

ORIGINAL

Thromboembolic risk in atrial fibrillation

Riesgo tromboembolico en la fibrilacion auricular

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ABSTRACT

Introduction: atrial fibrillation (AF) is characterized by disorganized, rapid and irregular atrial activation, with loss of atrial contraction and an irregular ventricular rate.

Objective: determine the thromboembolic risk in patients with atrial fibrillation.

Method: an observational, descriptive and cross-sectional investigation was carried out on patients treated with atrial fibrillation at the “Abel Santamaría Cuadrado” General Teaching Hospital, in the period January 2020 to January 2021. The study universe consisted of 93 patients diagnosed with said disease in the study period, of which 57 patients were selected through simple random sampling to make up the analyzed sample.

Results: a predominance of the male sex was observed (56,1 %), while the most represented age group was between 76 and 85 years of age (45,6 %), moderate risk is the most frequent among patients with 59,6 % and 35,1 % at serious risk of thromboembolism, the most frequent symptom is palpitations present in 53 cases (92,9 %), followed by respiratory difficulty (71,9 %), a high comorbidity is present, with arterial hypertension predominating in 47 cases (82,5 %), followed by heart disease present in 63,1 % of patients.

Conclusions: AF is more common in elderly men, with HTN manifesting as the main associated disease and palpitations as the main symptom, reaching a moderate risk of thromboembolism in most cases.

Keywords: Cardiac Arrhythmia; Atrial Fibrillation; Thromboembolic Risk; Heart Disease.

RESUMEN

Introducción: la fibrilación auricular(FA) se caracteriza por activación auricular desorganizada, rápida e irregular, con pérdida de la contracción auricular y con una frecuencia ventricular irregular.

Objetivo: determinar el riesgo tromboembólico en pacientes con fibrilación auricular.

Método: se realizó una investigación observacional, descriptiva y transversal en pacientes atendidos con fibrilación auricular en el Hospital General Docente “Abel Santamaría Cuadrado”, en el periodo enero del 2020 a enero del 2021. El universo del estudio estuvo constituido 93 pacientes diagnosticados con dicha enfermedad en el periodo de estudio, de los cuales se seleccionó por medio de un muestreo simple aleatorio 57 pacientes que conformaron la muestra analizada.

Resultados: se apreció un predominio del sexo masculino (56,1 %), mientras que el grupo etario más representado fue el comprendido entre los 76 y 85 años de edad (45.6 %), el riesgo moderado es el más frecuente entre los pacientes con un 59,6 % y un 35,1 % en riesgo grave de tromboembolismo, el síntoma más frecuente son las palpitaciones presente en 53 casos (92,9 %), seguido por la dificultad respiratoria (71,9 %), se presenta una elevada comorbilidad predominando la hipertensión arterial con 47 casos (82,5 %), seguida por las cardiopatías presentes en el 63,1 % de los pacientes.

Conclusiones: la FA es más frecuente en hombres de avanzada edad, manifestándose la HTA como principal enfermedad asociada y las palpitaciones como el principal síntoma, alcanzando en la mayoría de los casos un riesgo moderado de tromboembolismo.

Palabras clave: Arritmia Cardiaca; Fibrilación Auricular; Riesgo Tromboembólico; Enfermedad Cardiaca.

INTRODUCTION

Atrial fibrillation (AF) is characterized by disorganized, rapid and irregular atrial activation, with loss of atrial contraction and an irregular ventricular rate that is determined by the conduction of the atrioventricular node.⁽¹⁾

Atrial fibrillation occurs due to anatomical, electrical and mechanical alterations that cause endocardial damage. This damage causes areas of electrical disconnection; therefore, re-entry waves are generated, leading to electrophysiological and biochemical modifications that induce the loss of organized atrial electrical activity. Its detection is based on physical, electrocardiographic and echocardiographic examination. The identification of risk factors and the management of modifiable risk factors are a necessity and a strategy for its treatment.⁽²⁾

Atrial fibrillation is the most prevalent sustained supraventricular arrhythmia and affects approximately 1 to 2 % of the population. It constitutes a serious public health problem due to its impact on patient survival and quality of life, which significantly increases healthcare costs. In addition, its complications are associated with permanent disability, more extended hospital stays and greater absenteeism from work.⁽³⁾

Overall, AF increases the risk of stroke by up to five times, although this depends on different clinical characteristics, such as age and the presence of other comorbidities. Approximately 20-30 % of all ischemic strokes and 10 % of cryptogenic strokes have AF as the leading cause. Therefore, adequate stroke prevention in patients with AF is essential.⁽¹⁾

AF is associated with structural heart disease in 70-80 % of cases.⁽²⁾ The most frequent causes are ischemic heart disease and arterial hypertension with left ventricular hypertrophy because these two pathologies are the first and second cause, respectively, of diastolic dysfunction; these pathologies (alone or associated) are present in more than 50 % of cases. During the last twenty years, atrial fibrillation has increased and consequently, so have hospitalizations for this cause, probably due to the ageing of the population.⁽⁴⁾

It is also the most frequent arrhythmia with clinical repercussions and the one that generates the most significant number of emergency department visits, as well as most days of hospitalization. It, therefore, represents an enormous burden for public health care, generating high direct and indirect health care costs.⁽⁴⁾ It is associated with a deterioration in functional class, increased morbidity (especially stroke, with AF being its aetiology in up to 30 %, and heart failure), and increased mortality.⁽³⁾

There are factors independently associated with the development of this arrhythmia, such as age, sex, ischemic heart disease, arterial hypertension, heart failure, rheumatic valve disease, diabetes mellitus, obesity, and sleep apnea.⁽⁵⁾ Among these, heart failure is present in 30 % of patients and can be a cause or consequence of atrial fibrillation; likewise, ischemic heart disease is present in 30 % of cases. The mode of onset of atrial fibrillation is heterogeneous; it occurs in the presence or absence of detectable cardiac disease or related symptoms. Several classifications have been proposed, and in this regard, the terms used are many and include several forms: first diagnosis, paroxysmal, persistent, long-lasting persistent and permanent.⁽⁶⁾ It is more frequent in people older than 50 years.

It is more frequent in people over 60 years of age and exceeds 10 % in those over 80 years of age. It is estimated that its worldwide prevalence will increase to double in the next 20 years due to the generalized ageing of the population, especially in rapidly developing countries such as Brazil, China, India and Indonesia.⁽⁷⁾

To make a correct diagnostic evaluation of patients with AF, we must include a complete medical history, evaluation of concomitant conditions, AF pattern, risk of cerebrovascular accident (CVA) and symptoms related to AF, thromboembolism and left ventricular (LV) dysfunction.⁽⁸⁾ In Cuba, as well as in Pinar del Rio, it continues to be an essential cause of consultation, so it is necessary to characterize these patients in order to design strategies that contribute to improving the quality of care and the results derived from the management of the disease.

Therefore, the objective of this article is to characterize atrial fibrillation and its level of thromboembolic risk.

METHODS

Cross-sectional and descriptive research was carried out in patients treated with AF in the General Teaching Hospital "Abel Santamaría Cuadrado" in the period January 2020 to January 2021.

The universe of the study consisted of 93 patients diagnosed with this disease in the study period, from

which 57 patients were selected by simple random sampling to form the sample analyzed.

The following variables were studied: age, sex, thromboembolic risk according to the CHA2DS2-VASc scale, most frequent symptoms and comorbidities.

The CHA2DS2-VASc scale estimates the risk of a patient with atrial fibrillation or atrial flutter of suffering a thromboembolic event, which uses a series of parameters that include heart failure or LVEF less than 40 %, arterial hypertension, patient age, diabetes mellitus, stroke, peripheral embolism or ITA, peripheral, coronary or aortic vascular disease and female sex, which only counts if there is another risk factor. Each of these parameters has a score that together makes it possible to determine whether there is a low, moderate or high risk of thromboembolism.

For the collection of information, a review of the clinical history of each patient was carried out. The data obtained were deposited in a database. Subsequently, using the statistical program SPSS, version 21, the information was processed. The descriptive procedure was carried out by means of absolute frequency measures and percentages.

The ethical principles for research on human beings were complied with, such as respect for persons or autonomy, beneficence and non-maleficence; the ethical norms established in the international convention held in Helsinki were complied with, as well as the ethical norms existing in our country.

RESULTS

Table 1. Characterization according to sex and age of patients with atrial fibrillation in the General Teaching Hospital "Abel Santamaría Cuadrado" from January 2020 to January 2021

Age group in years	Women	%	Men	%	Total	%
20-60	3	5,3	4	7	7	12,3
61-75	4	7	5	8,8	9	15,8
76-85	11	19,3	15	26,3	26	45,6
86 or more	7	12,3	8	14	15	26,3
Totals	25	43,9	32	56,1	57	100

Source: Medical Records

Table 1 shows a predominance of the male sex (56,1 %). The most represented age group was between 76 and 85 years of age (45,6 %).

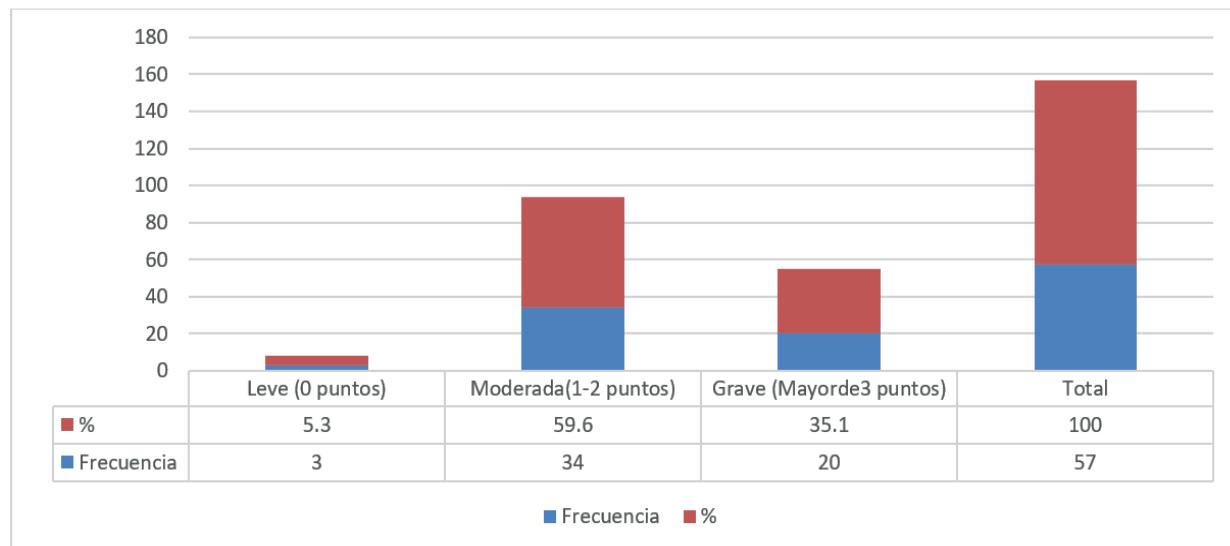


Figure 1. Risk of thromboembolism according to the CHA2DS2-VASc scale
Source: Medical Records

Figure 1 shows that moderate risk is the most frequent among patients with 59,6 % and 35,1 % at serious risk of thromboembolism.

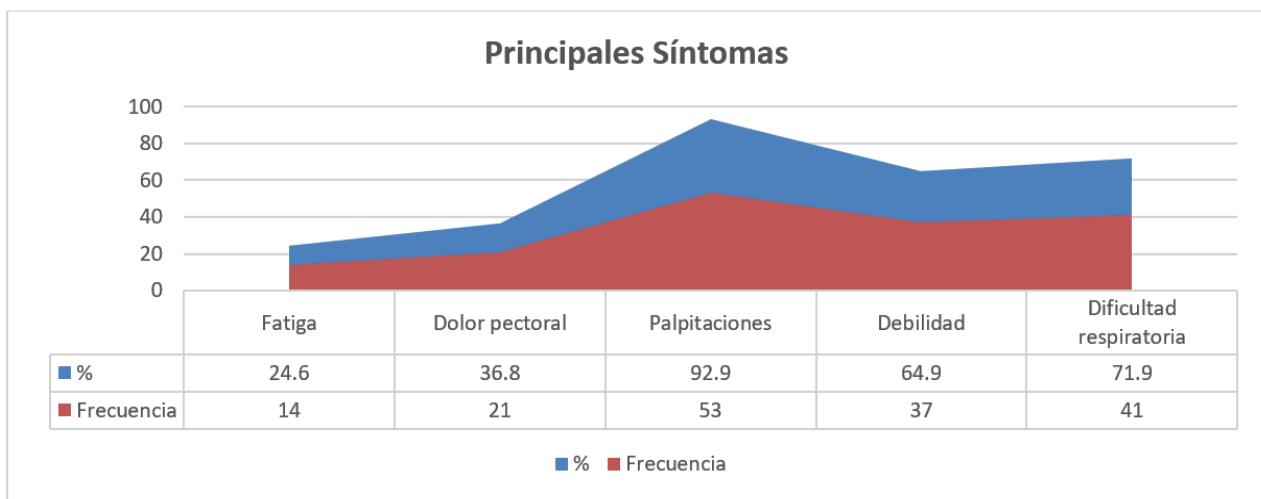


Figure 2. Most frequent symptoms associated with atrial fibrillation

Source: Clinical Histories

Figure 2 shows that the most frequent symptom is palpitations (92,9 %), followed by shortness of breath (71,9 %).

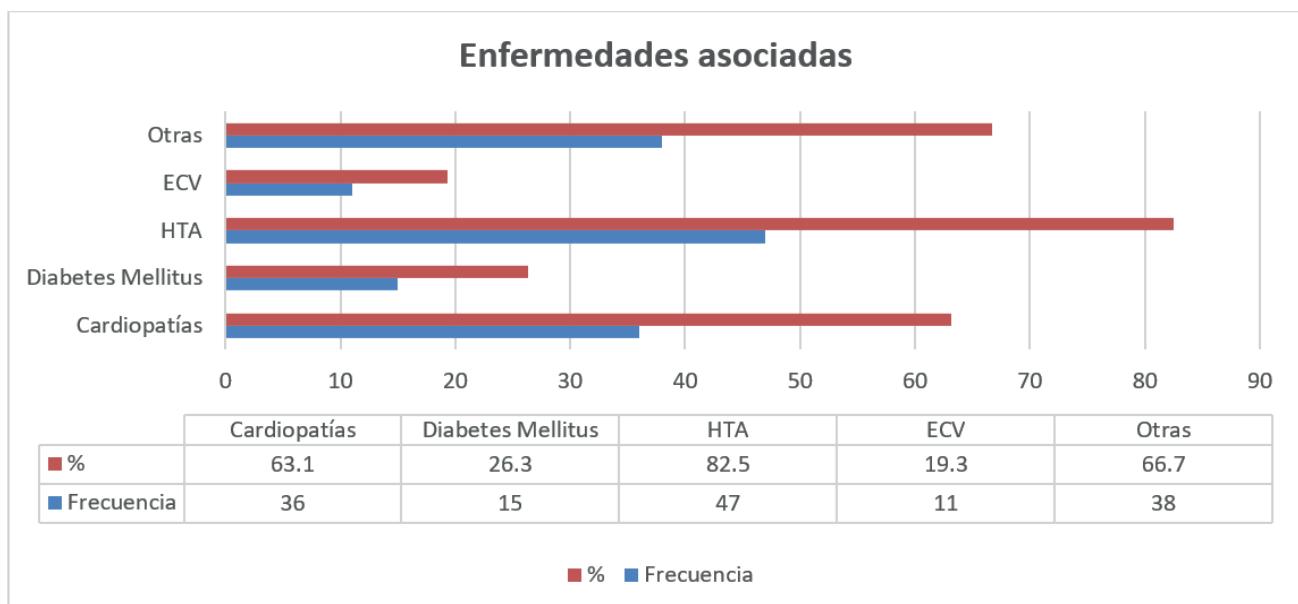


Figure 3. Comorbidities in patients with AF

Source: Clinical Histories

Figure 3 shows high comorbidity, with a predominance of arterial hypertension in 82,5 % of the sample, followed by heart disease in 63,1 % of the patients.

DISCUSSION

Atrial fibrillation is the most common arrhythmia in the world, affecting 33 million people, representing 0,5 % of the world population, with a growing incidence.⁽⁹⁾ The incidence according to age groups is 0,5 % in patients between 55 and 64 years, 1,5 % for those between 65 and 74 years, 3,5 % for those between 75 and 84 years and 6,5 % for the range of 85 to 94 years.⁽⁶⁾

Ramirez-Prieto et al.⁽³⁾ state that atrial fibrillation (AF) is a persistent arrhythmia in routine clinical practice. Recent data show that its prevalence in adults is around 2-4 %, although a significant increase is expected in the coming years, mainly due to the ageing of the population. The prevalence of AF increases markedly with age. It is estimated that at 55 years of age, one in three individuals will develop AF in their lifetime. Ramirez-Prieto et al.⁽³⁾ reported in their study that the mean age was 66 years, and 55 % were women, data that fit the results of the present study, although a predominance of the male sex was shown. Patients with atrial fibrillation are

frequent in hospitalization services. They represent an elderly population with a median age of close to 70 years and prolonged lengths of stay.

Mantilla-Villabona LY *et al.*⁽⁷⁾ announce that one in four middle-aged adults will present atrial fibrillation during their lifetime. This condition has a prevalence ranging from < 0,5 % in adults younger than 50 years to 15 % in those older than 80 years. The worldwide incidence has increased over the years; for the year 2010, it was 77,5 and 59,5 per 100 000 person-years in men and women, respectively. Likewise, it occurs more frequently in men than in women, with a ratio of 1,2:1; the latter data is consistent with the results of the study, where there was a predominance of men in the study. It is suggested that more than 6 % of men and more than 4 % of women are markedly diagnosed with atrial fibrillation in men after 50 years of age and in women after 60 years of age.⁽¹⁰⁾

Factors associated with thromboembolism in patients have been found to be age >75 years, male sex, tobacco use, HT, diabetes, presence of aortic and carotid atheromas, suboptimal INR, and poor adherence to treatment.⁽¹¹⁾

Azcuy Ruiz M *et al.*⁽¹¹⁾ stated that the prevalence of AF was 0,4-1 % of the general population over 40 years of age but that it increased with age and reached 8 % of those over 80 years of age. However, with the increase in population age and its consequent comorbidities, it has been suggested that there is a significant number of patients as yet unidentified. The estimated prevalence is low in women: 373 per 100 000, while in men, it is about 596 per 100 000. These results argue that the reason for the increase in the prevalence of AF is the progressive ageing of the population since the incidence of atrial fibrillation is increasing exponentially, reaching up to 30,4 per 1 000 persons per year in women and 32,9 per 1 000 persons/year in men between the ages of 85-89 years.⁽⁵⁾

Several authors state that the main symptoms include palpitations, choking sensation, chest pain, fatigue, dizziness, etc. In general, atrial fibrillation renders the patient unable to perform the simple tasks of daily life. Throughout the disease, the patient may experience symptomatic and asymptomatic periods, as, over time, the palpitations may even disappear. This is important because it is possible to be in danger without feeling any discomfort.^(2,4,7)

Occasionally, a patient is found to have atrial fibrillation because he or she suddenly suffers cerebral ischemia (transient or permanent), whose clinical manifestations (difficulty in mobilizing half of the body or in speaking or both) could disappear within 24 hours or remain permanent (or even lead to death).⁽¹²⁾ Atrial fibrillation is the most frequent arrhythmia as age advances, with a negative impact on the quality of life of patients who suffer from it due to the complications that arise.⁽¹³⁾

Ramírez-Prieto G *et al.*⁽³⁾ state that in the sample, the patients had a high number of comorbidities, which is consistent with other registries. This undoubtedly not only adds difficulties in the management of these patients but, as the recent AF guidelines of the European Society of Cardiology point out, adequate treatment of comorbidities is essential to improve their prognosis and reduce the burden of AF. The present study shows that the principal associated disease in the patients was arterial hypertension followed by cardiopathies. These results coincide with those reported by García-Peña ÁA *et al.*⁽⁸⁾, which show that 84,92 % of the study had a history of arterial hypertension; this figure highlights that arterial hypertension is one of the conditions that significantly increase the risk of atrial fibrillation. In contrast, the concomitant presence of both diseases increases fatal cardiovascular outcomes such as cerebrovascular disease and systemic embolism.

For Cadavid-Zuluaga V *et al.*⁽⁹⁾, the most frequent comorbidity in the group of hospitalized patients was arterial hypertension (30,13 %), followed by diabetes mellitus, which was present in 9,11 %, and chronic kidney disease, which was present in 8,54 %. These data coincide with the article in question with arterial hypertension as the main comorbidity. When these findings are compared with descriptions that include patients from South America, it can be seen that in those of the present investigation, the frequency of hypertension (30,13 % vs 65 %), coronary disease (19,86 % vs 24 %) and diabetes mellitus (9,11 % vs 18 %) is lower.⁽⁹⁾ Arterial hypertension is the most critical comorbidity in the world, with an estimated risk OR 1,7 (95 % CI: 1,4-2,2) and a risk factor for the development of atrial fibrillation.⁽¹¹⁾

Uncontrolled elevated blood pressure increases the risk of CVD and bleeding complications and may lead to recurrent AF. Therefore, reasonable blood pressure control should be part of the comprehensive management of patients with AF.⁽⁴⁾ This disease has increased in recent years due to its leading causes: hypertension, age and heart failure, and is a consequence of significant strokes.⁽¹⁴⁾

In this context, cardiovascular diseases, including atrial fibrillation (AF), an old and frequent arrhythmia, have become one of the most current problems in medical services, which should be taken into account in the training of the specialists in General Comprehensive Medicine.⁽¹⁵⁾

CONCLUSIONS

AF is more frequent in older men, manifesting HT as the central associated disease and palpitations as the primary symptom, reaching, in most cases, a moderate risk of thromboembolism.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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