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Prevalence and clinical-therapeutic profile of atrial fibrillation in private cardiology offices in northeast Mexico

Prevalencia y perfil clínico-terapéutico de la fibrilación auricular en consultorios de cardiología privados del noreste de México

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Atrial fibrillation, atrial fibrillation ambulatory prevalence, oral anticoagulant, new oral anticoagulant, vitamin k antagonist, mineralocorticoid receptor antagonist, angiotensin receptor blockers.

Palabras clave:
Fibrilación auricular, prevalencia ambulatoria de fibrilación auricular, anticoagulante oral, nuevos anticoagulantes orales, antagonistas de la vitamina K, antagonistas de los receptores de mineralocorticoides, antagonistas de los receptores de angiotensina II.

ABSTRACT

Introduction: The prevalence of atrial fibrillation (AF) in Mexico is unknown. **Objectives:** To document AF prevalence and a clinical-therapeutic profile. **Methods:** Cross-sectional study in three private cardiology offices in Northeast Mexico; in 337 patients from 8,999 clinical records, AF was documented. **Results:** AF prevalence was 3.74%, permanent 56.0%, paroxistic 28.4%, persistent 15.7%; non valvular atrial fibrillation (NVAF) 94.06%. Age 74 ± 12.89 years, women 52.22%, hypertension, 74.18%, smoking, 36.79%, alcoholism 35.01% and type 2 diabetes, 30.56%. The CHA_2DS_2-VASc ≥ 2 group vs 0-1, received more anticoagulant (OAC) (31.88 vs 8.33%) and new oral anticoagulant (NOAC) (53.31 vs 13.33%) $p < 0.01$ for both. In ages 60-75, the CHA_2DS_2-VASc ≥ 2 group vs 0-1, received more OAC (34.89 vs 6.25%) $p = 0.0004$, and NOAC (54.16 vs 0%) $p < 0.01$. The CHADS group ≥ 2 vs 0-1, used more OAC (33.6 vs 18.8%) and NOAC (55.17 vs 34.11%) $p < 0.01$ for both and vitamin K antagonist (VKA) (12.06 vs 3.5%) $p = 0.004$. The CHA_2DS_2-VASc group ≥ 2 vs 0-1, had more women than men (95.03% versus 85.9%), received more diuretics (57.49 vs 13.33), mineralocorticoid receptor antagonist (MRA) (27.52 vs 0%) and angiotensin receptor blockers (ARB) (55.40 vs 16.66%) $p < 0.01$ for all. **Conclusion:** In our patients, AF is characterized by having a clinical profile of high cardiovascular risk, alcoholism, senility and predominance of women, with a prevalence (3.74%) similar to that of other western countries.

RESUMEN

Introducción: *La prevalencia de fibrilación auricular (FA) en México es desconocida.* ***Objetivos:*** *Documentar la prevalencia de FA y su perfil clínico-terapéutico.* ***Métodos:*** *Estudio transversal, en tres consultorios privados de cardiología; en 337 de 8,999 expedientes clínicos, la FA fue documentada.* ***Resultados:*** *Prevalencia de FA, 3.74%; permanente 56.0%, paroxística 28.4%, persistente 15.7%. FANV 94.06%. Edad, 74 ± 12.89 años, mujeres 52.22%, hipertensión, 74.18%, tabaquismo, 36.79%, alcoholismo 35.01%, diabetes tipo 2, 30.56%. El grupo CHA_2DS_2-VASc ≥ 2, comparado al 0-1, recibió más anticoagulación oral ACO (31.88 vs 8.333%) y nuevos anticoagulantes orales (NAO) (53.31 vs 13.33%) $p < 0.01$ para ambos. En pacientes de 60-75 años, se utilizaron más ACO en el grupo CHA_2DS_2-VASc ≥ 2 respecto al 0-1 (34.89 vs 6.25%) $p = 0.0004$ y NOA (54.16 vs 0%) $p < 0.01$. El grupo CHADS ≥ 2 comparado al 0-1, utilizó más ACO (33.6 vs 18.8%) NAO (55.17 vs 34.11%) $p < 0.01$ para ambos y antagonistas de la vitamina K (AVK) (12.06 vs 3.5%) $p = 0.004$. El grupo CHA_2DS_2-VASc ≥ 2 vs 0-1 tuvo más mujeres que hombres (95.03 vs 85.9%), recibió más diuréticos (57.49 vs 13.33%), antagonistas de los receptores de mineralocorticoides (ARM) (27.52 vs 0%) y bloqueadores de los receptores de angiotensina 2 (BRA 2) (55.40 vs 16.66%) $p < 0.01$ para todos.* ***Conclusión:*** *En nuestros pacientes la FA se caracteriza por tener un perfil de alto riesgo cardiovascular, alcoholismo, senilidad y predominio de mujeres, con una prevalencia (3.74%) similar a la de otros países occidentales.*

INTRODUCTION

With the increase in the life expectancy of the population, in the last 20 years there has also been a notable increase in the diagnosis of atrial fibrillation (AF). This arrhythmia, the most frequent in cardiological practice, is of special importance because it increases the risk of dementia, heart failure (HF) and embolic cerebrovascular disease (ECVD).[1] In addition to causing a deterioration in the quality of life, it increases hospital mortality and health care costs.

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The prevalence of AF in western countries is 1.9 to 3.0% in the general population, predominates in men and increases in frequency of onset with advancing age, in both sexes.[2]

The evidence about the prevalence and consequences of AF, comes from studies conducted in Europe and North America, whose data contrast with those provided by studies conducted in African-American and Indo-Asian populations, observing significant differences between these ethnic groups and the population white, as reported in the Indo-Asian population of the United Kingdom, with a very low prevalence of AF of 0.6%.[3,4] We do not know if these ethnic epidemiological differences also occur in Hispanic patients, since the epidemiology of AF is scarce in Latin America and Mexico. The results of the CARMEN AF study (in process)[5] will surely expand this information.

On the other hand, given the known difficulties in achieving optimal oral with vitamin K antagonists (VKA), a new oral anticoagulants (NOAC), of simple dosage and predictable pharmacokinetics appeared a decade ago, observing a progressive increases in their prescription and actually are currently the first-line oral anticoagulant (OAC) in the cardiological guidelines, with similar efficacy or higher to VKA in the prevention of ECVD, in patients with non-valvular atrial fibrillation (NVAF).[6] Despite this, some experts have pointed out that these OAC are still underutilized, considering suboptimal percentages of utilization less than 70% observed in countries like Mexico, Germany, United Kingdom, Canada and even in the health system of France, with 66.3%.[7]

The present work reviews the experience in the care of Mexican patients with AF, from a group of private cardiologists in Northeast Mexico, seeking to document their clinical-therapeutic profile, with special focus on the frequency of use of OAC.

Objectives: Primary objective: to document the prevalence of AF in Mexican patients treated in private cardiology offices in Northeast Mexico. Secondary objective: to establish a clinical-therapeutic profile.

MATERIAL AND METHODS

Cross-sectional and observational study of patients treated during the last 5 years in 3 private cardiology offices. Two of the offices were located in the State of Nuevo León (one in the city of Monterrey and another in San Nicolás de los Garza) and the other in the city of Tampico, Tamaulipas. From 8,999 clinical records, 337 were diagnosed with AF. Inclusion criteria: both sexes, any age and etiology, NVAF and valve (VAF), regardless of their duration. Exclusion criteria: undocumented AF. Qualitative and quantitative variables of interest were obtained, such as main clinical history, etiologies, left ventricular ejection fraction (LVEF) and pharmacotherapy. The CHADS and CHA_2DS_2-VASc scales were used to calculate embolic risk. The paroxysmal AF was identified by its sudden onset and spontaneous end, within 7 days of initiation. The persistent form was defined as one in wich the episode last more than 7 days. This includes cases that could stop spontaneously and those that end with pharmacologicalor electrical cardioversion. The permanent AF was defined as one that is decided not to revert to sinus rhythm.

Statistic analysis: Descriptive statistics. Continuous variables expressed as mean ± standard deviation; categorical variables as percentages. For the association of 2 categorical variables, T of proportions was used. Statistical analyzes were performed using the SPSS software. The tentative level of significance was 0.05.

RESULTS

We document a prevalence of AF of 3.74% in patients from the Mexican Northeast. The predominant type of this arrhythmia was the NVAF n = 317. VAF occurred in only 20 patients. The predominant form was permanent AF, followed by paroxysmal and persistent. *Table 1* displays the main demographic variables of these patients. These were senile subjects (age of 74.97 ± 12.89 years) with 52% of women, with high prevalence of cardiovascular risk factors such as hypertension, smoking, diabetes mellitus 2 and alcoholism. The etiologies most associated with this arrhythmia were hypertensive heart disease (46.29%), ischemic heart disease (27.29%), sinus node disease (7.12%), rheumatic heart disease n (4.74%) and dilated cardiomyopathy (4.45%). Some patients presented more than one etiological association

Table 1: Demography and backgrounds in 337 patients with atrial fibrillation.

	n (%)
Age in years, media ± SD	74.97 ± 12.89
Sex, % M/H	52.22 / 47.77
Smoking	124 (36.79)
Alcoholism	118 (35.01)
Drugs	2 (0.59)
Type 2 diabetes	103 (30.56)
Systemic hypertension	250 (74.18)
CKD	32 (9.49)
CPOD	38 (11.27)
Hyperthyroidism	5 (1.48)
Hypothyroidism	42 (12.46)
Dyslipidemia	79 (23.44)
Prior myocardial infarction	31 (9.19)
Prior TIA	16 (4.74)
Stroke/thromboembolism	36 (10.68)
Prior coronary stent	16 (4.74)
Prior pacemaker	22 (6.52)
CABG	8 (2.37)
Associated etiology	
CAD	92 (27.29)
Hypertensive cardiopathy	156 (46.29)
Sinus node disease	24 (7.12)
Mitral prolapse	7 (2.07)
Hypertrophic cardiomyopathy	4 (1.18)
Dilated cardiomyopathy	15 (4.45)
Restrictive cardiomyopathy	2 (0.59)
Rheumatic cardiomyopathy	16 (4.74)
Others	64 (18.99)
AF type	
Valvular (VAF)	20 (5.93)
No valvular (NVAF)	317 (94.06)
Permanent	189 (56.00)
Persistent	53 (15.70)
Paroxistic	96 (28.40)
Score CHA_2DS_2-VASc, media ± SD	3.80 ± 1.70
Score CHADS, media ± SD	2.29 ± 1.28
LVEF, media ± SD	50.08 ± 15.96
Left atrial thrombus	0.01%
Treatment	
Digoxin	90 (26.70)
Propafenone	15 (4.45)
Type III antiarrhythmic	130 (38.57)
ARB	169 (50.14)
ACEI	35 (10.38)
BB	170 (50.44)
Diuretic	184 (54.59)

Continuation of Table 1: Demography and backgrounds in 337 patients with atrial fibrillation.

	n (%)
MRA	89 (26.40)
OAC in AF	207 (61.42)
VKA	48 (14.24)
NOAC	159 (47.18)
OAC in NVAF	187 (59.00)
Nitrates	58 (17.21)
Antiplatelet therapy	101 (29.97)
Calcium channel blockers	98 (29.08)

Quantitative values are expressed in numbers and percentages.
F = female, M = male, CKD = chronic kidney disease, CPOD = chronic pulmonary obstructive disease, CABG = coronary artery bypass grafting, CAD = coronary artery disease, LVEF = left ventricle ejection fraction, ARB = angiotensin receptor blocker, ACEI = angiotensin converting enzyme inhibitors, BB = beta blockers, MRA = mineralocorticoid receptor antagonist, OAC = oral anticoagulant, VKA = vitamin K anticoagulant, NOAC = new oral anticoagulant, AF = atrial fibrillation, NVAF = non valvular atrial fibrillation.

and in 64 (18.99%) it was not possible to determine any, because they were isolated episodes of arrhythmia, solitary AF or arrhythmia related to drug, alcohol or idiopathic cause. The CHA_2DS_2-VASc score was 3.80 ± 1.70 standard deviation (SD), that of CHADS was 2.29 ± 1.28 (SD) and the LVEF of 50.08 ± 15.96% (SD).

Of 317 patients with NVAF, 59.0%, n = 187, were anticoagulated (85% NOAC and 15% VKA). In *Table 2*, the relationship between pharmacological prescription and score on embolic risk scales was analyzed. The CHA_2DS_2-VASc ≥ 2 group, compared to 0-1, received higher OAC and NOAC prescriptions, although not VKA. The CHADS group ≥ 2 with respect to 0-1, had very similar results. With other drugs, in the CHA_2DS_2-VASc ≥ 2 group versus 0-1, the prescriptions were higher in diuretics, mineralocorticoid receptor antagonist (MRA), angiotensin receptor blockers (ARB), calcium channel blockers (CCB) and nitrates. Also, in the CHADS group ≥ 2, prescriptions were higher, the diuretics, MRA, ARB, CCB and nitrates. CHADS group 0-1 only the prescription of antiplatelet agents (AP) was greater than in the group ≥ 2.

By dividing patients by age groups and analyzing the OAC prescription in relation to the score on the scales, it can be seen in *Table 3* that, in patients < 60 years of age, the use of OAC was higher in the CHA_2DS_2-VASc group ≥ 2 with respect to the group 0-1, although not individually for VKA or NOAC. Using the CHADS scale in this age group, the prescription of OAC, VKA or NOAC did not show differences between group ≥ 2 and group 0-1. In the next segment of 60-75 years of age, using the CHA_2DS_2-VASc scale there was a higher prescription of OAC and NOAC in the group ≥ 2 compared to 0-1. With the CHADS scale, more OAC and VKA were used in the group ≥ 2 with respect to 0-1. In the age group ≥ 76 years, the CHADS group ≥ 2 exceeded the group 0-1 in OAC, VKA and NOAC prescriptions.

The *Table 4*, shows the relationship of the rest of medications with the risk scales by age groups, in < 60 years of age CHA_2DS_2-VASc ≥ 2 group exceeded the 0-1 group, in use of diuretics, MRA, digoxin, and ARB. With the CHADS scale, a higher prescription was observed in the group ≥ 2 with respect to 0-1 in diuretics, MRA and ARB. Antiplatelet therapy (AP) and Propafenone reached higher prescription within the CHA_2DS_2-VASc 0-1 group compared to ≥ 2. Propafenone was also used more in the CHADS group 0-1. In patients aged 60-75, the CHA_2DS_2-VASc ≥ 2 group also exceeded the 0-1 group in the use of diuretics, MRA and ARB. Using the CHADS scale, the group ≥ 2 compared to 0-1, had a greater use of beta blockers (BB), diuretics,

MRA and ARB. In CHA_2DS_2-VASc 0-1, AP were used more frequently in this age group, than in the group ≥ 2. In the age group > 76 years, a higher prescription was also observed in the CHADS group ≥ 2 with respect to 0-1, in diuretics, MRA, angiotensin converting enzyme inhibitors (ACEI), ARB, CCB and propafenone. In this age group CHA_2DS_2-VASc ≥ 76 years was not evaluated, due to insufficient simple, 0-1 n = 2, ≥ 2 n = 181.

Table 5 shows the relationship between the score obtained on the CHA_2DS_2-VASc and CHADS scales with the proportion of female or male patients in each category. In the CHA_2DS_2-VASc ≥ 2 group, a greater number of women than men can be observed (153, 95.03% versus 134, 85.9%) p < 0.01. In contrast the group 0-1 presented a greater proportion of men than women (14.1 vs 4.97%) p = 0.0363.

DISCUSSION

The results of the present study show in this large group of Mexican patients in Northeast Mexico a AF prevalence comparable to that of other western countries. This statistical data can be considered relevant, since as far as we know, there was no information on the AF prevalence in our country. As we know, in Mexico 60.7% of tachyarrhythmias are caused by AF, considering this arrhythmia as a determining factor that conditions high percentages of ECVD, a pathology that according to the Brain Attack Surveillance project in Durango presents prevalences of 18 cases per 1,000 inhabitants over 65 years of age, considering it a true public health problem.[8] Knowledge of the epidemilogical reality in our setting is relevant, since a large number of studies in epidemiology and treatment for this arrhythmia have frequently underrepresented some population groups. Our work evaluated Hispanic patients, an ethnic group with little representation in large population registries and in randomized clinical trials (RCTs). As can be seen when analyzing together the data of the GARFIELD-AF and ORBIT-AF I and II records[9] (n = 73,004 patients) 69.24% of the subjects were Caucasian, 6.0% Hispanic, 1.79% Black

Table 2: Relationship between pharmacological prescriptions and risk category in the CHA_2DS_2-VASc and CHADS scales.

	CHA_2DS_2-VASc			CHADS		
	0-1	≥ 2		0-1	≥ 2	
Drugs	n = 30	n = 287	p	n = 85	n = 232	p
OAC	8.33	31.88	< 0.01	18.82	33.62	< 0.01
VKA	3.33	10.45	0.0665	3.52	12.06	0.004
NOAC	13.33	53.31	< 0.01	34.11	55.17	< 0.01
BB	50	49.82	0.985	43.52	52.15	0.175
Type 3 antiarrhythmic	33.33	40.06	0.469	45.88	37.06	0.164
Diuretics	13.33	57.49	< 0.01	22.35	64.65	< 0.01
MRA	0	27.52	< 0.01	9.41	30.60	< 0.01
Antiplatelet	46.66	30.31	0.099	41.17	28.48	0.039
Propafenone	16.66	3.13	0.063	5.88	3.87	0.485
Digoxin	16.66	26.48	0.192	20	27.58	0.151
ACEI	13.33	10.45	0.663	9.41	11.20	0.637
ARB	16.66	55.40	< 0.01	23.52	62.06	< 0.01
CCB	20	31.35	0.159	17.65	34.91	< 0.01
Nitrates	3.33	19.51	< 0.01	10.58	20.68	0.019

OAC = oral anticoagulant, VKA = vitamin K antagonist, NOAC = new oral anticoagulant, BB = beta blockers, MRA = mineralocorticoids receptor antagonist, ACEI = angiotensin converting enzyme inhibitors, ARB = angiotensin receptor blockers, CCB= calcium channel blockers.

Table 3: Relationship of anticoagulant prescription by age group and category CHA_2DS_2-VASc and CHADS.

	CHA_2DS_2-VASc			CHADS		
Anticoagulants	0-1	≥ 2	p	0-1	≥ 2	p
< 60 years	n = 44	n = 22		n = 48	n = 18	
OAC	9.09	36.36	< 0.01	12.5	33.33	0.106
VKA	0	27.27	0.081	4.16	22.22	0.266
NOAC	18.18	45.45	0.1462	20.83	44.44	0.249
60-75 years	n = 16	n = 192		n = 82	n = 128	
OAC	6.25	34.89	0.0004696	24.39	37.5	0.0425
VKA	12.5	15.62	0.816	4.87	21.87	< 0.01
NOAC	0	54.16	< 0.01	43.90	53.12	0.18
≥ 76 years	n = 4	n = 181		n = 20	n = 159	
OAC	25	30.11	Insufficient	15	32.07	0.0087
VKA	0	6.62	Sample	0	7.54	0.0004
NOAC	50	53.59		30	56.60	0.026

OAC = oral anticoagulants, VKA = vitamin k antagonist, NOAC = new oral anticoagulants.

and 0.38%, Asians. In a meta-analysis of 30 RCTs with NOACS in the context of NVAF, venous thromboembolism and acute coronary syndromes, Jackson et al.[10] evaluated reports of race and ethnicity in 184,414 patients. They found that 75.2% of the patients were Caucasian, 14.3% Asian, 3.9% Hispanic and only 2.0% Black. On the other hand, in the ARISTOTLE[11] study in which apixaban versus warfarin was compared in 18,201 patients with NVAF, 65% of the patients were Whites with only 19% and 16% of Latin and Asian origin, respectively, without reporting Black patients. This lack of scientific statistical information in Hispanic and other race patients is important, due to the well-known racial differences in AF epidemiology and in the response to certain medications, including Warfarin, which requires higher doses of the drug in black patients than in whites, but lower doses in Asians, to maintain an INR between 2.0 and 3.0. The validity of extrapolating the conclusions of the RCTs to racial minorities has not been demonstrated.[12] Our group, interested in filling this epidemiological informative gap in Hispanics, obtained the AF prevalence in Mexican patients from the Northeast of the country, region with the highest presence of cardiovascular diseases in Mexico and documented a high-risk clinical profile for cardiovascular outcomes in our patients, with high percentages of patients with hypertension, type 2 diabetes, CAD, alcoholism, women and elders, meritorious of frequent pharmacological prescriptions of OACS, ARB, diuretics, MRA and nitrates. Regarding the prescriptions of antiarrhythmic drugs in our patients, it is relevant that these were directed more towards control of heart rate than to control of heart rhythm, with use of type III antiarrhythmics being observed in 38.57%, propafenone in 4.45%, BB in 50.44% and digoxin in 26.70%. The REMEFA study (The Mexican Registry of Atrial Fibrillation)[13] compared the rate-control strategy vs the rhythm control strategy in 1,201 patients, reporting better control of arrhythmia and lower incidence of cerebrovascular disease in the rhythm control group. If we analyze the rate-control group of that study, we can observe higher prescriptions than in our study of digoxin (69%), type III antiarrhythmics (59.0%) and BB (56.0%). However, since this was a prospective study and comparative with 1-year follow-up, between 2 intentional treatment strategies for AF, it clearly differs from our cross-sectional work, which evaluated only the daily practice of 3 cardiologists, without comparative purposes,

Table 4: Relationship of drug therapy, age group and category in the CHA_2DS_2-VASc and CHADS scales.

Age group	CHA_2DS_2-VASc						CHADS					
	< 60 years			60-75 years			< 60 years			60-75 years			≥ 76 years		
Drugs/Category	0-1 n = 22	≥ 2 n = 11	p	0-1 n = 8	≥ 2 n = 96	p	0-1 n = 24	≥ 2 n = 9	p	0-1 n = 41	≥ 2 n = 64	p	0-1 n = 20	≥ 2 n = 159	p
BB	45.45	63.64	0.342	62.5	54.17	0.672	45.83	66.67	0.305	43.9	60.93	0.046	40	47.79	0.519
Type 3 antiarrhythmic	31.82	54.55	0.24	37.5	56.25	0.352	29.17	66.67	0.071	60.97	51.56	0.174	35	29.55	0.641
Diuretics	13.64	72.73	0.0019	12.5	45.83	0.034	20.83	66.67	0.029	29.26	53.12	< 0.01	10	69.18	< 0.01
MRA	0	72.73	0.00042	0	30.21	< 0.01	8.33	66.67	0.007	12.19	37.5	< 0.01	5	25.78	0.0014
Antiplatelet	36.36	9.09	0.059	75	27.08	0.022	33.33	11.11	0.149	39.02	26.56	0.097	55	30.18	0.049
Propafenone	18.18	0	0.042	12.5	2.083	0.434	16.67	0	0.042	2.439	3.125	0.417	0	4.4	0.007
Digoxin	13.64	54.55	0.033	25	19.79	0.765	20.83	44.44	0.249	14.63	23.44	0.129	30	28.3	0.879
ACEI	4.55	0	0.3287	37.5	11.46	0.201	4.17	0	0.327	17.07	10.94	0.196	0	11.94	< 0.01
ARB	18.18	72.73	0.0039	12.5	57.29	0.0083	20.83	77.78	0.004	36.58	65.62	< 0.01	0	59.74	< 0.01
CCB	18.18	18.18	0.999	25	33.33	0.638	16.67	22.22	0.743	26.82	35.93	0.164	0	35.22	< 0.01
Nitrates	0	9.09	0.3409	12.5	19.79	0.593	0	11.11	0.346	14.63	21.87	0.173	15	20.75	0.5193

BB = beta blockers, MRA = mineralocorticoids receptor antagonist, ACEI = angiotensin converting enzyme inhibitor, ARB = angiotensin receptor blockers, CCB = calcium channel blockers.

only informative, possibly reflecting a practice closer to reality, such as it can be inferred by the significantly lower digoxin prescriptions used in our study. With this information, one would think that there is little probability of finding substantial differences in the prevalence and characteristics of AF between the Mexican Hispanic population and the white population of the United States. However, larger studies, of the type of population records in AF in Mexico, are required to confirm this presumption.

Globally, probably the only study with multiracial population was the XANTUS LE,[14] which prospectively assessed the safety of the use of rivaroxaban (bleeding and adverse events) and all-cause mortality, in 2,064 patients, reporting low incidence of bleeding and similar results in the incidence of ECVD. However, 75.8% of the patients included in this study were Caucasian and 13.7% had no race information. On the other hand, the short duration of the study, of one year, becomes insufficient time to demostrate substantive differences between multiracial populations.

Another underrepresented group in most clinical trials of AF are women. In our study, the percentage of women was higher than that of men, reaching 52.22% of the sample. This characteristic makes a difference with the majority of RCTs, main references of the cardiological practice guidelines in the anticoagulation of patients with NVAF, in which the inclusion of women has been suboptimal, with only 30% in studies with VKA and 35% with NOACS. Distributions similar to ours in terms of gender are observed in «real world» records of NVAF in the United States, which included up to 55% of women.[15,16] The women evaluated in our work even had a significantly greater numerical presence in relation to men in the highest risk categories, CHA_2DS_2-VASc ≥ 2, clinical behavior that is also common in other countries, as it has been documented in Chinese women in the recent AF Registry of China.[17] Considering these data and that cardiovascular diseases are the main cause of female mortality, causing 1 in 3 deaths,[18] RCTs would have to enter an equal proportion of men and women. Greater inclusion is necessary, since women with NVAF generally have worse symptoms, worse qual-

Table 5: Relationship between sex and location on embolic risk scales.

Embolic risk scale	Men (n = 156) n (%)	Women (n = 161) n (%)	p
CHA_2DS_2-VASc 0-1	22 (14.1)	8 (4.97)	0.0363
CHA_2DS_2-VASc ≥ 2	134 (85.9)	153 (95.03)	< 0.01
CHADS 0-1	51 (32.7)	34 (21.12)	0.9999
CHADS ≥ 2	105 (67.3)	127 (78.88)	0.2705

ity of life and a greater risk of cardiovascular disease and death than men, but at the same time they benefit from greater reductions in thromboembolic risk than men, when they receive OACS.[19,20]

Finally, given that one of the most important aspects of AF is preventive therapy with OACS for ECVD, it is worrying that there is a perception in the world that this drugs are actually being underused, underpinning this view of the reports of some European nations, with really high percentages of OACS prescription in NVAF. There are, however, certain considerations that cannot be omitted. In a study conducted by Volterrani et al. in Italy, although 88% of the patients categorized in CHA_2DS_2-VASc ≥ 2, received OAC, also in the category CHA_2DS_2-VASc = 0, 59% of the patients received them, in obvious indication «off-label».[21] In Belgium, in the GARFIELD-AF study, the use of OAC in 1,713 patients, was the highest in Europe, with 80.1% of patients receiving this therapy, increasing its use up to 84.3% in CHA_2DS_2-VASc ≥ 2 patients. However, also in 58.7% of the low-risk CHA_2DS_2-VASc 0-1 patients, OACS were used, without a clear indication.[22] In our study, the percentage of OACS prescription in NVAF was 59%, a percentage close to that obtained in the follow-up cohort 2-year prospective of 17,162 patients, from the GARFIELD-AF registry, which reported 60.8%.[23] However, in the present work the participating cardiologists were not inclined to prescrib OACS to patients with NVAF located in category 0-1 of the CHA_2DS_2-VASc scale, receiving them only 8.33%. These patients located in low-risk categories, had a higher prescription of AP therapy as well as antiarrhythmic drugs such as propafenone. In subjects < 60 years, OACS did not have a differential prescription among patients with greater or lesser cardiovascular risk, a situation that was totally different in older age groups, even in senile subjects ≥ 76 years, in wich a preferential use of OACS was evident in high cardiovascular risk groups. It is likely that this high OACS prescription in some European countries are due to a combination of factors. The first would be that in the records of the health system of the United States and Europe, the OACS were prescribed by doctors of different specialities, such a family doctors, internists, geriatricians, neurologists and cardiologists, unlike Mexico, where practically the only one specialist who initates and monitors OAC therapy in NVAF is the cardiologist. This medical practice would lead these countries to artificially «inflate» their OACS prescriptions, when administered in patients without indication, category 0-1 of the risk scales. Another potencial cause is that in some of the AF Registries, many patients were admitted to studies during hospitalizations of heart disease, so the attending physician would be more likely to initate on OAC.

Limitations of the study

The findings of our study portray the reality of AF in the Northeast region of Mexico and although their data are valid, its usefulness should be considered limited to residents of that region, because of the socioeconomic and health care differences between the different regions of the country.

CONCLUSIONS

The prevalence obtained from AF (3.74%) is similar to that of other western countries. Non-valvular AF, the predominant type of AF, was mainly associated with hypertensive and ischemic heart disease. In our patients, AF is characterized by having a clinical profile of high cardiovascular risk, senility and predominance of women, with a prevalence (3.74%) similar to that of other western countries. Greater inclusion in RCTs of patients with this profile, is necessary.

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