differences between varying atrial arrhythmias and may enhance the differentiation of these arrhythmia types.

PO-640-04

LONG TERM IMAGING AND CLINICAL OUTCOMES OF SURGICAL LEFT ATRIAL APPENDAGE OCCLUSION WITH ATRIAL CLIP

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Background: Surgical left atrial appendage occlusion (LAAO) with an atrial clip (Atricure) is frequently performed for stroke prophylaxis in patients with atrial fibrillation (AF).

Objective: To assess the rates of complete LAA closure with Atriclip in patients undergoing concomitant hybrid AF ablation and surgical LAA clipping.

Methods: We conducted a retrospective analysis of all patients with long standing persistent AF (LSPAF) that underwent hybrid convergent ablation (surgical ablation plus endocardial catheter ablation) and LAA clipping. Contrast enhanced cardiac CT (CCTA) was performed at 6 months following LAA clipping to assess for degree of complete closure and assessment of residual LAA stump. Outcomes of stroke/transient ischemic attack were assessed at 12 month follow up.

Results: A total of 43 patients underwent LAA clipping as a part of hybrid convergent AF ablation during the study period. Mean age of the cohort was 64.9±8.9 years and 62.8% were males. Mean LA size was 4.5±1.2 cm. Median size of Atriclip was 45mm (IQR-40-50). At 6 month follow up CT imaging, 20 patients (46.5%) had evidence of a residual LAA stump proximal to the LAA clip. Mean depth of residual stump was 3.95±5.98 mm. 5 out of 11 patients had a stump depth of >10 mm and 1 patient had a depth of 24 mm that required closure with an endocardial LAA occluder device. All patients were continued on oral anticoagulation. There were no stroke/TIA events at 12 month follow up.

Conclusion: Rate of residual stump following surgical LAA exclusion with Atriclip is approximately 50%. Careful follow up imaging for assessment of complete closure is needed prior to making oral anticoagulation decisions.

PO-640-05

GLOBAL ELECTRICAL HETEROGENEITY AND CARDIAC MEMORY CHANGES DISTINGUISH ACUTE FROM CHRONIC LEFT BUNDLE BRANCH BLOCK

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Background: Time-dependent electrical remodeling due to ventricular activation sequence changes (cardiac memory), measured as peak QRS/T ratio, has been used to differentiate acute and chronic LBBB. The association between cardiac memory and the spatial ventricular gradient (SVG), a measure of myocardial global electrical heterogeneity (GEH), is unknown.

Objective: Compare SVG to peak QRS/T ratio in distinguishing between acute and chronic LBBB.

Methods: Acute (immediately post procedure) and chronic LBBB in patients undergoing transcatheter aortic valve replacement (TAVR) were identified retrospectively using a hospital ECG database. Vectorcardiograms were constructed from 12-lead ECGs obtained after TAVR using the Kors transformation. The SVG vector was constructed from the area under the X, Y, and Z median QRST complexes. SVG vector components were compared jointly using the multivariate test on means. SVG X, Y, and Z components as well as SVG vector magnitude and elevation were compared individually using t-tests. SVG azimuth was compared using the Wheeler-Watson-Mardia test for circular data. A receiver operator characteristic (ROC) curve was constructed for distinguishing acute from chronic LBBB using the SVG and peak QRS/T ratio.

Results: Among 31 post-TAVR patients with LBBB, n=21 had acute LBBB and n=10 had chronic LBBB. SVG vector orientation was significantly different among acute and chronic LBBB (joint p=0.004), primarily due to acute LBBB having more inferiorly and posteriorly directed SVG: the mean anterior-posterior (Z) component of the SVG (SVGz) was -10.8±25.0 vs. 37.8±27.3 mV*ms (p<0.0001) for acute and chronic LBBB patients, respectively. Similarly, mean SVG azimuth (angle in the frontal plane) was 18 vs -47 deg (p=0.004) for acute and chronic LBBB patients, respectively (Fig 1). SVGz was correlated with peak QRS/T ratio (Fig 2). The ROC area under the curve (AUC) was 0.91 for SVGz comparing new vs old LBBB. The ROC AUC for peak QRS/T ratio was similar at 0.94 (p=0.50 vs SVGz). SVGz > 3.2 mV*ms had a 90% sensitivity and 91% specificity for identifying chronic LBBB.

Conclusion: The SVG can distinguish acute from chronic LBBB and is correlated with measures of cardiac memory. The association between GEH and cardiac memory requires further study.
HORMONE REPLACEMENT THERAPY AND AF IN POSTMENOPAUSAL WOMEN: AN ANALYSIS OF THE NATIONAL INPATIENT SAMPLE (NIS) DATABASE
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Background: Hormone replacement therapy (HRT) use has independently been related to thromboembolism, but the association between HRT and AF in postmenopausal women is not fully understood.

Objective: We hypothesized that HRT may play a protective role in AF risk, which would align with data from current studies. We also sought to assess the impact of HRT on stroke outcomes in postmenopausal women with AF.

Methods: Using the National Inpatient Sample (NIS) database, postmenopausal hospitalized females of age ≥60 years old from 2016-2018 were identified. Patients were further delineated by HRT use and AF presence. Prevalence of AF in those on HRT versus not on HRT was investigated using multivariate analysis to adjust for age, race, sex and comorbidities. Chi-square analysis was used to identify any difference in stroke in women with known AF between the HRT and non-HRT groups.

Results: A total of 5,007,601 hospitalized, postmenopausal female patients ≥60 years old were identified. Of those, 894,933 had AF and 5727 were on HRT. The prevalence of AF was found to be lower in HRT (n=866, 15.5%) compared to those not on HRT (n=894047, 17.9%) (p<0.001, OR 0.84, [0.78-0.90]). The inverse association between HRT and AF remained significant after adjusting for age, race, sex and comorbidities in a multivariate analysis (OR 0.80 [0.68-0.95], p=0.007*). In AF patients, there was no difference in prevalence of stroke between HRT and no HRT (n=44, 5% vs n=39, 13.7%, 4.4%).

Conclusion: The role of sex hormones in AF has not been studied using NIS data. AF risk appears lower in patients with HRT after adjusting for age, race and comorbidities index, which compliments results of current clinical studies. This suggests that female sex hormones may play a protective role against an arrhythmogenic milieu in the atria that perpetuate AF. No difference was found in risk of stroke/TIA or composite end point in females age >60 and AF with or without HRT.

SEVERITY OF METABOLIC SYNDROME AND INCIDENT END-STAGE RENAL DISEASE AMONG PATIENTS WITH AF

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Background: There is less evidence regarding the association of metabolic syndrome (MS) and incident end-stage renal disease (ESRD) among patients with atrial fibrillation (AF).

Objective: The study aimed to investigate the impact of the severity of metabolic syndrome on incident ESRD among patients with AF using 5 diagnostic criteria of MS.

Methods: A total of 270,112 AF patients without a history of ESRD were investigated from the National Health Insurance Service database between 2009 and 2016. The study population was categorized into 6 groups according to the metabolic scores (Figure 1). For each patient, the metabolic score was calculated by adding 1 point each for any criterion that meets the diagnostic criteria for metabolic syndrome (0-5 points available). We regarded a higher metabolic score corresponded to a severer metabolic syndrome. Multivariable Cox’s analysis was used to estimate the risks of ESRD.

Results: There was a total of 23,110 (8.6%), 44,042 (16.3%), 53,732 (19.9%), 61,717 (22.8%), 58,383 (21.6%), and 29,128 (10.8%) patients with 0 to 5 metabolic scores, respectively. The population’s mean age was 61.8 years and the male proportion was 56.3%. Compared to the no MS group (score 0), the severest group (score 5) was older (mean 65.9 versus 50.0 years), had a higher proportion of males (54.5% versus 46.6%), and had a higher CHA2DS2-VASc score (mean 3.8 versus 1.0). The median follow-up was 4.5 years. Compared to the no MS group, the other groups were associated with gradually increasing incidences of ESRD according to metabolic scores (log-rank p<0.0001) (Figure 2). In general, a higher metabolic score led to a more increased risk of ESRD (adjusted HR [95% CI] =1.95 [1.03-3.72], 2.14 [1.13-4.03], 2.41 [1.27-4.55], 2.05 [1.06-3.94], 2.58 [1.32-5.07], according to each metabolic score) (Figure 2).

Conclusion: In general, each component of metabolic syndrome showed an additive impact on the risk of ESRD among patients with AF.