Arrhythmias - Holter Monitoring

Incidence and type of arrhythmias recorded by one-month continuous ECG monitoring in stroke patients

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BACKGROUND

The incidence of atrial fibrillation (AF) following stroke has been studied with implantable loop recorders. However, these devices do not record short lasting AF episodes (<30-120 seconds [s]). In addition, the incidence and type of other clinically relevant arrhythmias is poorly understood in this clinical setting.

PURPOSE

To evaluate the incidence, type and clinical relevance of arrhythmias detected by one-month continuous ECG monitoring in patients after cryptogenic stroke.

MATERIAL AND METHODS

Consecutive patients (p) with stroke and no previous AF or other cardioembolic or atheroembolic causes were prospectively enrolled in the study. An external wearable 2-lead ECG monitoring system (NUUBO) was used for 30 days (d) in all of them after the acute phase of the stroke. In the absence of documented AF, a parafibrillatory status was defined as >3000 atrial ectopic beats/d or >2 "micro AF" episodes (fibrillatory burst <30 s)/d or ≥1 episode of "micro AF" >14 s.

RESULTS

130 p. were included in the study (age 73 ± 12, 57% males, 19% previous stroke, 7% ischemic cardiopathy, CHA2DSVA2Sc pre-stroke 3.1 ± 1.7). 3 were withdrawn from the study due to inadequate use (recording time <14 d) and 1 due to stroke during SARS-CoV2 infection. Total recording time was 28 ± 3 d, total analyzable ECG time was 23 ± 5 d. ECG monitoring was repeated in 12 (9.5%) p due to poor ECG quality in 6 p or high suspicion of AF despite an initial negative result in 6 p. AF >30 s was detected in a total of 27 (21.4%) p, average AF duration was 52 hours (range 30 s-22 d). AF >30s was detected in 2 (17%) p with repeated monitoring. All these patients were placed on anticoagulation. Sustained paroxysmal supraventricular tachycardia (SVT) was documented in 4 (4.4%) p without AF. All episodes of AF and SVT were asymptomatic. Mobitz I second degree AV block in 4 (3.2%) p. 3 (2.4%) p had a pacemaker implanted: 2 for severe sinus dysfunction and 1 for AV block. High-density ventricular ectopy (>3000/d) was present in 7 (6%) p and ≥1 episode of non-sustained ventricular tachycardia was detected in 26 (21%) p. A parafibrillatory status was identified in 27 (21%) p with no AF >30 s. At 1-year follow up 4/22 (18%) of patients with parafibrillatory status and 3/59 (5%) without parafibrillatory status suffered a new stroke (p = 0.08).

CONCLUSIONS: AF and other potentially relevant arrhythmias are frequent after stroke and easily detectable with one-month non-invasive continuous ECG monitoring. Patients with a parafibrillatory status could benefit from longer monitoring time to detect AF.