P4139

Prediction of atrial fibrillation in embolic stroke of unknown source

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Background: Atrial fibrillation (AF) is one of the leading cardiogenic causes for embolic stroke of unknown source (ESUS). Its incidence is growing with patients' age. Detection and rule out of AF is complex and cumbersome. The best method is an implantable loop recorder (ILR). In patients elder than 60 years, incidence of AF is reported incongruently and reliable patient characteristics that can predict a low or high risk for AF are scarce.

Purpose: This study reports real life incidences of AF in a group of patients undergoing ILR after ESUS. It aims to depict age dependency of AF and to identify potential confounding factors.

Methods: In a single center study, we analysed 111 patients (age=62±13 years, nmale=65) who received an ILR in our centre following ESUS. Patient characteristics, brain imaging, hemodynamic monitoring, blood pressure, electrocardiography, holter ecg and echocardiography data from the initial hospital stay and ILR follow-up over a mean of 460 days were analysed. Primary endpoint was the recording of AF during follow-up.

Results: AF was detected in 23% of all patients. Patients with AF were significantly elder than those without AF (p=0.01). Incidence of AF was in Patients <60y: 14%, 60–69y: 13%, 70–79y: 45%, >80y: 67%. We observed a significant difference in AF incidence comparing patients younger and elder than 70 years (p=0.034).

Both, CHADS-Vasc (p=0.036) and HATCH-scores (p=0.018) were higher in the AF group while the simple CHADS2 Score missed significance (p=0.068). PQ duration was longer in AF patients (p=0.022) and baseline heart rate at admission was lower (p=0.027). NIHSS scores were lower in the AF group at admission (2.97 vs. 4.10; p=0.049) but due to less neurological improvement in the AF group, this difference faded until dismission (1.09 vs 1.79 p=ns).

Conclusions: In our real life ILR group following ESUS, strongest predictor of AF was age. Pivot point rather was at 70 than at 60 years of age.