ATRIAL FIBRILLATION - CLINICAL AND EPIDEMIOLOGICAL ASPECTS

P272
Incidence of MRI-detected brain lesions and neurocognitive function after electrical cardioversion in anticoagulated patients with persistent atrial fibrillation

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Background: The risk for clinically apparent cerebral thromboembolism is increased after electrical cardioversion in patients with atrial fibrillation (AF). There is currently little evidence on the incidence of novel brain lesions detected with cerebral Magnetic resonance imaging (MRI) after electrical cardioversion (CV), in particular in patients treated with novel oral anticoagulants (NOAC).

Aims: The aim of the study is to determine the incidence of acute novel MRI-detected brain lesions after electrical CV in patients with persistent atrial fibrillation (AF). Furthermore, neuro-cognitive examination using the National Institutes of Health Stroke Scale (NIHSS) score and the Montreal Cognitive Assessment Test (MoCa) was performed in all patients within 24 hours before CV and 3 weeks afterwards.

Methods and Results: 27 consecutive patients with AF were included in this prospective study (DRKS00010460). Cerebral MRI and neuro-cognitive assessment were performed before and at 3 weeks after CV in all patients. Patients were treated with oral anticoagulation (OAC) for at least 4 weeks before CV and according to the CHA2DS2-Vasc-score thereafter. Five of 27 (18%) patients were treated with Dabigatran, 11/27 (41%) with Apixaban, 6/27 (23%) with Rivaroxaban and 5/27 with Phenprocoumon (18%). No patient developed acute novel brain lesions on cerebral-MRI at the 3-week follow-up. Neurological and cognitive function were similar before and after 3 weeks after electrical cardioversion (MoCa score: p = 0.7, NIHSS-score: p = 0.6).

Conclusion: Electrical cardioversion in patients with persistent AF treated with OAC carries a low risk for the development of MRI-detected acute novel brain lesions or neurocognitive decline.

P273
Comparison of risk factors for new-onset atrial fibrillation in the young versus elderly age: a nationwide cohort study in Korea

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Background: The atrial fibrillation (AF) is heterogeneous in pathophysiology based on individual patient characteristics. A number of risk factors are associated with an increased risk for the development of AF.

Purpose: The aim of our study is to identify the effects of widely known risk factors of AF, on the incidence of AF according to age in general population and to find out its clinical implication.

Methods: We analyzed 506,209 patients (≥18 years) without AF or valvular heart disease from the Korean National Health Insurance Service-National Sample Cohort (NHIS-NSC) between 2009 and 2013. Total population is divided into two groups: young whose age is less than, and the "elderly," as those older than 65.

Results: Of the 3,416 (0.7%) cases of AF occurring during follow-up periods of 46.2 ± 15.1 months, 1664 (4.0%) were in young age and 1752 (2.6%) were in elderly age group (p = 0.001). In a multivariate Cox regression analysis, age, male gender, hypertension and heart failure were related with increased risk of AF in both group. In addition, in young age group, risk of new-onset AF incidence was increased by diabetes mellitus (HR 1.26, 95% CI 1.05-1.52, p = 0.014), current or former smoking (HR 1.20, 95% CI 1.02-1.42, p = 0.028), and obesity (HR 1.36, 95% CI 1.21-1.54, p = 0.001) but decreased by moderate alcohol intake of 1-28(14, female) glasses/week (HR 0.86, 95% CI 0.74-0.99, p = 0.038). In elderly age group, chronic obstructive pulmonary disease (HR 1.46, 95% CI 1.21-1.75, p = 0.001) and chronic renal disease (HR 1.23, 95% CI 1.06-1.42, p = 0.007) increased the risk of new-onset AF.

Conclusion: There was a difference in the pathogenesis of AF between young and elderly. In young age group compared to elderly age group, modifiable risk factors had a greater impact on the incidence of new-onset AF. Therefore, clearly defined management strategies to prevent and tackle this arrhythmia according age is required.

P274
Occurrence of persistent atrial fibrillation after pulmonary vein isolation for paroxysmal atrial fibrillation

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Background: Data about the occurrence of persistent AF (pAF) after successful pulmonary vein isolation (PVI) for paroxysmal atrial fibrillation (PAF) is scarce. We evaluated clinical characteristics of PAF patients who experienced pAF after PVI and tried to identify predictive parameters.

Methods: In this retrospective observational study, a total of 1826 patients who underwent PVI for PAF at our center between 2011-2015 were evaluated. Mean age at ablation (64.4±11.6), gender (male, 53%), cardiovascular risk factors (hypertension 67.9%, Diabetes 12%, adpositas (BMI≥26 ≥ 5.6 kg/m2), nicotine 27.6%, hyperlipoproteinemia 56.9%), coronary artery disease (18.1%) and echocardiographic parameters as mitral valve regurgitation (45.5%) and left atrium size (24 cm2 ≥ 5.1 cm2) were assessed. Patients were followed in regular intervals at our out-patient clinic including a comprehensive, structured follow-up and regular 7-day Holter ECGs.

Results: In 61/1826 patients (3.4%), pAF occurred 4-60 months (mean 14.5 months) after PVI for paroxysmal AF. In the majority of patients (59%) pAF occurred more than 1 year after the ablation procedure. Compared to patients without pAF during follow-up, patients with pAF were significantly older (67.9 ± 1.4 vs. 57.7 ± 1.8; p < 0.0001), whereas gender and all other clinical parameters including coronary artery disease and arterial hypertension were not significantly different between the groups. Nor presence and extent of neither mitral valve regurgitation nor LA size were significantly different in both groups.

Conclusion: The occurrence of persistent AF after pulmonary vein isolation for paroxysmal AF is rare and occurs predominantly more than 1 year after an arrhythmia-free period. The only predictive risk factor is older age at PVI whereas mitral valve disease, LA size, structural heart disease and classical cardiac risk factors do not seem to influence the course of the AF. It might be speculated that age-induced increase in atrial scarring which serves as a substrate for AF maintenance is the main driver of this phenomenon.

P275
The role of the combined electrical and mechanical dysynchrony on atrial fibrillation initiation in patients with chronic heart failure and left atrium enlargement

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Aim: Left atrial (LA) enlargement is common in patients (pts) with chronic heart failure (CHF), and previous studies have described a strong association between the degree of