non-ID regions in atrial myocytes than ventricular. STORM defined the NaV1.5, K2.1 and NKA distribution relative to the junctions: In the ventricle, NaV1.5 associated most closely with GJ (median intercluster distance: 117 nm), K2.1 with Des (151 nm), and NKA with both GJ (165 nm) and AJ (150 nm). Next, percent of each electrogenic protein localized within 100 nm from ID junctions: 35% of NaV1.5 around GJs, 49% of K2.1 around Des and 33% and 39% of NKA near GJ and AJ respectively. Protein organization within atria ID had some notable differences: NaV1.5, K2.1 and NKA was shifted closer to GJs, NaV1.5 to Des, and K2.1 and NKA to Ncad.

Conclusion: These data provide the first-ever comprehensive quantitative picture of ID ultrastructure and molecular organization. Functional implications of these nanoscale structural differences will be elucidated by implementation into our recently published 3D finite-element computational model.

ABSTRACT CE-543: The Early the Better: Afib Detection and Stroke

Sunday, May 1, 2022
10:30 AM - 11:30 AM

CE-543-01

4-FOLD HIGHER RATE OF ATRIAL FIBRILLATION DETECTION AFTER STROKE OF PRESUMED KNOWN ETIOLOGY WITH CONTINUOUS VERSUS INTERMITTENT MONITORING: RESULTS FROM THE STROKE AF STUDY

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Background: In patients (pts) with recent ischemic stroke, atrial fibrillation (AF) may be common regardless of the stroke etiology. Timely diagnosis and intervention may prevent more disabling recurrent strokes.

Objective: We sought to compare incidence rates of AF, defined as an episode ≥2 minutes, between various intermittent monitoring strategies vs continuous monitoring with an insertable cardiac monitor (ICM) in pts with strokes attributed to large artery atherosclerosis (LAA) or small vessel occlusion (SVO).

Methods: The STROKE AF study enrolled pts with a recent ischemic stroke attributed to LAA or SVO. Included pts were ≥60 years old (or 50-59 with heart failure, hypertension, diabetes, prior stroke, or vascular disease) and had no history of AF. One-time monitoring strategies were simulated by computing the AF incidence using 1, 2, 7, 14, and 30-day recording periods. Repeated monitoring strategies (quarterly 24 h, 48 h, 7d, or monthly 24 h) were simulated over a 1-year period. The initial day for all simulations was randomly selected 1-14 days after ICM placement from a uniform distribution. Repeated monitoring strategies were simulated by computing the AF incidence using 1, 2, 7, 14, and 30-day recording periods. Repeated monitoring strategies (quarterly 24 h, 48 h, 7d, or monthly 24 h) were simulated over a 1-year period. The initial day for all simulations was randomly selected 1-14 days after ICM placement from a uniform distribution. Repeated monitoring strategies were simulated by computing the AF incidence using 1, 2, 7, 14, and 30-day recording periods.

Results: We obtained data from 242 pts (age 66.6±9.3, 60% male, CHA2DS2-VASc 5.0 [IQR4.0-5.0]). The AF incidence rate via ICM at 12 months was 11.57%, exceeding the estimated rates from all forms of modeled intermittent monitoring (range 0.22-2.55%, p<0.001, Figure).

Conclusion: In the vast majority of LAA/SVO stroke pts, AF detected via ICMs would go undetected via conventional intermittent monitoring strategies and therefore these pts may not be optimally managed for recurrent stroke prevention.

CE-543-02

DEVELOPMENT OF THE HARMs2-AF LIFESTYLE RISK SCORE TO PREDICT INCIDENT AF

Louise Segan MBBS (Hons), FRACP, MPH; Shane Nanayakkara; Rodrigo Canovas; David Chieng MBBS, CCDS; Hariharan Sugumar BMBS; Aleksandr Voskoboinik MBBS, PhD; Liang-Han Ling MBBS, PhD; Jonathan M. Kalman MBBS, PhD, FHRS and Peter M. Kistler MBBS, PhD, FHRS

Background: Lifestyle risk factors (RFs) are a modifiable target in atrial fibrillation (AF) management. The relative contribution of individual lifestyle RFs to the development of AF has not been described.

Objective: To develop and validate an AF-lifestyle risk score to identify people at risk of AF in the general population.

Methods: The UK Biobank is a large prospective cohort with outcomes measured >10 years. Incident AF was based on ICD-10 coding. Prior AF was excluded. Regression analysis identified independent predictors of AF, which were evaluated in a multivariable model. A weighted score was developed in the derivation cohort (70% study population) and evaluated in the validation cohort (remaining 30%). Kaplan-Meier estimates ascertained the 10-year risk of AF.

Results: The UK Biobank is a large prospective cohort with outcomes measured >10 years. Incident AF was based on ICD-10 coding. Prior AF was excluded. Regression analysis identified independent predictors of AF, which were evaluated in a multivariable model. A weighted score was developed in the derivation cohort (70% study population) and evaluated in the validation cohort (remaining 30%). Kaplan-Meier estimates ascertained the 10-year risk of AF. Among 302,926 participants, AF was diagnosed in 16,029 (5.3%) with median time to AF 7.3 years (IQR 4.3-9.8). Hypertension, sleep apnoea, male sex, age, obesity (BMI≥30kg/m²), alcohol and smoking were predictive variables (all p<0.001); physical inactivity (OR 1.036, 95% CI 0.97-1.10, p=0.3), diabetes (OR 1.045, 95% CI 0.97-1.12, p=0.2) and overweight (BMI 27-30kg/m2, OR 1.02, 95%CI 0.97-1.10, p=0.2). Multivariable analysis identified the following RFs: in order of their contribution to the score: obesity (OR 1.067, 95% CI 1.03-1.11, p<0.001), smoking (OR 1.036, 95% CI 1.01-1.06, p=0.007), hypertension (OR 1.045, 95% CI 1.02-1.07, p=0.001), diabetes (OR 1.044, 95% CI 1.01-1.08, p=0.013), sleep apnoea (OR 1.036, 95% CI 1.01-1.06, p=0.012), physical inactivity (OR 1.036, 95% CI 1.02-1.06, p=0.001), male sex (OR 1.045, 95% CI 1.02-1.06, p=0.002). A weighted score for these 4 RFs was derived and validated (AUC=0.706, 0.711, respectively). The score was developed in the derived cohort (70% study population) and validated in the remaining 30%. The score was validated in a multivariable model. A weighted score was developed in the derivation cohort (70% study population) and evaluated in the validation cohort (remaining 10% of the population). Kaplan-Meier estimates ascertained the 10-year risk of AF. Among 302,926 participants, AF was diagnosed in 16,029 (5.3%) with median time to AF 7.3 years (IQR 4.3-9.8). Hypertension, sleep apnoea, male sex, age, obesity (BMI≥30kg/m²), alcohol and smoking were predictive variables (all p<0.001); physical inactivity (OR 1.036, 95% CI 0.97-1.10, p=0.3), diabetes (OR 1.045, 95% CI 0.97-1.12, p=0.2) and overweight (BMI 27-30kg/m2, OR 1.02, 95%CI 0.97-1.10, p=0.2). Multivariable analysis identified the following RFs: in order of their contribution to the score: obesity (OR 1.067, 95% CI 1.03-1.11, p<0.001), smoking (OR 1.036, 95% CI 1.01-1.06, p=0.007), hypertension (OR 1.045, 95% CI 1.02-1.07, p=0.001), diabetes (OR 1.044, 95% CI 1.01-1.08, p=0.013), sleep apnoea (OR 1.036, 95% CI 1.01-1.06, p=0.012), physical inactivity (OR 1.036, 95% CI 1.02-1.06, p=0.001), male sex (OR 1.045, 95% CI 1.02-1.06, p=0.002). A weighted score for these 4 RFs was derived and validated (AUC=0.706, 0.711, respectively).
0.971-1.071, \( p=0.424 \) were not significant. The weighted HARMS2-AF score (scale 0-14 points, figure 1, top) had similar predictive performance (AUC=0.782 (LogLoss 0.178, Brier Score 0.046) to the unweighted regression model (AUC 0.808). A higher HARMS2-AF score (HARMS-AF score ≥5) was associated with a significantly higher 10-year risk of AF development (score 5-9: OR 9.35, score 10-14: OR 33.34).

Conclusion: The HARMS2-AF score is a novel lifestyle risk score which may assist in screening for AF in the general population however further validation studies are required.

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**CE-543-03**

**EARLY RHYTHM CONTROL IN PATIENTS WITH INCIDENT ATRIAL FIBRILLATION WHO HAD A PRIOR HISTORY OF STROKE: A NATIONWIDE POPULATION-BASED COHORT STUDY**

So-Ryoung Lee MD; Eue-Keun Choi MD, PhD; Seil Oh MD, PhD, FHRS and Gregory Lip MD

**Background:** Early rhythm control therapy has been demonstrated to be associated with a lower risk of stroke compared to usual care in patients with atrial fibrillation (AF). However, there are limited data regarding the benefit of early rhythm control therapy for secondary prevention for stroke in patients with AF.

**Objective:** To compare the risk of recurrent stroke between early rhythm control therapy and usual care in patients with new-onset AF and a history of prior stroke.

**Methods:** Using the Korean nationwide claims database, we identified patients who were newly diagnosed as AF and had a history of prior stroke. Patients who received rhythm control therapy, including antiarrhythmic drug (AAD), direct current cardioversion (DCC), or AF catheter ablation, within 1 year after incident AF were defined as the early rhythm control group, otherwise as the usual care group. The propensity score weighting method was used to balance baseline characteristics between the two groups. Incident stroke was evaluated as a primary outcome.

**Results:** A total of 53,509 patients were included (mean age 72±11 years, 53% men; mean CHA2DS2-VASc score 5.5±1.6). All patients were prescribed oral anticoagulants. Among the total study population, 12,455 patients were assigned to the early rhythm control group (AAD, DCC, and AF catheter ablation in 99.4%, 8.6%, and 3.9%, respectively), and 41,054 patients were in the usual care group. During a median 2.6 years (IQR 1.5 to 4.5 years) of follow-up, 4382 patients had an incident stroke (IR, 2.6 per 100 person-years). Early rhythm control was associated with a lower risk of recurrent stroke compared to usual care (hazard ratio, 0.720, 95% confidence interval, 0.666-0.779, \( p<0.001 \)) (Figure). Early rhythm control consistently showed a lower risk of stroke than usual care regardless of the characteristics of prior stroke, whether recent, severe, and disabling stroke or not.

**Conclusion:** In this large-scale observational cohort study, early rhythm control within 1 year after AF diagnosis might be beneficial to prevent recurrent stroke in patients with incident AF and a history of prior stroke. Integrated care, including optimal rhythm control with appropriate anticoagulation, should be considered for patients who had incident AF and a history of stroke to reduce the risk of recurrent stroke.

**CE-543-04**

**INTER-ATRIAL BLOCK IDENTIFIES PATIENTS WITH LOW CHA2DS2-VASc SCORE BUT HIGH STROKE RISK**

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**Background:** Beyond current methods of risk stratification, clinical studies employing machine learning methodology have demonstrated that the 12-lead ECG harbors additional prognostic information for various cardiovascular outcomes. Interatrial block (IAB) manifests as P wave duration >120 msec and is associated with thromboembolism, atrial arrhythmias, and mortality.

**Objective:** To define in a large cohort of patients the prognostic significance of IAB, and to assess if IAB...