P4094 I BEDSIDE New onset atrial fibrillation and long-term risk of heart failure in the general population: the Rotterdam study

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Purpose: Chronic heart failure is often a manifestation of long-standing underlying cardiac conditions, such as coronary heart disease (CHD) and left ventricular hypertrophy (LVH). Atrial fibrillation (AF) is a well-recognized consequence of heart failure which can be prevented by timely pharmacological treatment. However, limited data exists on the role of AF in the etiology of heart failure in the general population. We sought to evaluate the long-term risk of heart failure associated with new onset AF; in addition, we evaluated the interplay between AF and other cardiac conditions (CHD and LVH) in the development of heart failure.

Methods: Within the Rotterdam Study, a prospective population-based cohort, we followed 6178 persons (mean age 68.6 years, 41% men) free of heart disease at baseline (1990-1993) for the occurrence of AF, CHD (defined as myocardial infarction or revascularization), and heart failure. We constructed time-dependent Cox models adjusted for traditional cardiovascular risk factors to study the effect of newly-diagnosed AF (and CHD) during follow-up and subsequent heart failure risk. Since both AF and heart failure can have a substantial time-lag between the occurrence of first symptoms and clinical diagnosis, we modeled various time-lags of up to 5 years since first diagnosis of AF in order to ascertain that AF preceded heart failure symptoms.

Results: During a median 14.2 years of follow-up 584 diagnoses of AF were made and 994 participants developed heart failure. New onset AF was associated with increased risk of heart failure (adjusted HR 3.16 [95% CI: 2.63-3.79]), which persisted even 5 years after AF diagnosis (adjusted HR 2.60 [95% CI: 1.88-3.38]). Regarding the interplay between AF and CHD, the presence of AF only, CHD only, and concomitant AF and CHD showed a graded increase in heart failure risk (adjusted HRs 3.52 [95% CI: 2.86-4.34], 4.30 [95% CI: 3.40-5.45], and 6.23 [95% CI: 3.56-10.88], respectively). A similar graded increase in risk estimates was observed for the presence of ECGs detected LVH and concurrent AF. Population attributable risks were 12.2% for AF, 6.3% for CHD, and 5.2% for LVH.

Conclusions: New onset AF was a strong risk factor for incident heart failure in the general population, with long-term relative risks close to those of manifest CHD. Absolute and relative risk estimates were especially high for persons with concomitant AF and CHD. Persons with AF may well constitute an important part of the general population that could potentially benefit from timely introduced intensive preventive measures to reduce the growing burden of chronic heart failure.

P4095 I BEDSIDE Usefulness of N-terminal pro-B-type natriuretic peptide levels for stroke prediction in anticoagulated patients with atrial fibrillation

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Oral anticoagulation (OAC) is highly effective in reducing stroke and mortality in patients with atrial fibrillation (AF). To aid decision-making for thromboprophylaxis, several risk stratification schemes have been developed using clinical characteristics. Elevated levels of N-terminal-pro-B-type natriuretic peptide (NT-proBNP) are important markers of increased mortality and morbidity in congestive heart failure, ischaemic heart disease and even in general community population. NT-proBNP is also predictive of stroke and mortality in a selected trial-based population of ischaemic heart disease and even in general community population. NT-proBNP provided complementary prognostic information to an established clinical risk score (CHA2DS2-VASc) for the prediction of stroke/systemic embolism. NT-proBNP was also predictive of all-cause mortality, suggesting that this biomarker may potentially be used to refine clinical risk stratification in anticoagulated AF patients.

Methods: We studied 1177 patients (49% male; median age 76 years) with permanent AF who were well-stabilised (for at least 6 months) on OAC (INRs 2.0-3.0). NT-proBNP levels were measured on immunoassay at baseline. Patients were followed-up for up to 2 years, and adverse events (thrombotic and vascular events, mortality and major bleeding) were recorded. The best cut-off points were assessed by ROC curves.

Results: Median levels (IQR) of NT-proBNP were 613 (319-1040) pg/mL. Median follow-up was 1006 (804-1279) days, and during this period, 145 (4.36%/year) died whilst 128 patients had an adverse cardiovascular event (4.02%/year) died whilst 128 patients had an adverse cardiovascular event (4.02%/year). which was 51 were ischemic strokes (1.6%/year) and 99 patients suffered a major bleeding episode (3.11%/year). On multivariate analysis, high NT-proBNP was significantly associated with the risk of stroke even after adjusting for the CHA2DS2-VASc score (HR 2.08; 95% CI: 1.11-3.92, p = 0.023), but with other composite vascular events (acute coronary syndrome or acute heart failure, p=NS). There was also a significant association with mortality (adjusted HR 1.48 (1.06-1.56), p = 0.001). None of the patients with bleeding was found (adjusted HR 1.05 (0.67-1.67), p = 0.637). The IDI analysis demonstrated NT-proBNP improves CHA2DS2-VASc score for predicting embolic events (relative IDI 1.2%, p = 0.001) and all cause death (relative IDI 1.5%, p = 0.001).

Conclusion: In "real world" anticoagulated AF patient cohort, NT-proBNP provided complementary prognostic information to an established clinical risk score (CHA2DS2-VASc) for the prediction of stroke/systemic embolism. NT-proBNP was also predictive of all-cause mortality, suggesting that this biomarker may potentially be used to refine clinical risk stratification in anticoagulated AF patients.

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P4096 I BEDSIDE Obese heart syndrome: Epicardial adiposity in subtypes of atrial fibrillation

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Purpose: Epicardial adipose tissue (EAT) exerts an important paracrine and inflammatory function. Given the strong relationship between atrial fibrillation (AF), obesity, and inflammation, and given the inflammatory characteristics of EAT and its relationship to cardiovascular disease, the purpose of this study was to investigate the association between AF and epicardial fat.

Methods: A total of 618 (192 in sinus rhythm, 169 with paroxysmal AF, 133 with persistent AF and 124 with paroxysmal AF) patients who underwent CT angiography for the evaluation of CAD were enrolled in this study. Thickness of the EAT was measured on contrast enhanced multiplanar reformat images with paraseteral axis view at basal, mid-ventricular and apical levels and horizontal long axis view.

Results: Patients with AF had significantly more EAT compared with patients in sinus rhythm (100.1±21.9 mm vs 88.4±21.8 mm, p<0.001). Epicardial fat thickness was significantly higher in persistent and persistent AF compared with paroxysmal AF and sinus rhythm group (103.0±25.5 mm in persistent AF and 101.7±23.6 mm in persistent AF vs 96.3±16.5 mm in paroxysmal AF and 88.4±21.8 mm in sinus rhythm, p<0.001). Total EAT thickness (10 mm) was associated with paroxysmal AF (OR: 1.35, p<0.003), persistent AF (OR: 2.33, p<0.001) and persistent AF (OR: 3.72, p<0.001), and this association was independent of age, hypertension, gender, left atrial diameter, structural heart disease, diabetes mellitus and body mass index.
plane systolic excursion (MAPSE) is a surrogate marker for left ventricular (LV) dysfunction in several cardiac pathologies. **Objectives:** To determine the values for septal, lateral, and average MAPSE using cardiovascular magnetic resonance imaging (CMR) and to assess their impact on the presence or occurrence of AF in patients with HCM.

**Methods and results:** 103 Patients with HCM and 30 healthy controls underwent late gadolinium enhanced (LGE) CMR. Compared to healthy controls, patients with HCM had significantly reduced septal, lateral and average MAPSE and only in patients with HCM septal MAPSE was significantly reduced compared to lateral MAPSE. Septal and average MAPSE correlated with LA dilatation, the presence of moderate mitral regurgitation and AF whereas lateral MAPSE showed only a correlation with LA dilatation. In multivariate analysis septal MAPSE proved to be a stronger independent determinant of AF than age, male gender, indexed LA volume, the extent of LGE, LV mass or the presence of moderate mitral regurgitation.

**Conclusions:** Septal MAPSE showed to be the strongest determinant of AF in our patients with HCM and seems to be an early marker of LV mechanical dysfunction in these patients. Due to the association between AF and increased morbidity and mortality in patients with HCM, patient with HCM and a reduced septal MAPSE should be screened to detect AF as early as possible.

**P4099 | BEDSIDE**
Detection of paroxysmal atrial fibrillation by an implantable subcutaneous Holter in patients with non-lacunar cryptogenic ischemic stroke

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**Study:** We hypothesized that asymptomatic PAF may be an under-recognized mechanism for cryptogenic ischemic stroke. So that, ECG monitoring by an implantable subcutaneous Holter and remote transmission may find episodes of PAF in patients with non-lacunar cryptogenic ischemic stroke. Inclusion criteria were sinus rhythm on 12-lead ECG on admission, no evidence of PAF in a 24-h ECG monitoring and freedom of structural heart disease. Embolism was further suspected by transcranial Doppler ultrasound and/or neuroimaging features.

**Results:** One hundred and one patients have been followed up for an average of 262 days (IQR: 119-471). Mean age was 67±13 years and 46% were male. Cardiovascular risk factors were: hypertension (56%), dislipidemia (32%), diabetes (18%) and smoking habit (37%). Median CHA2DS2-VASc Score was 2.5 (IQR: 1-4). Twenty-seven patients (27%) were previously on antiplatelet agent treatment. PAF (lasting more than 2 minutes) was present in 29 patients (28.7%). The first PAF episode was detected after 131 days (IQR: 50-240) of remote monitoring. PAF episodes were mainly at night in 9 patients, longer than 1 hour in 11 patients and the heart rate was below 100 bpm in 9 patients. The table shows the different profile of patients with PAF vs PAF free patients.

**Conclusions:** In patients with ischemic cryptogenic stroke long ECG monitoring by an implantable subcutaneous Holter and remote transmission detects a significant rate of asymptomatic PAF. The actual pathological relevance of this finding is still unknown, so that wider controlled studies may be appropriate.

**P4100 | BEDSIDE**
Risk scoring and thromboprophylactic treatment of patients with atrial fibrillation with and without access to primary healthcare data: experience from the Stockholm health care system

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**Methods:** Cross-sectional registry study of 43 353 patients with a record of non-valvular atrial fibrillation in inpatient care, specialist ambulatory care or primary care in the Stockholm Counties Council diagnosed during 2006-2010.

**Results:** The mean CHA2DS2-VASc score was 3.82 (4.67 for women and 3.14 for men), 64% of the entire cohort of patients with atrial fibrillation had the diagnosis in primary care (12% only there). The mean CHA2DS2-VASc score of patients with a diagnosis only in inpatient or specialist ambulatory care increased from 3.63 to 3.83 when comorbidities registered in primary care were added. In 2010 warfarin prescriptions were claimed by 47.2%, and ASA by 41.6% of the entire cohort. 34% of patients with CHA2DS2-VASc ≥1 and 20% with CHA2DS2-VASc = 0 had warfarin treatment.

**Conclusions:** Registry CHA2DS2-VASc scores underestimated the risk without co-morbidity data from primary care. Relatively many individuals with scores ≥0 and 1 were treated with warfarin, despite poor documentation for clinical benefit among such patients. On the other hand, warfarin appears to be underused among high risk atrial fibrillation patients. Lack of co-morbidity diagnoses from primary care may have underestimated CHA2DS2-VASc scores and thereby overestimated treatment benefits in low-risk patients in earlier studies.

**Abstract P4100 – Table 1. Co-morbidities among patients with and without diagnosis from primary care**

<table>
<thead>
<tr>
<th>Co-morbidities</th>
<th>PAF</th>
<th>PAF-free</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥75</td>
<td>66/13</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>CHA2DS2 Score≥2</td>
<td>55%</td>
<td>37%</td>
<td>0.088</td>
</tr>
<tr>
<td>CHA2DS2/VASc≥2</td>
<td>79%</td>
<td>66%</td>
<td>0.194</td>
</tr>
<tr>
<td>P wave duration ≥160</td>
<td>105/23</td>
<td>95/16</td>
<td>0.043</td>
</tr>
<tr>
<td>24-h ECG monitoring: non-undetected SVT present</td>
<td>75%</td>
<td>43%</td>
<td>0.008</td>
</tr>
</tbody>
</table>

**Purpose:** To investigate the presence of asymptomatic cerebral lesions in patients with non-valvular atrial fibrillation (AF) and structurally normal hearts. **Methods:** Magnetic resonance brain imaging (MRI) was performed in consecutive patients initially diagnosed with first-diagnosed "lone" AF (age ≥60 at diagnosis and no cardiopulmonary disease). Patients with prior AF ablation were excluded.

**Results:** Of 33 patients aged 54±14.4y, 26 (78.8%) were males and 15 (45.5%) had paroxysmal AF. Mean left atrial size and LVEF were 43.5±7.2 mm and 61.9±5.8%, respectively, creatinine clearance (CrCl) 110.9±27.5 mL/min, blood glucose 5.4±0.6 mmol/L, cholesterol 5.5±0.9 mmol/L, hemoglobin 149.3±16.7 g/L, C-reactive protein 3.1±3.3 mg/L, fibrinogen 3.3±0.5 g/L, and D-dimer 0.42±0.63 pg/mL. Mean 13.7±2.8 years following first AF, 15 patients (45.5%) remained "lone" AF, 5 (15.1%) aged ≥60, 12 (36.4%) developed hypertension (plus coronary disease, 1 patient) and 1 (3.0%) developed pulmonary disease. There

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