Impact of excessive supraventricular ectopic activity detected in the acute phase of stroke or TIA on AF detection and death within 24 months – results of the prospective MonDAFIS study

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Background/Introduction: Detection of atrial fibrillation (AF) and subsequent initiation of oral anticoagulation remain key goals in the care of stroke patients. The European Society of Cardiology guideline recommend continuous ECG monitoring for at least 72 hours in stroke patients without previously known AF. Excessive supraventricular ectopic activity (ESVEA) has been identified as a marker for patients at risk for AF in the general population. Robust data on the clinical relevance of ESVEA detected in the acute phase of ischemic stroke or transient ischemic attack (TIA) are lacking.

Purpose: To assess the impact of ESVEA (defined as presence of supraventricular beats $\geq$480/day or at least one atrial run of $\geq$10 and $<$30 seconds during continuous ECG monitoring for 72 hours) in patients with acute ischemic stroke/TIA without (previously) known AF on recurrent stroke, all-cause death and detection of a first episode of AF within 24 months.

Methods: The investigator-initiated, prospective, open, multicenter Systematic Monitoring for Detection of Atrial Fibrillation in Patients with Acute Ischemic Stroke study randomized 3,465 acute stroke patients without known AF 1:1 to usual diagnostic procedures for AF detection or additive Holter-ECG recording for up to seven days in-hospital (NCT02869386). ECG core-lab analysis included the number of atrial ectopic beats per day, the number of atrial runs as well as the duration of the longest atrial run per 24 hours. Patients were followed-up for two years. Secondary study objectives include the comparison of recurrent stroke, myocardial infarction, major bleeding and all-cause death in ESVEA patients, patients with newly diagnosed AF vs. non-ESVEA patients with sinus rhythm at baseline. Data were analyzed using Fisher's exact test.

Results: In 1,714 patients randomized to the intervention group, 1,693 (98.8%) had analyzable ECG recordings of a median duration of 121 hours (IQR 73–166). 1,435 (84.8%) patients had continuous ECG monitoring for the first 72 hours. At this time, ESVEA was detected in 363 (25.3%) of 1,435 patients, while a first episode of AF was detected in 48 (3.3%). At 24 months, AF was newly detected in 57 (15.7%) ESVEA patients vs. 53 (6.2%) non-ESVEA patients ($p<0.001$) with available follow-up. At 24 months, 68 (24.5%) ESVEA patients vs. 77 (9.0%) non-ESVEA patients were on oral anticoagulation ($p<0.001$). The composite of recurrent stroke, myocardial infarction, major bleeding and death at 24 months did not differ significantly between ESVEA patients vs. non-ESVEA patients (14.3% vs. 11.6%; p=0.389). However, all-cause death was higher in ESVEA patients (6.6% vs. 3.1% in non-ESVEA patients; p=0.01).

Conclusions: ESVEA detected after acute ischemic stroke/TIA identifies patients at high-risk for AF and may be used to guide prolonged ECG monitoring. The higher risk of death in ESVEA patients vs. non-ESVEA patients within 24 months after stroke/TIA deserves further investigation.

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