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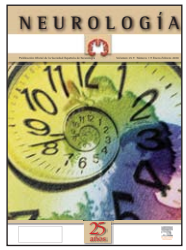

EDITORIAL

Advances in the Prevention of Cerebral Ischaemia Due to Atrial Fibrillation

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Abstract
Introduction: Stroke and atrial fibrillation (AF) are a real vascular epidemic, and the consequences are disastrous. The most common complication of AF is stroke.
Background: The correct aetiological diagnosis of stroke is essential for adequate prevention. The percentage of cryptogenic ischaemic strokes is far too high and the detection of AF needs to be improved. Cardio-embolic cerebral ischaemia due to AF is preventable, however due to medical inertia, the lack of compliance by the patient, and the problems with oral vitamin K antagonist anticoagulants, means that many patients with AF are at risk of suffering from a stroke.
Conclusions: The significant recent advances with drugs such as dronedarone and dabigatran, provide real hope for an improvement in its prevention, and for this reason neurologists must know about them.

PALABRAS CLAVE
Ictus;
Fibrilación auricular;
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Dronedarona;
Dabigatrán

Avances en la prevención de la isquemia cerebral por fibrilación auricular

Resumen
Introducción: El ictus y la fibrilación auricular (FA) son una verdadera epidemia vascular, y sus consecuencias son catastróficas. La complicación más común y devastadora de la FA es el ictus.
Desarrollo: El diagnóstico etiológico correcto del ictus es esencial para poder realizar una prevención adecuada. El porcentaje de ictus isquémicos criptogénicos es demasiado elevado, y es preciso mejorar la detección de la FA. La isquemia cerebral cardioembólica por FA es prevenible, pero la inercia médica, la falta de adherencia del paciente y los problemas de los anticoagulantes orales antagonistas de la vitamina K hacen que muchos pacientes con FA estén en riesgo de sufrir una isquemia cerebral.
Conclusiones: Los relevantes avances recientes con fármacos como la dronedarona y el dabigatrán abren una esperanza real para mejorar su prevención y pronto se reflejarán en las guías terapéuticas de prevención y, por lo tanto, los neurólogos debemos conocerlos.

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Vascular diseases constitute a veritable epidemic. Among these, stroke and atrial fibrillation (AF) are of great importance due to their human and social consequences. Both are preventable and treatable, and we should be grateful for the significant progress made during the last year in relation to the prevention of cardioembolic stroke due to AF.

Stroke remains the second leading cause of death in Spain, following cardiovascular disease, and the leading cause in women, according to 2007 data, with a total of 33,034 deaths.[1]

But perhaps the worst part is the number of patients who become dependent or demented after a stroke. Stroke is by far the leading cause of neurological hospitalisation and one of the main consumers of health care costs (4%),[2] both during the acute phase and afterwards. It is the leading cause of disability in adults (up to 53% of patients are left with varying degrees of dependency) and the second leading cause of dementia (30%-50% of patients present cognitive impairment).[3]

More than 117,000 patients were admitted in 2008 into Spanish public hospitals due to a stroke or transient ischemic attack (TIA) as principal diagnosis on discharge.[4]

Atrial fibrillation constitutes a true global epidemic. It is estimated that in Western Europe there are 4.5 million patients with AF, and that this figure could triple or quadruple for 2050.[5] The estimated prevalence is of 3.8% in the population over 60 years and 9% in those older than 80 years.[6] People older than 40 have a 25% (1/4) risk of suffering AF during the course of their lives.[7]

The Aetiology of Stroke: Importance of AF

After arterial hypertension (AHT), AF is the most important causal risk factor (RF), which represents 2/3 of first strokes, together with diabetes mellitus, physical inactivity and smoking.[8] It is the leading causal disease of cardioembolic stroke; the risk of stroke is independent of the baseline AF type (*de novo*, paroxysmal, persistent, permanent) or flutter.[9]

AF increases the risk of stroke by 4 to 5 times.[10] The average annual rate of ischemic stroke in patients with non-valvular AF is 5%, that is, 2 to 7 times higher than those who do not suffer it; this rate increases to over 23% in patients older than 80 years.[10]

It is an independent RF from ischemic stroke, with increased severity, increased recurrence and mortality, and greater dependency.[11-13] Following a cardioembolic stroke, mortality at 2 years is 45%[14] and 80% at 5 years, with a risk of recurrent stroke of 32%.[15]

Stroke associated with AF has a risk of dependency (bed-confinement) 2.2 times higher than for other factors,[16] and the risk of stroke persists even when the AF is asymptomatic.[17] Consequently, the most common and devastating complication of AF is stroke.

It is estimated that AF is responsible for 20% of all ischemic strokes.[18] The problem is that this figure is most likely an underestimation, because the aetiology of stroke (atherothrombotic, cardioembolic, small vessel stroke) is not properly investigated. The Spanish study DIAPRESIC[19] showed that 46% of patients with cerebral infarction did not have an aetiological diagnosis; only 25% underwent a transthoracic echocardiography study and only 4% a Holter study. Therefore, the various series report at least 30% of cryptogenic strokes[9] due to incomplete studies.[19]

A cardioembolic origin of cerebral ischemia may be suspected when it has a sudden clinical onset with maximum deficit from the start, when deficits have a cortical location (hemianopsia, neglect, aphasia) and in some cases, there is a decrease of consciousness or symptoms return very quickly. Neuroimaging (CT/MRI) is suspicious when several areas are affected simultaneously or sequentially, or when there is no haemorrhagic transformation. Neurosonology or cerebral angiography is suspicious when there is a mobile carotid thrombus, early recanalisation of an occluded intracranial vessel or when microemboli are observed in both middle cerebral arteries.[20]

However, suspicion is not sufficient and a cardioembolic source needs to be demonstrated, since the safety of oral anticoagulation therapy (clearly superior to antiplatelet therapy) carries the risk of haemorrhage and guidelines require a defined cardioembolic source.[21]

A thorough investigation of potential embolic sources with echocardiography and arrhythmia detection increases the percentage of patients with stroke caused by AF. For example, 24 h Holter monitoring can detect *de novo* AF in 9.4% of stroke patients.[22] Mobile telemetry (21 days) detects spells of asymptomatic AF in 23% of patients with cerebral stroke or cryptogenic TIA.[23] A study analysing the detection of AF and *de novo* atrial flutter shows different percentages (2.5% to 7.7%), because the studies analysed were not uniform, had different monitoring start times after stroke and used different types of monitoring and different definitions of AF.[24]

Of about 117,000 patients admitted in 2008 to Spanish public hospitals due to stroke or TIA,[4] about 35,000 were due to recurrent stroke or TIA, extrapolating from the incidence of the IBERICTUS[25] study.

The causes of recurrent stroke are medical inertia, patient adherence (compliance and persistence), leading to inadequate control of changing lifestyles and vascular risk factors, indication or failure of antithrombotic treatment, and incorrect aetiological diagnosis.

The etiological diagnosis is essential for correct secondary prevention; otherwise, it may cause recurrences.[21]

Strategies in the Treatment of Auricular Fibrillation and Stroke

The basic treatment scheme for AF is the prevention of heart embolism through antithrombotic therapy and symptomatic treatment through the control of rate and rhythm.[26]

The treatment of choice to reduce cardioembolic risk in the prevention of stroke or TIA associated with AF is oral anticoagulation (OAC), because it shows a significant benefit