trained to quantify the overall % surface area represented by normal, intermediate, and low voltages as defined by corresponding color thresholds of 0.1 and 0.5mV. Medical records were reviewed for each patient to confirm AF type (paroxysmal vs. persistent), CHA₂DS₂-VASc Score, and time from initial AF diagnosis to PVI.

**Results:** Overall PW voltages are shown in Fig. 1 for 358 ablation patients (45% paroxysmal, 55% persistent). Multiple linear regression (R² = 0.24) identified persistent AF (p = 3.2E-06), higher CHA₂DS₂-VASc Score (p = 3.6E-06, Fig 2.) and greater time from initial AF diagnosis to PVI (p = 0.007) as significantly predictive of the extent of PW low voltage areas. Age, gender, LV ejection fraction, LA volume, and LA volume index were not predictive. More extensive low voltages abnormalities were more common after 4 years following initial AF diagnosis.

**Conclusion:** We have developed a method to accurately quantify LA voltage distributions in patients undergoing AF ablation. The extent of PW low voltage abnormalities at index PVI is correlated with persistent AF type, longer history of AF, and higher CHA₂DS₂-VASc Score. It will be important in the future to evaluate the distribution of low voltage abnormalities has on ablation outcomes, as well as their temporal evolution and potential implications for ablation timing.

**PO-626-08**

**LEFT ATRIAL APPENDAGE OCCLUSION WITH LEFT ATRIAL FOUR DIMENSIONAL INTRACARDIAC ECHOCARDIOGRAPHY**

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**Background:** High frequency QRS (HFQRS) analysis for rapid assessment of myocardial ischemia has never been evaluated owing to the logistical challenges of signal recording. We aim to evaluate, in a pilot study, the correlation between the HFQRS changes recorded on a novel wearable Sydantek 12 lead ECG patch with balloon inflation induced ischaemia.

**Objective:** To document utility of a portable device, Sydantek, in ECG and HFECG during multiple balloon inflations.

**Methods:** 10 patients (M:F = 8:2) undergoing coronary intervention for medically refractory chronic stable angina were screened for enrollment into the study; 9/10 patients underwent the final recording. 1 patient was excluded owing to signal noise in the device due to reluctance in chest preparation. The mean recording time per case was 60+/15 mins. ECG including HFQRS was recordable continuously during all intended times, using Sydantek at 2k samples/sec.

**Results:** In 33 balloon inflation ischemia episodes, changes were seen on the HFQRS onset ~ 10 secs, offset ~ 45 secs after deflation. No significant changes were seen in the conventional ECG analysed for these upto ~ 45 secs. Decrease in the amplitude of the HFQRS, and decrease in the real time RMS voltage of QRS in leads V2-V5 and the presence of RAZ (reduced amplitude zone) were considered to be changes suggestive of ischemia. RAZ disappeared ~ 45 secs after the balloon deflation. The mean total ischemic was 1 +/-0.5 min per patient per balloon inflation. In this study, all 9 of the conventional ECGs were reported independently by 2 docs as not having significant ST-T changes of ischaemia.

RAZ presence in HFQRS was seen in all 33 of complete coronary artery occlusion by balloon, in our study. There was reduction in the amplitude of HFQRS (mean 12+/1 μV) and RMSv2-v5 (mean 7+/0.5 μV) from the baseline during the inflation. Post intervention, both of the above parameters had a mean increase of 22+/1 μV and 10+/0.3 μV respectively.

**Conclusion:** HFQRS measured using our novel, portable real time 12 lead ECG recording patch can reliably detect onset of coronary ischemia in a complete coronary occlusion even in absence of ST-T changes in 12 lead ECG. We submit this proof of concept for use in detecting ischemia in a variety of clinical situations including chest pain triage and post intervention monitoring.