PO-625-02

SODIUM CHANNEL BLOCKER MONOTHERAPY IN PATIENTS WITH CONGENITAL LONG QT SYNDROME
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Background: Long QT syndrome (LQTS) is a cardiac channelopathy generally managed pharmacologically, surgically, or with an implantable cardioverter defibrillator (ICD). Though first-line pharmacotherapy involves beta blockers (BB), sodium channel blockers (SCBs) may be used as adjunct therapy, primarily in patients with sodium channel-mediated type 3 LQTS (LQT3). However, in patients with severe BB-associated side effects, SCB monotherapy could be considered.

Objective: To evaluate the use of SCB monotherapy in a large single center cohort of patients with LQTS and determine the phenotype and outcomes of LQTS patients treated with SCB monotherapy.

Methods: Among 1304 patients evaluated, risk stratified, and treated for LQTS at Mayo Clinic, a retrospective analysis was performed to identify all patients with LQTS who received SCB monotherapy. Electronic medical records were reviewed for patient demographics, clinical characteristics, and frequency and type of breakthrough cardiac events (BCEs).

Results: Of the 154 patients with LQT3 (12% of entire LQTS cohort), 25/154 (16%) were on SCB monotherapy [10 (40%) female, mean age at first visit 19 ± 13 years]. Twenty-two (88%) patients were treated with mexiletine (MEX) and 3 (12%) with flecainide (FLEC). Two (8%) patients were symptomatic (nonsustained ventricular tachycardia and syncopal episodes) prior to SCB treatment. Primary motivation for SCB monotherapy was consistent and persistent QT prolongation in 18/25 (72%) patients. After SCB monotherapy, the QTc decreased from 482 ± 62 ms to 458 ± 56 ms (p = 0.0005). Moreover, 6 (24%) patients received SCB monotherapy due to BB intolerance. Interestingly, 14/22 (64%) MEX-treated patients had the common SCN5A-E1784K variant. Of note, 68/154 (44%) of all LQT3 patients in our clinic have this variant. In contrast, the 3 FLEC-treated patients received SCB monotherapy due to BB intolerance. Interestingly, 14/22 (64%) MEX-treated patients had the common SCN5A-E1784K variant. Of note, 68/154 (44%) of all LQT3 patients in our clinic have this variant. In contrast, the 3 FLEC-treated patients received SCB monotherapy due to BB intolerance. Interestingly, 14/22 (64%) MEX-treated patients had the common SCN5A-E1784K variant. Of note, 68/154 (44%) of all LQT3 patients in our clinic have this variant. In contrast, the 3 FLEC-treated patients received SCB monotherapy due to BB intolerance.

Conclusion: SCB monotherapy has been used in 2% of all our LQTS patients and 16% of our patients with LQT3. Rather than being compelled to consider a prophylactic ICD, for those otherwise low-risk patients with LQT3 and BB intolerance, SCB monotherapy represents a safe and effective treatment paradigm.

PO-625-03

MULTIMODALITY EVALUATION OF LEFT ATRIAL APPENDAGE LEAKS ARISING AFTER INCOMPLETE LEFT ATRIAL APPENDAGE CLOSURE
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Background: Methods of leak closure after incomplete left atrial appendage closure (LAAC) have shown early feasibility, however no comparison study of different modalities exists.

Objective: To assess and compare the available methods of leak closure after incomplete LAAC.

Methods: We performed a 3-way observational comparison study of detachable embolization coils, vascular plugs/septal occluders and radiofrequency ablation (RFA) for leak closure after incomplete LAAC. Both acute postprocedural and follow-up closure (no leak or <1mm leak at end of procedure) were evaluated. Safety endpoints included peri-/post-procedural complications.

Results: Of 160 patients, 74.3% patients had prior endocardial LAAC; 25.6% had epicardial closure who were referred for leak closure. Acute success (closure/<1mm leak) was achieved in all patients. 45-day follow-up transesophageal echocardiogram (TEE) showed overall complete closure or mild/minimal PDL (1-2mm) in 93.7% patients, with a higher success rate in vascular plug cohort (100%), followed by the RFA cohort (93%) and detachable embolization coils cohort (91%) (p = 0.0005). 2 patients in the coils cohort (3.1%) experienced any complications (cardiac tamponade not resulting in death), with no pericardial effusions, stroke or thromboembolic events in any cohorts.

Conclusion: Our study demonstrates the overall safety and efficacy of different PDL closure techniques [with 100% success rate with vascular plugs followed by RF ablation (93%) and detachable embolization coils (91%)] after LAAC via either epicardial or endocardial approaches.

PO-625-04

THE EFFECT OF SOTALOL ON ALL-CAUSE MORTALITY AND CARDIOVASCULAR OUTCOMES IN ATRIAL FIBRILLATION
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Background: Sotalol is commonly used for the management of atrial arrhythmias. Given the proarrhythmic side effects, a careful examination of contemporary data for its effects on mortality and other cardiovascular outcomes is warranted.

Objective: We sought to compare the impact of Sotalol with placebo or rate control drugs for the treatment of AF, on mortality and risk of Torsades de Pointes (TdP) using meta-analytic techniques.

Methods: A systematic search of MEDLINE and EMBASE was conducted for randomized control trials (RCTs) comparing all-cause mortality and incidence of TdP, withdrawal due to side effects, stroke, major adverse cardiac events (MACE), conversion to sinus rhythm, and recurrent atrial fibrillation (AF) between Sotalol vs placebo or rate control drugs. Risk ratios (RR) were reported using Mantel Haenszel method.
Results: 3440 patients from 17 RCTs showed that Sotalol was not associated with an increased risk of all-cause mortality (RR 1.71; 95% confidence interval (CI) [0.72-4.07]; p=0.22; I²=11%) and did not increase the risk of TdP (RR 2.34; 95% CI [0.90-6.08]; p=0.08; I²=0%). There was no difference between both groups in conversion to sinus rhythm (RR 1.23; 95% CI [0.69-2.18]; p=0.48; I²=0%), incidence of stroke (RR 0.74; 95% CI [0.18-3.09]; p=0.68; I²=0%), or MACE (RR 0.63; 95% CI [0.11-3.72]; p=0.61; I²=1%). There was no difference between both groups in conversion to sinus rhythm (RR 1.23; 95% CI [0.69-2.18]; p=0.48; I²=0%), incidence of stroke (RR 0.74; 95% CI [0.18-3.09]; p=0.68; I²=0%), or MACE (RR 0.63; 95% CI [0.11-3.72]; p=0.61; I²=1%).

Conclusion: Meta-analysis of RCT data shows that Sotalol was not associated with increased risk of all-cause mortality or TdP as compared to placebo or rate control drugs. Sotalol reduced recurrent AF but at the expense of an increase in serious adverse events leading to drug withdrawal.

PO-625-05

ELECTROCARDIOGRAPHIC DEEP TERMINAL NEGATIVE OF THE P WAVE IN V1 AND ISCHEMIC STROKE: THE Atherosclerosis Risk In Communities (ARIC) STUDY

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Background: Abnormal P-wave indices are associated with ischemic stroke independent of atrial fibrillation (AF). Deep terminal negative of the P wave in V1 (DTNPV1) is a simple ECG index that reflects underlying left atrial remodeling. However, it is unknown whether DTNPV1 is associated with ischemic stroke.

Objective: Evaluate the prospective association of DTNPV1 with ischemic stroke in the ARIC study, a community-based cohort study.

Methods: We included all participants at the baseline visit (1987-1989) and excluded those with prevalent stroke, missing covariates, and missing ECG or uninterpretable ECG due to AF. DTNPV1 was defined as the absolute depth of the terminal negative phase >100 μV (1 small box on ECG scale) in the presence of biphasic P wave in V1. The outcome was definite or probable ischemic stroke through 2019. Multivariable Cox regression with DTNPV1 as a time-dependent exposure variable was used to estimate hazard ratios (HRs) and 95% confidence intervals (CI) of DTNPV1 for incident ischemic stroke.

Results: We included 15189 participants (54 ± 6 years, 55% women, 27% Black) in this study. During a median follow-up of 27 years, 1336 cases of definite or probable ischemic stroke occurred. DTNPV1 was associated with a 2.65-fold increased risk of stroke (95% CI 1.87, [95% CI 1.44-2.45]) after adjusting for demographics (Table 1, model 1). This association remained significant (HR 1.87, [95% CI 1.44-2.45]) after adjusting for stroke risk factors, use of aspirin and anticoagulants, and time-dependent AF.

Conclusion: DTNPV1 is significantly associated with higher risk of ischemic stroke independent of AF and stroke risk factors. Since DTNPV1 is readily discernible by the clinician at the bedside, it may be helpful to improve stroke prediction, a subject for further research.

Table 1. Hazard ratios of DTNPV1 for ischemic stroke

<table>
<thead>
<tr>
<th></th>
<th>Non-DTNPV1 (n=14,738)</th>
<th>DTNPV1*(n=459)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definite or probable ischemic stroke (n=1336)</td>
<td>1286</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Person-years</td>
<td>349,144.29</td>
<td>5,388.04</td>
<td></td>
</tr>
<tr>
<td>Incidence rate (95% CI)</td>
<td>3.68 (3.48, 3.88)</td>
<td>9.28 (6.71, 11.85)</td>
<td></td>
</tr>
<tr>
<td>HR (95% CI), Model 1</td>
<td>1 (reference)</td>
<td>2.65 (2.04-3.44)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>HR (95% CI), Model 2</td>
<td>1 (reference)</td>
<td>1.96 (1.50-2.56)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>HR (95% CI), Model 3</td>
<td>1 (reference)</td>
<td>1.93 (1.47-2.52)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>HR (95% CI), Model 4</td>
<td>1 (reference)</td>
<td>1.87 (1.44-2.45)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

DTNPV1 indicates deep terminal negative of the P wave in V1, ARIC. Atherosclerosis Risk in Communities; CI, confidence interval; HR, hazard ratio.

* A time-varying exposure variable was used for DTNPV1 through ARIC visits 1-5.

PO-625-06

CHARACTERISTICS AND PROGNOSIS OF THE CATECHOLAMINE INDUCED QT PROLONGATION SYNDROME

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Background: We have recently demonstrated association of unexplained sudden cardiac arrest (SCA) with inheritance of catecholamine induced QT prolongation (CIQTP).

Objective: We here aim to describe incidence, characteristics and prognosis of this new syndrome in young patients with unexplained SCA or their relatives.

Methods: We reviewed the medical screening of all consecutive patients or their first-degree relatives explore from 2015 after the occurrence of a SCA before age 45. Structural heart disease or inherited arrhythmia diseases were excluded. A mental stress test was performed, as previously described, for each family members. All families with a positive mental stress were included in the study. Genetic screening was performed in at least one positive patient per family using targeted sequencing on a panel of 109 genes associated with inherited arrhythmias and cardiomyopathies.

Results: Among 456 patients screened (24 after SCA, 432 for familial screening) of 153 families, we identified 10 families (6.5%) with a catecholamine induced QT prolongation. No mutation was identified in these families. One hundred and ten patients were screened in CIQTP families. Thirty-four patients (30.9%) presented a CIQTP (mean age 42±20 yo, 64.7% of women). Five (14.7%) patients presented with previous symptoms (including 4 syncope and 1 SCA). Two patients (5.9%)...