Supraventricular ectopic activity as a predictor of atrial fibrillation – what we didn't see 10 years ago

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Background: Cardioembolism induced by atrial fibrillation (AF) is responsible for up to 33% of all ischemic strokes. 24-hour Holter monitoring in stroke and transient ischemic attack (TIA) patients is used as a routine investigation to search for occult paroxysmal atrial fibrillation (PAF), which may have crucial prognostic impact. Excessive supraventricular ectopic activity (ESVEA) is also a stroke risk factor, probably related to the risk of developing AF.

Purpose: To observe the incidence of AF at a long-term follow-up and to evaluate the clinical, electrocardiographic and echocardiographic predictors of new onset AF in stroke patients.

Methods: Patients in sinus rhythm who performed Holter between October 2009 and October 2011 in the setting of post stroke or TIA were included; patients with previous AF were excluded. These patients were followed for 8 to 10 years. Clinical, electrocardiographic and echocardiographic data were collected. ESVEA was defined by $\geq$500 premature atrial contractions per 24 hours or any sustained supraventricular tachycardia episode.

Results: 104 patients were included, 54% were male, with a mean age of 63.8±14.7 years at the time of the event. In relation to cardiovascular risk factors, 59% had hypertension, 47% dyslipidemia, 14% diabetes, 44% were smokers or previous smokers; 67% of patients were high consumers of alcohol. 79.8% had a stroke and 21.2% a TIA. 24-hour Holter monitoring revealed ESVEA in 13.5% of patients and PAF in 1.9%. All patients with PAF had a previous stroke and were older than 55.

At a follow-up of 8–10 years, new onset AF was detected in 11.5%; these patients had similar mortality comparing to those in sustained sinus rhythm (21.2% vs 16.7%, p=0.724). Alcohol intake, an established risk factor for development of AF, was associated with a non-significant increase of AF (17.3% vs 11.5%) while the presence of cardiovascular risk factors was not associated with AF development. We found a statistically significant difference between patients with and without ESVEA concerning to new onset of AF (35.7% vs 8.0%, p=0.010). ESVEA seems to be related with a higher mortality at a long follow-up, although this difference wasn't statistically significant (35.7% vs 18.2%, p=0.132). Concerning to echocardiographic parameters, patients whit left atrium enlargement showed a higher incidence of AF at follow-up (14.7% vs 7.9%), and the presence of mitral regurgitation were not related with new onset of AF. Patients' age was also not related with new onset of AF during follow-up.

Conclusion: Atrial fibrillation is considered the main cause of stroke. Our study showed that ESVEA is a strong predictor of new onset AF and highlights that Holter monitoring could be an important tool not only to diagnose AF but also to identify patients in risk of develop AF. Diagnostic of new AF during long-term follow up didn't correlate with higher mortality.