

WILL SMARTPHONE APPLICATIONS REPLACE CARDIAC MONITORING IN THE DETECTION OF ATRIAL FIBRILLATION? A CASE REPORT

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Background

Atrial fibrillation (AF) is the most common heart rhythm disorder, affecting more than 40 million people worldwide. AF is a preventable cause of ischaemic stroke, but it is often undiagnosed and undertreated.

For this reason, it is important to identify early patients with AF in order to start anticoagulant therapy based on CHA2DS2VASc score. AF can be symptomatic or asymptomatic, therefore it can be difficult to detect. Holter monitoring is often insufficient. Nowadays electronic devices like smartphones and smartwatches can register an electrocardiographic trace and help to register the presence of AF. The utility of smartphone electrocardiogram (ECG) for the detection of AF after ischaemic stroke is under study.

Case report

We describe the case of a 56 years-old male with a body mass index (BMI) of 26.9 kg/m² and a medical history characterised by hypertension and hypercholesterolemia. His medication regimen consisted of olmesartan 20 mg and lovastatin 20 mg.

He wore an apple watch with the app to detect AF. One night he was awakened by the alarm of the watch indicating the presence of the arrhythmia. So he registered the trace (only one) and went to the emergency department to execute an ECG. In the hospital a complete 12 lead ECG was registered but sinus rhythm was present. Afterwards, a transthoracic echocardiogram and a long heart rhythm monitoring (7 days) were performed, showing the presence of a dilated left atrium and an hypertrophic left ventricle and rare premature ventricular and atrial ectopic beats and no AF. CHA2DS2VASc score was 1 so the patient did not start anticoagulant therapy. If the patient had had an higher score it would have been a clinical problem.

Conclusion

Screening using common smartphones significantly increased the detection rate of therapy-relevant atrial fibrillation. The definite diagnosis of AF needs a 12 leads ECG or a single lead ECG of at least 30 seconds: the registration of AF with a smart-watch is not sufficient.

Recent studies demonstrated that these electronic devices are quite accurate at recognising AF and technology is always improving, therefore it is probable that in short time we will have another tool to early diagnose AF.