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SHORT COMMUNICATION

# Subclinical Paroxystic Atrial Fibrillation after Stroke

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Stroke is a pathology with great social repercussion, since it is the second cause of mortality in the world and the first cause of dependency in adults [1].

According to the TOAST classification, stroke can be large-artery atherosclerosis, cardioembolic, small-artery occlusion (lacune), acute stroke of other determined etiology or stroke of undetermined etiology [2]. In approximately 25% of strokes, the etiology remains undetermined after a complete study, which rules out intracranial and extracranial vascular pathology, cardioembolic etiology by echocardiography, inpatient cardiac telemetry or 24 hours holter monitor, and other unusual etiologies depending on the clinical case. These strokes of undetermined etiology are called cryptogenic [3].

Atrial Fibrillation (AF) is the most frequent arrhythmia and affects up to 2% of the population [4]. It is one of the main causes of stroke and its incidence increases with age [5]. The presence of subclinical AF (not diagnosed by standard evaluation) is one of the main causes attributed to strokes of undetermined etiology. In fact, prolonged electrocardiographic monitoring has been observed to increase the detection of subclinical paroxysmal AF, which has important therapeutic consequences, since these patients would be indicated to receive anticoagulant treatment [6].

Demeestere, et al. [7] conducted a meta-analysis to estimate the yield of AF detection in patients with stroke due to small and large vessel disease and in stroke patients in whom stroke etiology was not defined, demonstrates that the performance of detection of AF with ambulatory cardiac monitoring of relatively short duration is 2% to 2.5% in patients with small and large vessel stroke. However, none of the studies performed cardiac monitoring longer than 7 days.

The Stroke of Known Cause and Underlying Atrial Fibrillation (STROKE-AF) trial studied the prevalence of subclinical AF in patients with stroke of non-cardioembolic etiology (small or large vessel disease) in whom detection of subclinical AF was not possible. Routinely performed by prolonged cardiac monitoring. Two population groups were compared in which the conventional study was carried out using an electrocardiogram and a short duration Holter monitor versus the implantation of an Insertable Cardiac Monitor (ICM) recording heart rhythm for 12 months.

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In the ICM cohort, subclinical AF was recorded in 12.1% *vs.* 1.8% of the conventional study [8].

Fontaine, et al. [9], associate AF as the most frequent etiological cause in patients requiring thrombectomy due to acute stroke and recommend an exhaustive study of subclinical AF in these patients.

The detection of AF is therefore of great importance, since it would involve a change in treatment for the secondary prevention of stroke, assessing the indication of long-term treatment with antiplatelet agents or anticoagulants, if the presence of AF of more than 30 second duration [3,10,11].

These patients, regardless of whether the presence of subclinical AF is related to the initial ischemic event, are potentially candidates for starting anticoagulant treatment, since they are patients with CHA2DS2-VASC, having a high risk of suffering a stroke due to the presence of FA [11].

Atherothrombotic stroke, small vessel cerebrovascular disease and AF share common cardiovascular risk factors such as age, hypertension, diabetes, coronary disease and smoking [11,12]. Due to this, in the studies in which prolonged cardiac monitoring has been performed has been shown that patients can present several potential causes of stroke [8,13,14], therefore, the value of expanding the study of subclinical AF is more related to recognizing the risk of stroke recurrence than to identifying the cause of the previous stroke [8].

Currently, there are multiple monitoring devices and strategies for the detection of subclinical AF that range from performing serial electrocardiograms, Insertable Devices (ICM), wearable holter, to the use of electrocardiographic monitoring patches, using monitoring times from weeks to years [15]. Clinical trials [16-19] performed to date have not shown sufficient scientific evidence to establish which would be the most efficient device and monitoring strategy. This is because these studies have not been powerful enough to draw definitive conclusions, since each study was conducted with a different device, comparison between them is difficult. However, they allow the identification of a series of biomarkers (supraventricular premature beats, left atrial enlargement [16], abnormal atrial strain [18,19], elevated NT-proBNP, TSH, age [17-21], image of cortical stroke or large vessel occlusion [22]) that can help us to identify with these risk factors the patients who would benefit the most from prolonged electrocardiographic monitoring.

The latest European guidelines recommend that all patients with stroke of undetermined etiology should undergo electrocardiographic monitoring for more than 48 hours, preferably by ICM, and patients should not be selected based on biomarkers due to the lack of current evidence, although investigation of these is recommended [23]. In routine clinical practice, the placement of an ICM in all patients with stroke of undetermined etiology is not cost-effective [24].

Currently, patients with stroke of known non-cardioembolic etiology do not usually undergo a prolonged electrocardiography monitoring study, although recent studies indicate that there may be a prevalence of subclinical AF in these patients of around 12% [8,23].

Definitely, the study of subclinical AF in patients who have suffered a stroke must be one more strategy within the study of patients of undetermined etiology. It is necessary to carry out more studies to find out how long and with which device it is most appropriate to perform the detection of subclinical AF. It is essential to continue investigating the study of this risk factor in the population with stroke of defined etiology [25]. This will allow the elaboration of different strategies in secondary prevention in order to optimize the management of these patients and thus reduce the incidence of this pathology.

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