

Clinical impact of new approaches to oral anticoagulation therapy in atrial fibrillation

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None

Objective: To describe the oral anticoagulation therapy received by patients with atrial fibrillation (AF) admitted in an Emergency Department Observation Unit (OU) and to determine the adjusting degree of this therapy to the indications included in the American Heart Association (AHA) protocols 2001 and 2006, and also the impact that it has in the adjusting percentage of the indication change that has existed during this period.

Method: Observational, prospective and no interventional trial. Patients admitted in an OU diagnosed of AF for a 3 years consecutive period were included. General clinical data were taken and from the most relevant AF and from the anticoagulant-antiplatelet treatment prescribed when the patients were discharged from the OU. The adjusting degree of this treatment was checked to both AHA protocols and the change percentage in the indications that has implied the indication change of these guides.

Results: 789 patients were included (average age 67 years, 52% women): 90 (12%) corresponding to chronic AF, 262 (33%) to first episodes and 436 (55%) to paroxysmic AF. From 185 patients with AF first episode discharged from de OU, 61 were prescribed with anticoagulant therapy. From these, 52 were discharged with controlled AF (100% well decoagulated, according to both guides) and 9 with sinus rate (100% well decoagulated according to the 2001 guides, but 55% according to the 2006 guides). From the 370 patients with paroxysmic AF discharged, 167 (45%) were decoagulated, although according to the 2001 guides should have been 54% (9% more than carried out in the OU) and according to the 2006 guides 28% (17% less than carried out in the OU).

Conclusion: Anticoagulant prescription in AF in an Emergency Department doesn't adjust exactly to recommended in AHA guides, although the criteria changes produced in those make possible a change from an undertreatment situation to another one of overtreatment. [Emergencias 2009;21:405-409]

Key words: Atrial fibrillation. Preventive therapy. Thromboembolic events. Oral anticoagulation. Risk-benefit ratio. American Heart Association Clinical Guidelines.

Introduction

For many years, atrial fibrillation (AF) was considered a benign arrhythmia requiring no more than the prescription of digitalin drugs. Recent epidemiological studies have shown it is not just an alteration of heartbeat, but a serious arrhythmia²⁴, with extremely high associated mortality and morbidity attributable in most cases to the development of heart failure (HF) and arterial thromboembolism (ATE) events^{3,4}.

The management of patients with AF has three fundamental objectives: cardiac frequency

control, cardiac rhythm restoration (intended to restore or maintain sinus rhythm) and prophylaxis for thromboembolic events, regardless of the strategy chosen previously. The risk of venous thrombosis must be considered in three situations: patients with valve pathology, without such pathology, and when cardioversion is considered. Patients with AF, whether paroxysmal, persistent or permanent, have a similar risk of ATE⁵. Between 70% and 90% of these arterial emboli occur in cerebral circulation, where they appear as ischemic stroke⁶⁻¹⁰. Maximum embolic risk is found in patients with AF and rheumatic

mitral stenosis, prosthetic valve or history of stroke.

Previously formed thrombi or thrombi due to mechanical atrial dysfunction occurring after atrial cardioversion (known as atrial stunning) are responsible for the thromboembolic events that this procedure can cause¹¹, with an incidence of 3-7%¹². The risk of embolism is reduced to 1% when anticoagulant treatment is administered during the three preceding weeks¹³.

Despite the existence of many methods to stratify the risk of acute cerebrovascular accident (ACVA), the risk/benefit assessment of anticoagulation remains controversial, especially in patients at intermediate risk. Antithrombotic therapy is now considered essential for the treatment of AF; this has led to the development of guidelines and specific programs that continuously evaluate treatment safety in our setting. We must take into account also that oral anticoagulant treatment is often initiated in the emergency department (ED) or ED observation units.

The latest clinical practice guidelines published in 2006 by the American Heart Association/American College of Cardiology/European Society of Cardiology (AHA/ACC/ESC)¹⁴ introduced significant changes in some variables for risk stratification when compared with those published in 2001. Today, in accordance with the new updates, age over 75 years and hypertension are considered intermediate risk factors rather than high, as they were before 2006 (Table 1).

Given the changes in recommendations on anticoagulation in patients with AF, we performed a comparative study between the 2001 and 2006 guidelines and our results, which was the main objective. We investigated whether applying the AHA 2006 guidelines would have resulted in fewer AF patients receiving anticoagulation, compared to those receiving that treatment under the 2001 guidelines.

Method

We conducted a descriptive, retrospective and non-interventional study based on the population of patients who attended the ED at University Clinical Hospital "Lozano Blesa" of HEALTH area III between 1 June 2003 and 30 May 2006. We included patients over 14 years of age with a diagnosis of atrial fibrillation and atrial flutter as the main cause of ED admission, subsequently admitted to the ED observation unit (EDOU) to monitor evolution and to continue clinical treatment.

Table 1. Risk stratification of acute cerebrovascular accident (ACVA). Clinical guidelines from the American Heart Association (AHA) 2001 versus 2006

	High Risk	Moderate Risk
2001	Mitral valve disease TIA/Ischemic Stroke AHT EF < 40% or systolic HF Age > 75 years	Age 65-70 years Diabetes Mellitus Cardiopathy
2006	TIA/Ischemic Stroke Mitral valve disease	Age > 75 years AHT EF < 40%

TIA: transient ischemic attack; EF: ejection fraction; HF: heart failure; AHT: arterial hypertension.

We excluded those cases without complete ED records and cases where arrhythmia was later ruled out as the primary cause for admission to the EDOU.

Once the study patients had been selected, we recorded epidemiological (gender and age) and clinical variables [medical history, type of AF (first episode, paroxysmal or chronic)] and the results of additional tests, the treatments administered and final destination of the patients. This information was obtained from general and ED medical records for each patient. These variables were included in a database created for this purpose by FileMaker Pro 5.0 software and consisted of 169 fields. This was subsequently analyzed and processed using SPSS 10.0.

The data collected for this study on general and anticoagulant therapy were: whether this was previously initiated, EDOU initiated, and whether the treatment was in accordance with the AHA guidelines of 2001. We also carried out a comparative study between the AHA protocols of 2001 and 2006, since between those dates significant changes had occurred in anticoagulant treatment indications (Table 1).

The study focused exclusively on the first paroxysmal episodes of FA, after ruling out the chronic cases. The two reasons for this were low percentage of chronic AF cases being admitted to the EDOU and the majority of these patients were already taking oral anticoagulation (OAC). Similarly, we only took into account ACO indications of patients admitted, and focused on inpatients.

Results

A total of 789 patients were admitted to our EDOU for atrial fibrillation; 377 were males (48%) and 412 women (52%), average age was

67 years. Comorbidity was as follows: hypertension (HBP) 49.3%, 17.9% hyperlipidemia, diabetes mellitus (DM) 12.0%, CHD 10.2%, chronic obstructive pulmonary disease (COPD) 7.3% (Table 2), signs or symptoms of heart failure (HF) 17.2%; cardiac decompensation in chest X-rays 7.7%.

Regarding types of AF studied, 262 (33.2%) were first episodes, 436 (55.2%) paroxysmal AF and 90 (11.4%) chronic AF.

Regarding prophylactic treatment for thromboembolism in AF, 116 patients initiated treatment with oral anticoagulants (OAC) at discharge: 61 first episodes and 55 paroxysmal AF; and 61 patients received anti-platelet antiaggregation agents (AG): 34 first episodes and 27 paroxysmal AF (Table 3).

From the EDOU, 185 of the 262 patients with a first episode of AF (70.3%) were discharged, 61 of them with OAC at discharge (9 with sinus rhythm and 52 with AF had controlled ventricular rate). According to the AHA 2001 guidelines, the 9 patients discharged with sinus rhythm were correctly treated, whereas if the 2006 protocol had been applied, 55.5% could have received anticoagulation or anti-platelet therapy (Figure 1).

Of the total patients diagnosed with paroxysmal AF, 43.3% were discharged from the EDOU (to be hospitalized or attended as outpatients by their health area cardiologist) with anticoagulant therapy: 70.4% were treated de novo while the remaining 28.6% had already initiated treatment before. According to the AHA 2001 criteria for oral anticoagulation, 60.8% of the patients should have received anticoagulation (17.4% more than the percentage who actually received

Table 3. Relationship between oral anticoagulant therapy (OAC) and antiaggregation (AG) and the different types of atrial fibrillation

	OAC n (%)	AG n (%)
First episode (n = 262)	69 (26.3%)	34 (13.0%)
Paroxysmal AF (n = 436)	60 (13.8%)	27 (6.2%)
Total (n = 698)	129 (18.5%)	61 (8.7%)

it). According to the new AHA criteria of 2006, 31.4% of the patients should have been discharged with oral anticoagulation (11.9% fewer than the percentage actually receiving it) (Figure 2).

Discussion

After performing data analysis and relevant comparisons, the resulting conclusions are most interesting, but they also give rise to some questions.

We were immediately struck by the considerable difference between the number of patients that correctly received anticoagulation depending on whether one applied the AHA clinical guidelines of 2001 or 2006. This concerns the type of arrhythmia treated (first episode or paroxysmal AF); on applying the 2006 criteria to our patients, more received anticoagulation than recommended, but according to the 2001 criteria, the opposite was found. From all this we deduce that following the new AHA guidelines, the number of patients requiring anticoagulants is reduced.

The objective of carrying out a study of this nature in our department was not only to disclose the information arising from it, but also to perform self-evaluation. According to the statistical analysis, our conclusion is that our results have improved regarding the implementation of the AHA protocol of 2006 compared with that of 2001, but we have not yet achieved a perfect match with recommended anticoagulant therapy.

Finally, as mentioned at the beginning of this discussion, perhaps it is more interesting to dwell on certain issues that arise from this study. Why were the guidelines changed for anticoagulant treatment in AF patients after just five years? Were the results of applying the previous protocol so bad?

A careful review of the AHA document does not offer any detailed explanation for this change. In addition, the changes introduced in the latest guidelines have not provided answers

Table 2. Relation between comorbidity and different types of atrial fibrillation

	First episode (n = 263)	Paroxysmal AF (n = 436)	Total (n = 789)
AHT	158 (60.07%)	259 (59.40%)	417
Hyperlipidemia	51 (19.39%)	111 (25.45%)	162
DM	38 (14.44%)	82 (18.80%)	120
Ischemic cardiopathy	28 (10.654%)	54 (12.38%)	82
COPD	27 (10.26%)	49 (11.23%)	76
Valve disease	18 (6.84%)	70 (16.05%)	88
Thyroid disease	11 (4.18%)	49 (11.23%)	60
Alcoholism	9 (3.42%)	20 (4.58%)	29
Smoking	33 (12.54%)	39 (8.94%)	72
Previous ACVA	15 (5.70%)	20 (4.58%)	35
Obesity	26 (9.88%)	34 (7.79%)	60
Dilated cardiomyopathy	3 (1.14%)	6 (1.37%)	9
Hypertrophic cardiomyopathy	2 (0.76%)	3 (0.68%)	5

AHT: Hypertension, DM: Diabetes Mellitus, COPD: Chronic Obstructive Pulmonary Disease; ACVA: Arterial cerebrovascular accident.

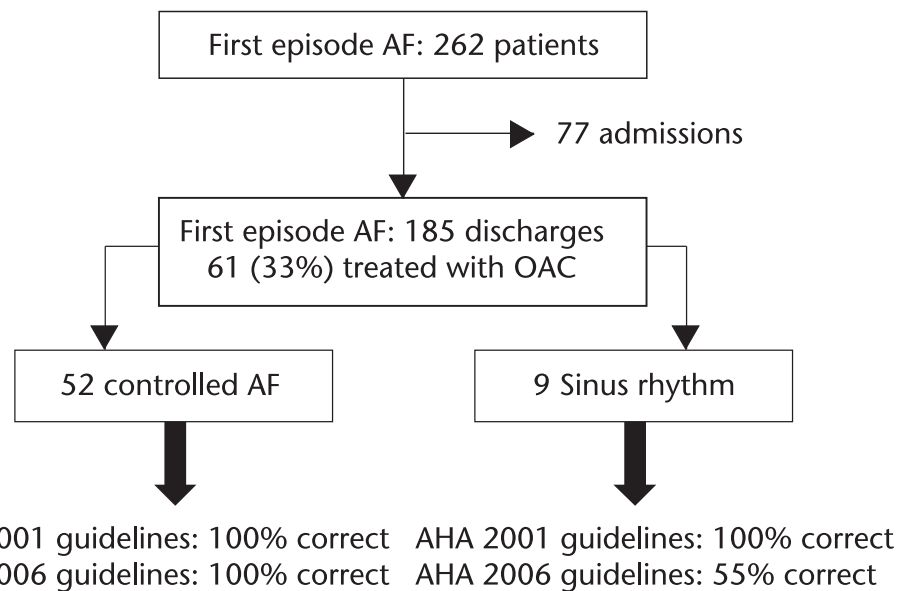


Figure 1. Comparison of implementing the 2001 and 2006 American Heart Association (AHA) guidelines on oral anticoagulant therapy (OAC) for first episode atrial fibrillation (AF).

to one of the most difficult questions, since they leave it up to the physician to decide whether to use anticoagulation or antiaggregation in moderate-risk patients who constitute the majority. In other words, for the group of AF patients most consulting the ED there is still no specific indication on prophylactic treatment against thromboembolic events, and the attending physician is left to make a subjective decision. We must therefore await future changes to clear up this

point once and for all.

In addition to the numerous doubts we may have about the subject, there is one that should concern us more than any other: with these recent changes, is morbidity and mortality in our patients going to improve? Are we doing well in our approach to FA? Unfortunately, it is still too early to draw conclusions and future studies are needed to resolve these questions.

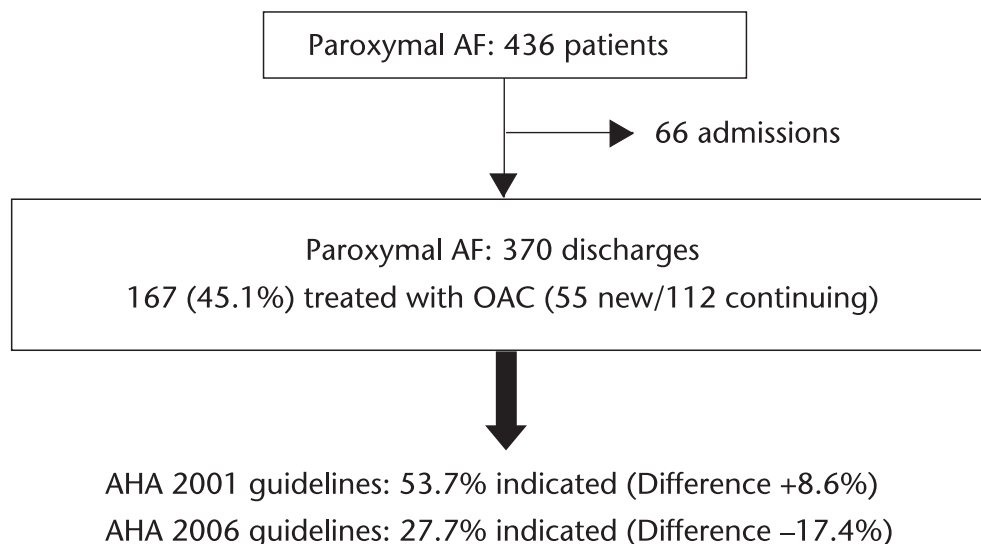


Figure 2. Comparison of implementing the 2001 and 2006 American Heart Association (AHA) guidelines on oral anticoagulant therapy (OAC) for paroxysmal atrial fibrillation (AF).

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Impacto clínico de las nuevas estrategias en anticoagulación oral para la fibrilación auricular

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Objetivo: Describir el tratamiento anticoagulante recibido por los pacientes con fibrilación auricular (FA) ingresados en un área de observación (AO) de un servicio de urgencias hospitalario (SUH) así como el grado de adecuación del mismo a las indicaciones de los protocolos de la *American Heart Association* (AHA) de 2001 y 2006 y el impacto que tiene en los porcentajes de adecuación el cambio de indicación que ha existido durante este periodo.

Método: Estudio observacional, prospectivo y sin intervención. Se incluyeron pacientes ingresados en el AO con el diagnóstico principal de FA durante un período de 3 años consecutivos. Se recogieron los datos clínicos generales y de la FA más relevantes y el tratamiento anticoagulante-antiagregante prescrito al alta del AO. Se comprobó el grado de adecuación de dicho tratamiento a ambos protocolos de la AHA y el porcentaje de cambios en las indicaciones que ha supuesto el cambio de indicación de las guías.

Resultados: Se incluyeron 789 pacientes (edad media 67 años, 52% mujeres): 90 (12%) correspondieron a FA crónica, 262 (33%) a primeros episodios y 436 (55%) a FA paroxística. De los 185 pacientes con primer episodio de FA dados de alta del AO, 61 de ellos lo fueron con tratamiento anticoagulante. De éstos, 52 fueron dados de alta con FA controlada (100% bien descoagulados según ambas guías) y 9 en ritmo sinusal (100% bien descoagulados según las guías de 2001, pero 55% según las guías de 2006). De los 370 pacientes con FA paroxística dados de alta, fueron descoagulados 167 (el 45%) cuando según las guías de 2001 debieran haberlo sido el 54% (un 9% más de lo realizado en el AO) y según las de 2006 un 28% (un 17% menos de lo realizado en el AO).

Conclusión: La prescripción de anticoagulantes en la FA en urgencias no se ajusta estrictamente a lo recomendado en las guías de la AHA, si bien los cambios en los criterios que se producen en las mismas hacen que se haya pasado de una situación de infratratamiento a una de sobretreatmento. [*Emergencias* 2009;21:405-409]

Palabras clave: Fibrilación auricular. Profilaxis. Eventos trombo-embólicos. Anticoagulación oral. Riesgo/beneficio. Guías clínicas AHA.