

CHARACTERISTICS OF PATIENTS WITH ATRIAL FIBRILLATION AND HISTORY OF STROKE OR TRANSIENT ISCHEMIC ATTACK – SOME RESULTS FROM THE FACTS DATABASE

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ABSTRACT

Background and purpose. Atrial fibrillation (AF) is the most common arrhythmia in adult population and represents an independent risk factor for stroke with an annual risk for thromboembolic events for chronic fibrillation estimated at three to six percentage. The risk of stroke is five time more frequent in AF patients and the outcome of the ischemic stroke in AF patients is worse than other forms of ischemic stroke. There are few data regarding the specific management and outcome of the 200,000 estimated AF patients in Romania. The aim of the present study (part of the FACTS program) was to determine the characteristics of patients with AF/AFL and their management. In this paper we have analyzed the characteristics of the subgroup of patients with history of stroke or transient ischemic attack (TIA).

Methods and results. From March 2011 to April 2012 a total of 3700 patients from 27 sites, ambulatories or hospitals, were enrolled including regions all over the country. Of this cohort 374 patients had documented history of stroke or TIA. Hypertension, sedentary lifestyle, associated diseases (cardiovascular and non-cardiovascular) statistically correlate with history of stroke/TIA. CHADS2 and CHA2DS2Vasc scores had higher values for patients with stroke/TIA.

Conclusion. This database (part of the Romanian AF Registry) offers an insight into patient's characteristics with AF/AFL and stroke/TIA history and provides comprehensive data that will allow a range of evaluation at national level and contribute to better understand the management of AF/AFL in Romania. Next evaluation aims to analyze anticoagulant therapy in patients with AF and especially of those with stroke/TIA history.

Key words: atrial fibrillation, stroke, registry

INTRODUCTION

Atrial fibrillation (AF) is the most common arrhythmia in adult population and represents a independent risk factor for stroke with an annual risk for thromboembolic events for chronic fibrillation estimated at three to six percentage. (1,2) The risk of stroke is five time more frequent in AF patients and the outcome of the ischemic stroke in AF patients is worse than other forms of ischemic stroke (3). Aging of the population cause itself the rise in prevalence of AF but also the patients characteristics seem to

play an important role while geographical variation have implication on clinical outcome. (4,5)

Importance of FACTS-Database

The *FACTS Database* is an observational national cohort study which enrolled patients with AF or atrial flutter (AFL) history at the enrollment time or in the past year. The aim of this study is to determine the characteristics of patients with AF/AFL in Romania and the real-world management of patients with AF/AFL as well as to assess the degree of the management guidelines implementation.

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METHODS

FACTS Database – “Fibrilația Atrială – Conștientizare și strategie Terapeutică – Studiu populațional” – has enrolled patients with any type of atrial fibrillation or atrial flutter present at the time of enrollment or documented in the last 12 months. Recorded data included: date of birth, gender, cardiovascular risk factors, associated cardiovascular diseases, associated non-cardiovascular disease, weight, height, laboratory tests, echocardiography data, CHADS2 score, CHADSVASc score, HASBLED score and treatment options.

Univariate data analysis was made using MedCalc software version 11.5.1 (Acacialaan 22, B-8400 Ostend, Belgium) and SPSS software version 19.0.0 (SPSS Inc, Chicago, IL, USA). The data are presented in absolute value and percentage. Comparisons were made using Chi-squared (χ^2) test, p value < 0.05 was considered statistical significant.

RESULTS

In this paper we analyze the characteristics of the subgroup of patients with history of stroke or transient ischemic attack (TIA). There were enrolled a total of 3700 patients, characteristics are shown in Table 1. Age of the patients of the entire group, range from 28 years to 101 years with a mean age 70.03 ± 11.19 years (Figure 1) and the age of patients with history of stroke/TIA, range from 37 years to 95 years, mean age for men was 71.44 ± 9.8 years and for women was 72.02 ± 10.18 years with no statistical differences between the two groups. (Table 1)

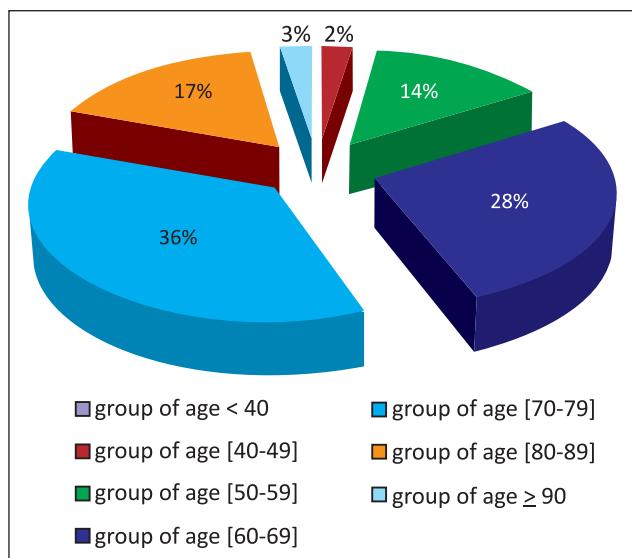


FIGURE 1. Age groups for patients in FACTS Database

TABLE 1. Patient characteristics

	Stroke/TIA+ (n = 374)	Stroke/TIA- (n = 3326)	P-value
Age	71.71 ± 9.988	69.84 ± 11.304	0.0022
Abdominal obesity	166 (10.9%)	1354 (89.1%)	<0.0001
Hypertension	348 (13.0%)	2337 (87.0%)	<0.0001
Grade I	15 (13.6%)	95 (86.4%)	<0.0001
Grade II	156 (11.6%)	1189 (88.4%)	<0.0001
Grade III	152 (14.1%)	925 (85.9%)	<0.0001
*not mentioned	121 (10.4%)	1047 (89.6%)	<0.0001
Sedentary lifestyle	198 (12.3%)	1410 (87.7%)	<0.0001
Dislipidemia	174 (11.0%)	1407 (89.0%)	<0.0001
Total cholesterol	131 (10.9%)	1072 (89.1%)	<0.0001
LDL-cholesterol	33 (8.7%)	345 (91.3%)	<0.0001
HDL cholesterol	71 (11.1%)	571 (88.9%)	<0.0001
Triglycerides	59 (10.2%)	518 (89.8%)	<0.0001
Diabetes	118 (12.4%)	832 (87.6%)	<0.0001
Smoking	99 (12.0%)	723 (88.0%)	<0.0001
Alcohol consumption	33 (8.8%)	343 (91.2%)	<0.0001
Associated diseases			
Cardiovascular associated diseases	425 (12.4%)	3016 (87.6%)	<0.0001
Coronary artery disease	206 (12.6%)	1434 (87.4%)	<0.0001
Myocardial infarction	75 (16.7%)	375 (83.3%)	<0.0001
Acute coronary syndrome	35 (10.4%)	302 (89.6%)	<0.0001
Angina pectoris	65 (9.9%)	594 (90.1%)	<0.0001
Silent ischemia	57 (14.0%)	350 (86.0%)	<0.0001
History CABG/PCI²	24 (13.6%)	152 (86.4%)	<0.0001
Heart failure	344 (12.5%)	2403 (87.5%)	<0.0001
NYHA** class I	5 (11.6%)	38 (88.4%)	<0.0001
NYHA class II	138 (11.8%)	1034 (88.2%)	<0.0001
NYHA class III	161 (13.2%)	1060 (86.8%)	<0.0001
NYHA class IV	36 (12.5%)	253 (87.5%)	<0.0001
*not mentioned	104 (10.7%)	871 (89.3%)	<0.0001
Valvulopathy	281 (11.8%)	2106 (88.2%)	<0.0001
Vlavular Prosthesis	30 (11.5%)	232 (88.5%)	<0.0001
Vlavular heart disease – mitral stenosis	43 (15.2%)	240 (84.8%)	<0.0001
Vlavular heart disease – aortic stenosis	41 (11.2%)	325 (88.8%)	<0.0001
Vlavular heart disease – mitral regurgitation	232 (11.5%)	1793 (88.5%)	<0.0001
Vlavular heart disease – aortic regurgitation	97 (13.7%)	611 (86.3%)	<0.0001
Dilated cardiomyopathy	92 (13.4%)	594 (86.6%)	<0.0001
Hypertrophic cardiomyopathy	46 (11.4%)	357 (88.6%)	<0.0001
Peripheral arterial disease	43 (22.2%)	151 (77.8%)	<0.0001
Sinus node disease	36 (18.5%)	159 (81.5%)	<0.0001
Non-cardiovascular associated diseases			
COPD ***	37 (9.0%)	374 (91.0%)	<0.0001
Hyperthyroidism	10 (11.9%)	74 (88.1%)	<0.0001
Hypothyroidism	12 (12.0%)	88 (88.0%)	<0.0001
Chronic kidney disease	89 (13.5%)	572 (86.5%)	<0.0001
Malignancy	14 (11.4%)	109 (88.6%)	<0.0001
Other	207 (11.1%)	1654 (88.9%)	<0.0001
CHADS2 Score	4.26 ± 0.866	2.06 ± 0.919	<0.0001
CHA2DS2VASc Score	5.55 ± 1.545	3.43 ± 1.534	<0.0001
Atrial fibrillation in the evaluation	243 (10.1%)	2165 (89.9%)	<0.0001
Atrial fibrillation in the past year	355 (10.2%)	3112 (89.8%)	<0.0001
Atrial flutter in the evaluation	14 (6.1%)	217 (93.9%)	<0.0001
Atrial flutter in the past year	22 (8.1%)	251 (91.9%)	<0.0001

*not mentioned – no grade/class was mentioned

**NYHA – New York Heart Association classification

***COPD – chronic obstructive pulmonary disease

¹ CABG – coronary artery bypass graft

² PCI – percutaneous coronary intervention

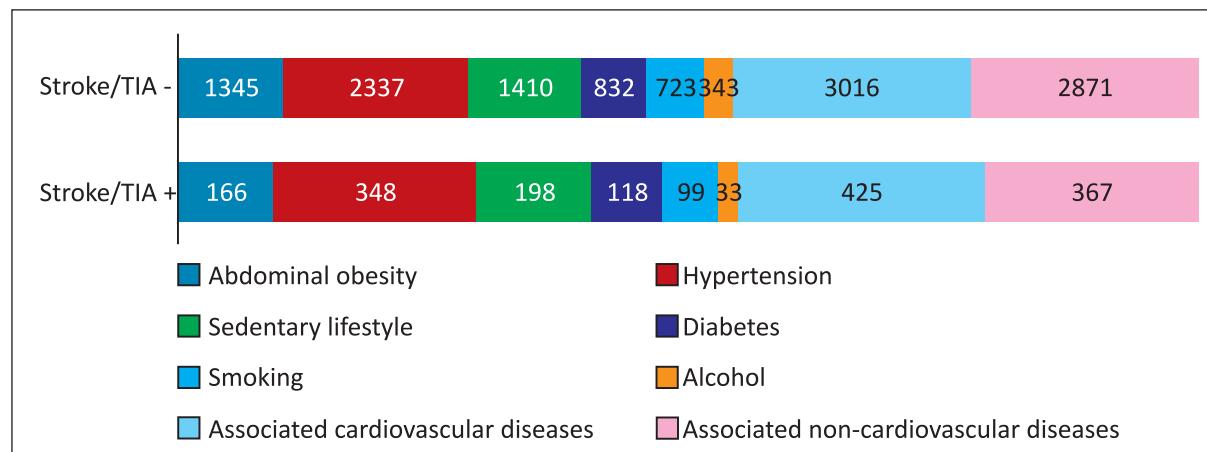


FIGURE 2. Patients characteristics: shows the number of patients with cardiovascular risk factors (abdominal obesity, sedentary lifestyle, hypertension, diabetes, smoking), associated cardiovascular and non-cardiovascular diseases the two groups (with or without stroke/TIA) from FACTS Database

As shown in Table 1 the number of patients with history of stroke/TIA was 374 and we found statistical differences between the group of patients with history of stroke/TIA and the rest of the patients. (Figure 2)

Both stroke and TIA were more frequent with permanent atrial fibrillation than with other forms of AF as shown in Table 2 and there were 16 patients with stroke or TIA in their first documented episode of atrial fibrillation. There was no significant statistical difference between sex groups in patients with AF/AFl regarding history of thromboembolic events (stroke, TIA or peripheral embolism). (Table 3) Smoker status for patients with stroke/TIA was present only in a small percentage (12%) from the total smokers (Table 1) and we found no statistical correlation between the smoking status and stroke/TIA; also there was no statistical correlation between sex, smoking status and stroke or TIA. (Table 4) Sedentary lifestyle was present in 43.45% patients from the total group and we found only a weak correlation between this lifestyle and stroke or TIA and only in men, p value for sedentary men was 0.034. (Table 4) From the group of patients with hypertension only 11.13% had history of stroke/TIA and we found that hypertension in AF patients was correlated with stroke/TIA both in men and women, p value for men with hypertension was 0.038 and for women with hypertension was 0.005. (Figure 3, Table4) We found no statistically significant correlation between diabetes or abdominal obesity or alcohol consumption and history of stroke/TIA. (Table 4) Associated diseases, cardiovascular (coronary artery disease, myocardial infarction, acute coronary syndrome, angina pectoris,

silent ischemia, history of coronary artery bypass graft (CABG) or percutaneous coronary intervention (PCI), heart failure, valvulopathy, dilated cardiomyopathy, hypertrophic cardiomyopathy, peripheral arterial disease, sinus node disease) and non-cardiovascular (chronic obstructive pulmonary disease, hyperthyroidism, hypothyroidism, chronic kidney disease, malignancy, other) seem to statistically correlate with history of stroke/TIA for the entire group and for men. (Table 4) Risk of stroke/TIA was assessed by CHADS2 and CHA2DS2VASc scores. Interestingly, there was a significant statistical difference between the type of atrial fibrillation and the risk scores, (Table 4) with higher scores observed in patients with permanent atrial fibrillation. (Figure 4, 5) For patients with stroke/TIA the mean CHADS2 score was 4.26 ± 0.86 with no difference between men and women (Figure 6). There is a statistically significant relationship ($pvalue = 0.026$) between sedentary lifestyle and CHADS2 score for men with stroke/TIA, but not for women ($pvalue = 0.095$). And also there is a statistically significant relationship ($p value = 0.027$) between obesity and CHADS2 score for men with stroke/TIA and a statistically significant relationship ($pvalue=0.039$) between obesity and CHADS2 score for women with stroke/TIA. We did not find anystatistical significant correlation between the values of CHA2DS2VASc score in the group of patients with stroke/TIA and those without history of stroke/TIA regardless of gender; mean score for men with stroke/TIA was 2.81, for women was 3.03 and for the entire group of patients with stroke/TIA was 2.91. (Figure 7)

TABLE 2. Thromboembolic events and type of AF

Thromboembolic events	First episode*	Paroxysmal*	Persistent*	Permanent*
Stroke	13 (3.9%)	53 (15.8%)	70 (20.9%)	199 (59.4%)
TIA	3 (4.5%)	9 (13.6%)	13 (19.7%)	41 (62.1%)
Peripheral embolism	-	6 (23.1%)	1 (3.8%)	19 (73.1%)

*refers to the type of atrial fibrillation: first episode, paroxysmal – AF that terminates spontaneously and generally lasts less than or equal to 7 days (usually, 24 h), persistent – recurrent or sustained AF that does not terminate spontaneously and usually lasts more than 7 days; termination with pharmacological therapy or electrical cardioversion does not change the designation, permanent – long-standing AF >1 year in which cardioversion has failed or has not been attempted

TABLE 3. History of thrombembolic events

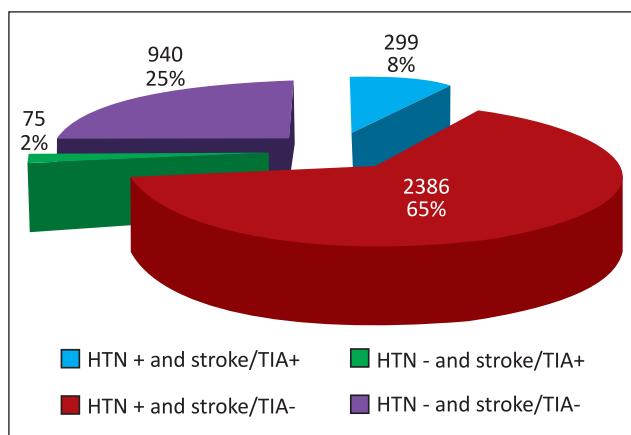
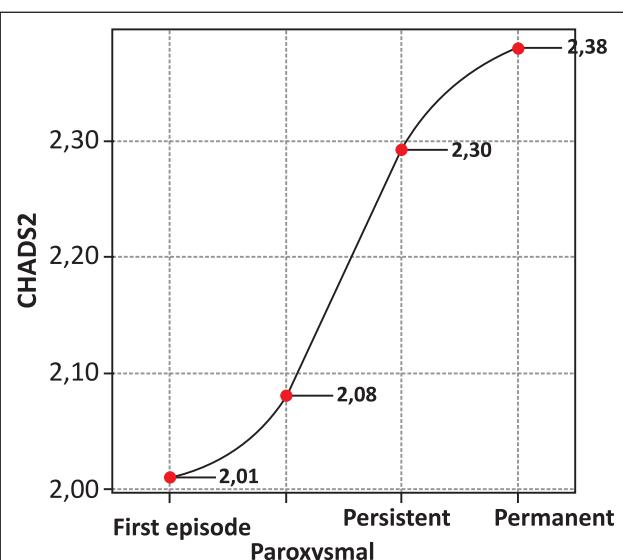
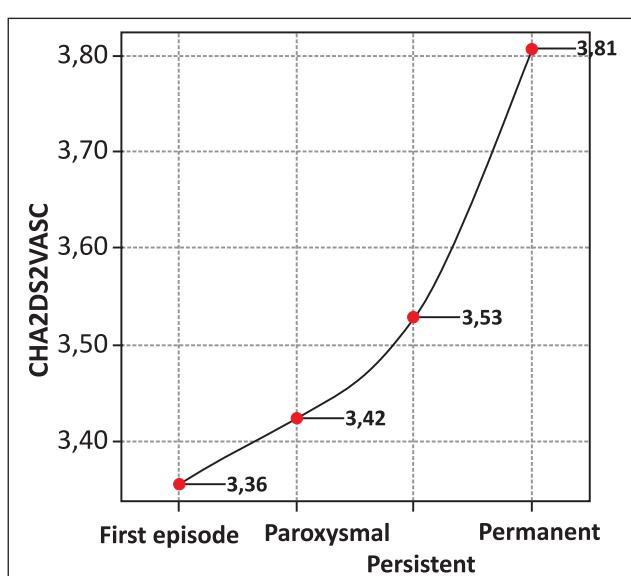
Thromboembolic events	Women	Men	P value
Stroke	151 (45.1%)	184 (54.9%)	0.0804
TIA	37 (56.1%)	29 (43.9%)	0.3889
Peripheral embolism	15 (57.7%)	11 (42.3%)	0.5563

TABLE 4. Comorbidities and stroke/TIA correlation (univariate analysis)

Stroke/TIA	Total		Women		Men	
	OR	P value	OR	P value	OR	P value
Smoke	1.087	0.519	0.627	0.211	1.096	0.550
Sedentary lifestyle	1.134	0.250	0.942	0.707	1.376	0.034
Hypertension	1.571	0.001	1.832	0.005	1.439	0.038
Diabetes	1.112	0.384	0.768	0.106	0.767	0.089
Abdominal obesity	0.878	0.238	0.797	0.171	0.946	0.717
Alcohol	0.781	0.207	0.924	0.868	0.679	0.078
Associated cardiovascular diseases*	1.648	0.052	1.140	0.687	2.590	0.025
Associated non-cardiovascular diseases*	1.458	0.002	1.367	0.074	1.535	0.013

*refers to coronary artery disease; myocardial infarction; acute coronary syndrome; angina pectoris; silent ischemia; history CABG/PCI; heart failure; valvulopathy; dilated cardiomyopathy; hypertrophic cardiomyopathy; peripheral arterial disease; sinus node disease

*refers to chronic obstructive pulmonary disease, hyperthyroidism, hypothyroidism, chronic kidney disease, malignancy, other

**FIGURE 3.** The association between hypertension (HTN) and stroke/TIA in patients from FACTS Database**FIGURE 4.** The relationship between CHADS2 score and type of AF in patients from FACTS Database**FIGURE 5.** The relationship between CHA2DS2VASC score and type of AF in patients from FACTS Database

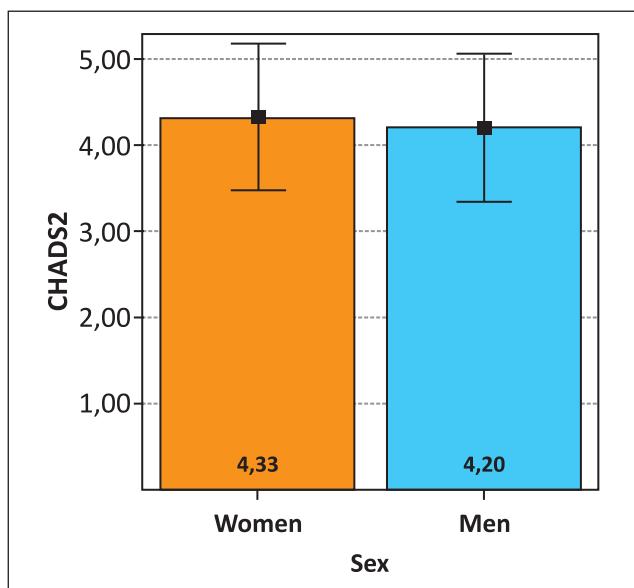


FIGURE 6. CHADS2 score and gender in patients with stroke/TIA from FACTS Database

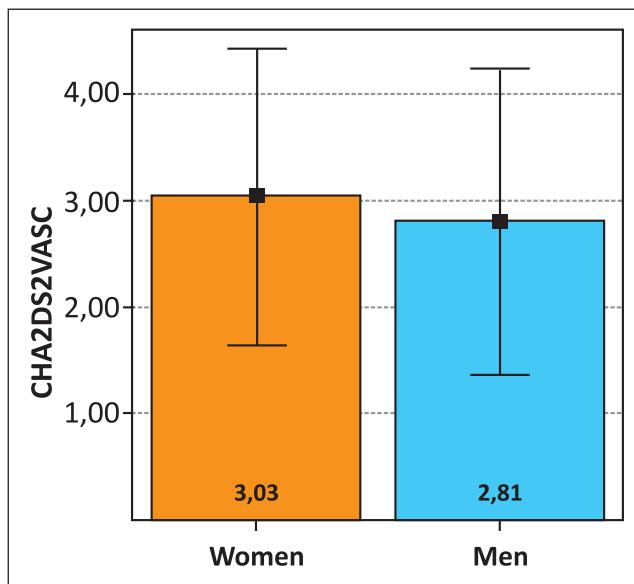


FIGURE 7. CHA2DS2VASc score and gender in patients with stroke/TIA from FACTS Database

CONCLUSION

The FACTS – Database is the first national pilot registry of AF patients. It provides valuable information about patients with AF/AFL in our country. We found that 10% of the patients enrolled in the registry had a history of stroke/TIA, emphasizing the need to improve the awareness about the arrhythmia and its consequences on neurologic outcome. There is a statistical relationship between hypertension, other cardiovascular and non-cardiovascular diseases and history of stroke/TIA. Also we have noticed a correlation between sedentary lifestyle or obesity and CHADS2 score in patients with AF/AFL.

The management characteristics specifically focusing on the anticoagulant therapy in patients with AF/AFL and stroke or TIA will be analysed in an ongoing paper.

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