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## Arrhythmias and Clinical EP

## ADDITION OF ATRIAL ECTOPY AND NT-PROBNP TO FRAMINGHAM ATRIAL FIBRILLATION RISK ALGORITHM IMPROVES RISK PREDICTION

Poster Contributions

Poster Hall B1

Monday, March 16, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Risks for Atrial Fibrillation: Where Do We Look?

Abstract Category: 4. Arrhythmias and Clinical EP: AF/SVT

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**Background:** Atrial fibrillation (AF) is a common arrhythmia associated with increased morbidity. Models for prediction of AF can be relevant in examining the AF pathogenesis and AF prevention therapies. We aimed to investigate whether elevated NT-proBNP or increased rate of premature atrial contractions (PACs) improved risk prediction for AF compared to Framingham AF risk score.

**Methods:** Subjects from the population-based cohort in the Copenhagen Holter Study, consisting of 678 men and women between 55 and 75 years of age and with no history of prior atrial fibrillation, stroke or cardiovascular disease, were followed for the diagnosis of incident AF or death (median follow-up time 14.4 years). Baseline examination included physical examination, laboratory testing and 48-hour ambulatory ECG monitoring. Subjects with missing values were excluded and Framingham risk score for AF was calculated for the remaining 646 subjects. In order to investigate the predictive ability of PAC (log-scale) and NT-proBNP (log-scale) we computed the time-dependent area under the ROC curve (AUC) for the AF status 10 years after the baseline examination.

**Results:** Two hundred and sixty nine subjects (41.6%) were women, mean systolic blood pressure was 156.2 mmHg and 72 subjects (11.1%) had diabetes. Median NT-proBNP was 6.7 mmol/L (IQR: 3.6-13.5) and median PAC count was 1.4 beats/hour (IQR: 0.6-4.5). During the 14.4 years of observation 77 (11.4%) subjects developed AF and 224 (33.0%) died. In multiple Cox model adjusted for Framingham AF risk score log-transformed NT-proBNP and log-transformed PAC was associated with a significant increase in AF risk (HR 1.44 [95%CI: 1.13-1.82],  $p=0.001$ ; HR 1.22 [95% CI: 1.09-1.39]  $p=0.002$ ). The addition of PAC to the Framingham AF risk model significantly improved AF risk discrimination (AUC 65.7 vs. 72.2;  $p=0.0072$ ), while the addition of NT-proBNP did not (AUC 68.4;  $p=0.23$ ). The addition of both PAC and NT-proBNP to the Framingham risk score also improved the AF discrimination capability (AUC 72.1;  $p=0.013$ ).

**Conclusion:** AF risk discrimination was significantly improved by addition of PAC to the existing Framingham AF risk prediction model but not by addition of NT-proBNP.