P4070 | BEDSIDE
Association between silent atrial fibrillation and heart failure after acute myocardial infarction

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Description: The natural history of atrial fibrillation (AF) after acute myocardial infarction (AMI) remains unknown. The objective of this study was to assess the incidence of silent AF and determine any potential associations with heart failure.

Methods: For AF screening, 581 consecutive AMI were prospectively analyzed by Continuous ECG Scope Monitoring (CSM) for 48H after hospital admission. New onset AF was defined by at least one episode > 30 sec, absence of p waves, and irregular RR intervals on CSM or absence of p waves or irregular RR intervals on 12-lead ECG, with no duration criteria. Maximal heart rate, and number and duration of AF episodes were continuously recorded for 48H. Left Ventricular Ejection Fraction (LVEF) was determined on admission by echocardiography. We divided the study population into 3 groups: No AF, silent AF (defined as asymptomatic episodes of AF lasting >30sec) and symptomatic AF (defined as symptomatic episodes of AF lasting ≥12hours).

Results: Ninety-five (16.4%) patients had AF on CSM after MI, of whom 76 (80%) developed silent AF. Patients with silent AF were older than No-AF patients (80 [69-85] vs. 62 [53-74]; p < 0.001), more likely to be women (45 vs. 27%; p < 0.006) and hypertensive (76 vs. 52%; p < 0.001) but less likely to be smokers (18 vs. 38%; p < 0.001). On admission, patients with silent AF had lower LVEF (46% [13%] vs. 54% [11]), higher Ni-ProBNP (1817 [556-7078] vs. 435 [111-1512]; p < 0.001) and were more likely to have an episode of heart failure (42 vs. 21%; p < 0.001). Patients with symptomatic AF also had a lower LVEF, higher Ni-ProBNP and were more likely to have episodes of HF.

Heart failure episodes during the acute phase after myocardial infarction were more common in silent AF patients (52 [44%]) and symptomatic AF patients (10 [53%]) than in no-AF patients (102 [21%]), with p < 0.001. Conclusion: In this prospective study, CSM analysis showed that silent AF is very common after MI (16.4%), and should be systematically screened for, especially regarding management of these patients. Our study highlights for the first time that silent AF, like symptomatic AF, is significantly associated with episodes of heart failure. This outcome suggests the potential impact of silent AF on the prognosis in patients with AMI.

P4071 | BEDSIDE
The natural history of atrial fibrillation after the first documented episode. Different evolution of persistent and non-persistent atrial fibrillation

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Purpose: Atrial fibrillation (AF) is believed to progress from paroxysmal to persistent (perAF), but this concept is not supported by specific data. The purpose of our study was to describe the presentation and long term evolution of AF starting at the time of a first episode (1st E) in a general outpatient population.

Methods: From January 2008 to December 2010 we registered all patients (P) seen with a 1st E of AF at the emergency room (ER) of a general hospital providing care for a population of 250000. We excluded P with severe heart disease and/or poor tolerance requiring hospitalization. Treatment was left to the ER physician's discretion. P were followed up (f/u) 2 weeks (wk) after discharge and every 3-6 months (mo) for a total of 32±12 mo.

Results: We registered 169 P. In 77 [46%] there was a clear-cut onset of palpitation ≤48 h before admission, and in 92 time of onset could not be determined. Twenty two P received antiarrhythmic drugs (AAD) and 1 electrical cardioversion (ECV). Upon discharge ≤48 h after admission, 84 P were in sinus rhythm (SR), and 85 in AF. One P in each group received ADD and the remainder had rate control and oral anticoagulation. At the 2 wk (15±2 days) f/u, 99 P were in SR, and 70 in perAF (41%). None of the P discharged in SR were in AF and 15 of the 85 with AF at discharge had converted to SR. Of the 70 P with perAF at 2 wk, during long-term f/u, 6 (9%) spontaneously converted to SR and 26 (37%) underwent ECV, of which 15 remained in SR at the end of f/u. One P was lost. Of the 99 P in SR at the 2 wk f/u, 66 (68%) did not have any AF episodes long term, 24 (24%) had recurrent paroxysmal AF, and 9 (9%) developed perAF of which 3 recovered SR after ECV, and 1 was lost at 6 months. PerAF was not preceded by paroxysmal AF in 4 of these P. Of the P in SR 2 wk after the initial episode, 6 (6%) developed persistent/permanent AF during long-term f/u while 48 (65%) of patients with perAF at 2 wk had persistent/permanent AF at long-term f/u (p < 0.001).

Conclusions: These observations question the concept that perAF evolves from paroxysmal AF. In our population a full 41% of AF can be classified as perAF at the time of first diagnosis. Long-term f/u of our patients showed remarkably different prognosis depending on the presentation form, with a much higher long-term prevalence of persistent/permanent AF in those presenting initially with perAF. Paroxysmal and perAF could have different mechanisms and natural history.

P4072 | BEDSIDE
Silent brain ischemic lesions detected on magnetic resonance imaging in patients undergoing catheter ablation of atrial fibrillation

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Purpose: Cerebral infarctions can occur without apparent symptoms. Therefore, data are lacking on the true prevalence (and thereby clinical importance) of brain ischemic lesions in patients undergoing catheter ablation of atrial fibrillation (AF).