

## CARDIAC ARRHYTHMIAS EPIDEMIOLOGY OF ATRIAL FIBRILLATION FROM A DEVELOPING COUNTRY Data from Lebanon AUBMC AF Registry

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Sabra M, Abi-Saleh B, Harbieh B, Khoury M, Refaat MM. Epidemiology of atrial fibrillation from a developing country: Data from Lebanon AUBMC AF Registry. J Med Liban 2019; 67 (1) : 10-14.

Sabra M, Abi-Saleh B, Harbieh B, Khoury M, Refaat MM. Épidémiologie de la fibrillation auriculaire dans un pays en voie de développement. Données du Centre médical de l'Université américaine de Beyrouth. J Med Liban 2019; 67 (1) : 10-14.

**ABSTRACT • Objectives:** In Lebanon, there are no updated data regarding the prevalence, incidence, and economic burden of atrial fibrillation population. We report our single center experience on the epidemiology of AF at the American University of Beirut Medical Center. **Methods:** We started the collection of data on patients with atrial fibrillation presenting at the American University of Beirut Medical Center [AUBMC] (Beirut, Lebanon) in 2015. **Results:** From 2015 to 2017, 103 patients with AF were included in the AUBMC AF Registry (57% men, 92% non-valvular etiology, 60% paroxysmal/25% persistent, 30% with coronary artery disease, 28% with diabetes, 72% with hypertension, 20% with congestive heart failure and 19% smokers). Our data showed that a large proportion of our patient population had a CHADS<sub>2</sub> and CHA<sub>2</sub>DS<sub>2</sub>-VASc scores greater than 2 and a significant proportion of patients with atrial fibrillation whose CHADS<sub>2</sub> and CHA<sub>2</sub>DS<sub>2</sub>-VaSc scores greater than 2 were not being treated with oral anticoagulation (OAC). Among patients on different OAC for stroke prevention, 32% are treated with vitamin K antagonist, 20% with dabigatran, 9% with apixaban, and around 39% with rivaroxaban. **Conclusion:** We describe our single center experience in developing an AF registry. There is a need for developing a national registry for patients with atrial fibrillation. This will help decision makers in assessing the needs of the population and intervening when necessary. Also, this could be helpful in improving AF research in Lebanon.

Keywords: atrial fibrillation; epidemiology; Lebanon

**RÉSUMÉ • Objectifs:** Au Liban, il n'existe pas de données actualisées concernant la prévalence, l'incidence et le fardeau économique de la population souffrant de fibrillation auriculaire (FA). Nous rapportons notre expérience sur l'épidémiologie de la FA au Centre médical de l'Université américaine de Beyrouth. **Méthodes:** Nous avons commencé la collecte de données de patients atteints de FA se présentant au Centre médical de l'Université américaine de Beyrouth [AUBMC] (Beyrouth, Liban) en 2015. **Résultats:** De 2015 à 2017, 103 patients AF ont été inclus dans le registre (hommes 57%; étiologie non valvulaire 92%; patients: paroxystiques 60%/25% persistants; maladie coronarienne 30%; diabétiques 28%; souffrant d'hypertension 72%; souffrant d'insuffisance cardiaque congestive 20%; fumeurs 19%). Nos données ont montré qu'une grande proportion de notre population de patients avaient des scores CHADS<sub>2</sub> et CHA<sub>2</sub>DS<sub>2</sub>-VASc > 2 et qu'une proportion significative de patients atteints de fibrillation auriculaire avec des scores CHADS<sub>2</sub> et CHA<sub>2</sub>DS<sub>2</sub>-VaSc > à 2 n'avaient pas été traités par anticoagulation orale. Parmi les patients traités par une anticoagulation orale pour accident vasculaire cérébral (AVC), 32% sont traités par antagoniste de la vitamine K, 20% par le dabigatran, 9% par l'apixaban et environ 39% par le rivaroxaban. **Conclusion:** Nous décrivons l'expérience de notre centre dans le développement d'un registre AF. Il est nécessaire de développer un registre national pour les patients atteints de fibrillation auriculaire. Cela aidera les décideurs à évaluer les besoins de la population et à intervenir si nécessaire. De plus, cela pourrait être utile pour améliorer la recherche sur la FA au Liban.

Mots-clés: fibrillation auriculaire; épidémiologie; Liban

### INTRODUCTION

Atrial fibrillation (AF) is the most common arrhythmia in adults worldwide. Atrial fibrillation is associated with an increased morbidity and mortality through causing and increasing risk of stroke and heart failure [1,2]. The implication of atrial fibrillation on the modern health care system continues to increase, mainly due to the

advancements in medical field that lead to an ever increasing ageing population. Atrial fibrillation is currently thought of as a significant public health concern.

Atrial fibrillation is currently the most common clinically significant dysrhythmia worldwide. The prevalence of atrial fibrillation was recently estimated at a worldwide occurrence of up to 33.5 million patients and affecting 2.5% to 3.5% of populations across the globe. In addition, the incidence of atrial fibrillation in developed countries was twice that in developing countries. [3].

This condition is also associated with an expected projected rise in incidence in the coming years where a total of 5.2 million people are expected to develop atrial fibril-

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lation in the United States. This number is also forecasted to increase to 12.1 million over the coming 1-2 decades.

In Lebanon, there are no updated data regarding the prevalence, incidence, and economic burden of atrial fibrillation population. We report our single center experience on the epidemiology of AF at the American University of Beirut Medical Center.

#### METHODS

We started the collection of data on patients with atrial fibrillation presenting at the American University of Beirut Medical Center [AUBMC] (Beirut, Lebanon) in

2015. Data on the epidemiology of AF was reported for patients included in the AUBMC AF Registry between 2015 and 2017.

#### RESULTS

One hundred and three patients with AF were included in the AUBMC AF Registry (57% men, 92% non-valvular etiology, 60% paroxysmal/25% persistent, 30% with coronary artery disease, 28% with diabetes, 72% with hypertension, 20% with congestive heart failure and 19% smokers). Detailed demographics, AF characteristics, AF treatment, stroke risk and prevention as well as other medical conditions are summarized in Table I.

**TABLE I** PATIENT CHARACTERISTICS OF AUBMC ATRIAL FIBRILLATION (AF) REGISTRY

		N = 103	
Patient Characteristics		Number	Percentage
<b>Demographics</b>			
Age, y, %	< 65	34	33%
	65-74	39	37.8%
	> 75	30	29.2%
Male, %		59	57.3%
Race/Ethnicity, %	White	103	100%
<b>AF Characteristics</b>			
AF type, %	Non-valvular	95	92.2%
	Valvular	8	7.8%
AF duration, %	First detected	6	5.82%
	Paroxysmal	62	60.19%
	Persistent	26	25.24%
	Permanent	7	6.79%
	Unknown	2	1.94%
<b>AF Treatment</b>			
Rhythm control, %	Antiarrhythmic drug	49	47.57%
	Ablation	8	7.76%
Rate control, %		90	87.37%
<b>Stroke risk and prevention</b>			
CHADS <sub>2</sub> score, median, IQR		2.0 (1.0-3.0)	
CHA <sub>2</sub> DS <sub>2</sub> -VASc score, median, IQR		2.0 (2.0-4.0)	
OAC among those with either CHADS <sub>2</sub> or CHA <sub>2</sub> DS <sub>2</sub> -VASc score > 1, %	Acenocoumarol	25	24.27%
	Dabigatran	14	13.59%
	Rivaroxaban	30	29.12%
	Apixaban	7	6.79%
	Edoxaban	0	0%
<b>Other medical conditions</b>			
Coronary artery disease, %		31	30.1%
Diabetes, %		29	28.15%
Hypertension, %		74	71.84%
Current smoker		20	19.41%
Peripheral arterial disease, %		2	1.95%
Prior TIA/Stroke, %		10	9.70%
Congestive heart failure, %		21	20.28%
	Stage IIIa (GFR 45-59)	11	10.67%
	Stage IIIb (GFR 30-44)	9	8.73%
	Stage IV (GFR 15-29)	0	0%
	Stage V (GFR < 15) or HD	1	0.97%

The distribution of AF patients by CHADS<sub>2</sub> and CHA<sub>2</sub>DS<sub>2</sub>-VASc scores are detailed in Figures 1a and 1b respectively. Our data showed that a large proportion of our patient population had a CHADS<sub>2</sub> and CHA<sub>2</sub>DS<sub>2</sub>-VASc scores greater than 2.

Furthermore, the prevalence of any oral anticoagulant (OAC) for stroke prevention across spectrum of CHADS<sub>2</sub> and CHA<sub>2</sub>DS<sub>2</sub>-VASc scores are detailed in Figures 2a and 2b respectively. It is clearly shown in those results that there is a significant proportion of patients with atrial fibrillation whose CHADS<sub>2</sub> and CHA<sub>2</sub>DS<sub>2</sub>-VASc scores are greater than 2 and who are not being treated with oral anticoagulation.

Moreover, Figure 3 shows the proportion of patients on different OAC for stroke prevention in the AUBMC registry. The figure shows that around 32% are treated with vitamin K antagonist (VKA), 20% with dabigatran, 9% with apixaban, and around 39% with rivaroxaban.

## DISCUSSION

Stroke and systemic embolism are the most dreaded complications of atrial fibrillation since they carry increased morbidity and mortality. In fact, atrial fibrillation increases the risk of stroke around five times. Valvular atrial fibrillation increases the risk of stroke 20 times compared to patients with non-valvular atrial fibrillation [4]. Patients with documented atrial fibrillation are risk stratified according to their stroke risk and bleeding risk and a decision on their therapy is made. The most widely used tools are the CHA<sub>2</sub>DS<sub>2</sub>-VASc score for the stroke risk and the HASBLED score for the bleeding risk. A CHA<sub>2</sub>DS<sub>2</sub>-VASc score more than or equal to 2 requires oral anticoagulation according to most atrial fibrillation guidelines. Patients with moderate risk (CHA<sub>2</sub>DS<sub>2</sub>-VASc score = 1) can take antiplatelet therapy, but experts prefer anticoagulation.

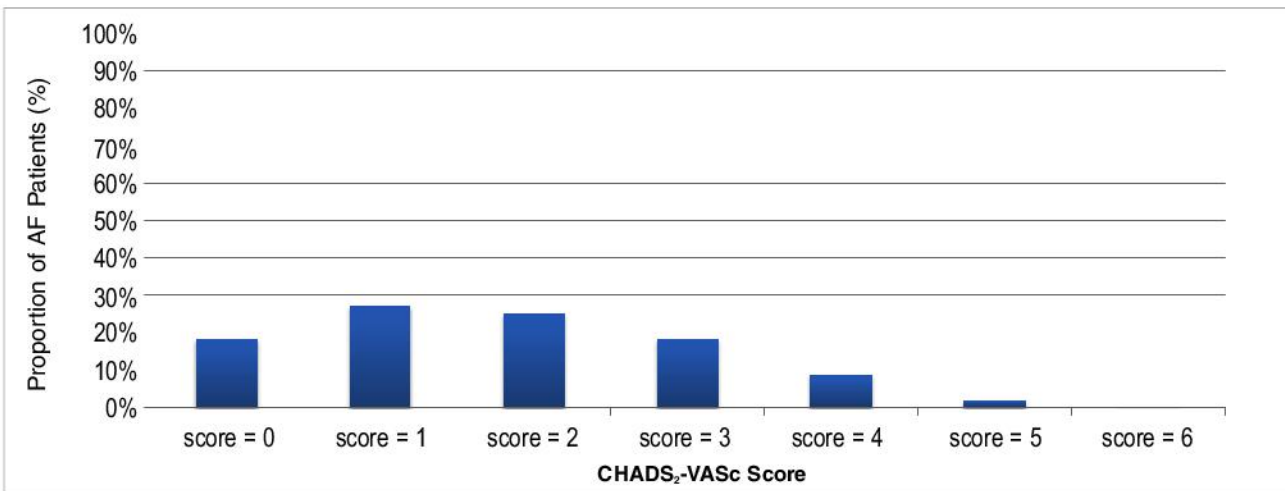


Figure 1a. Distribution of all AF patients CHADS2 Scores

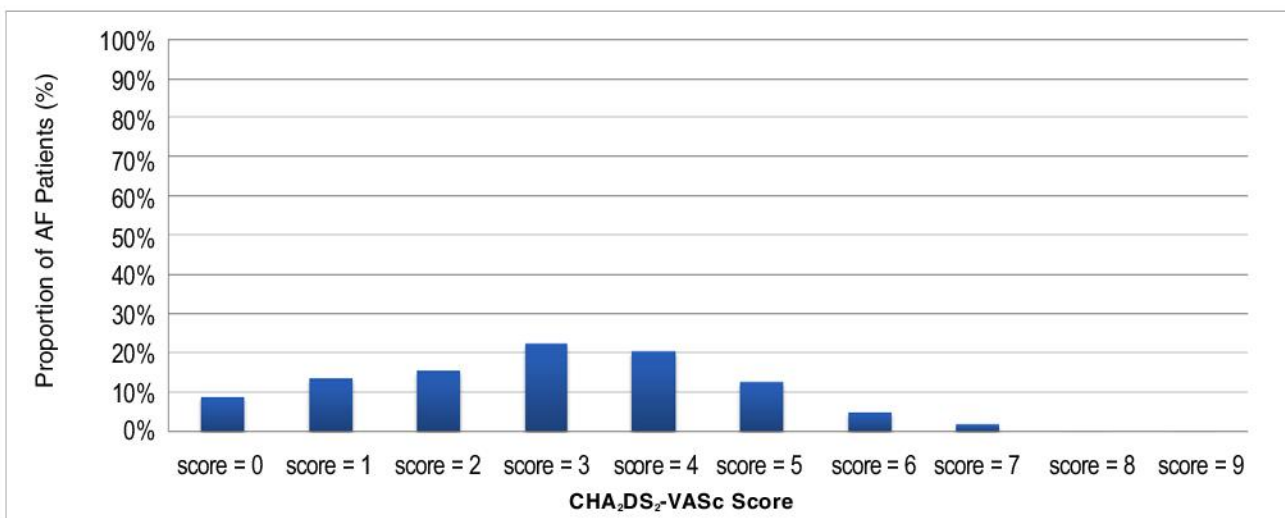
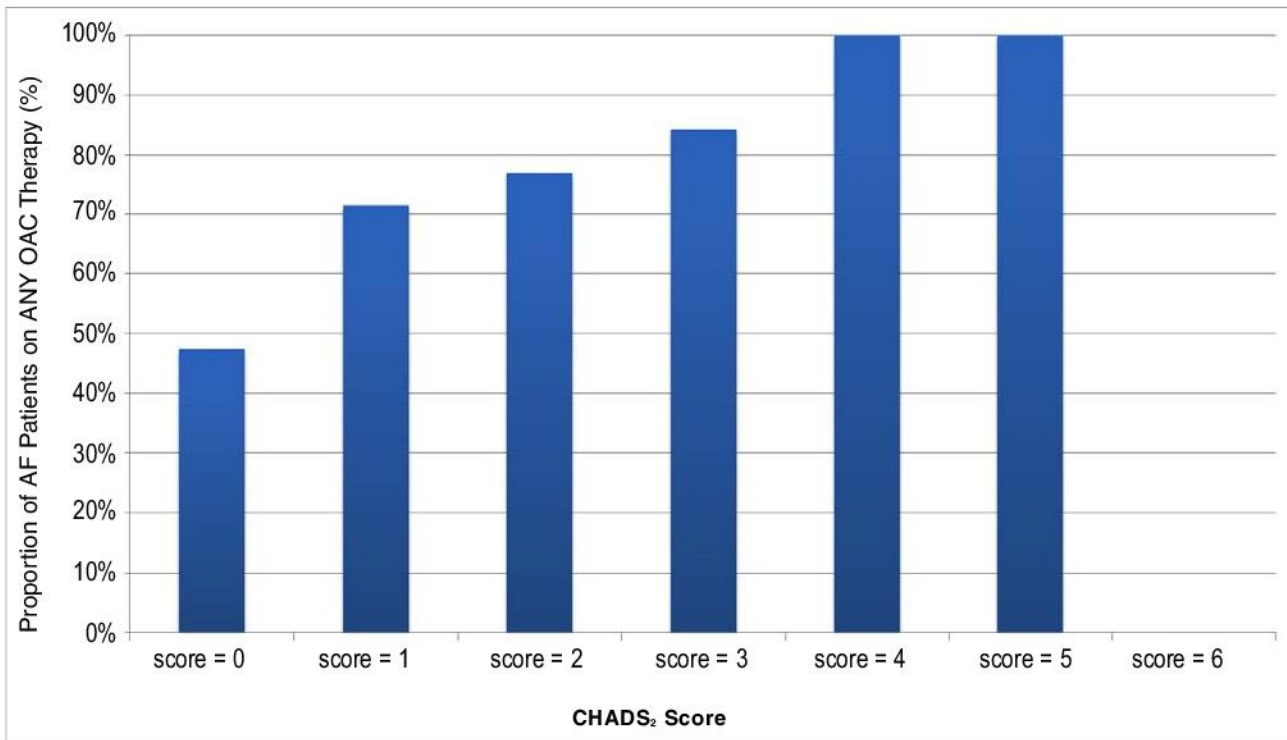
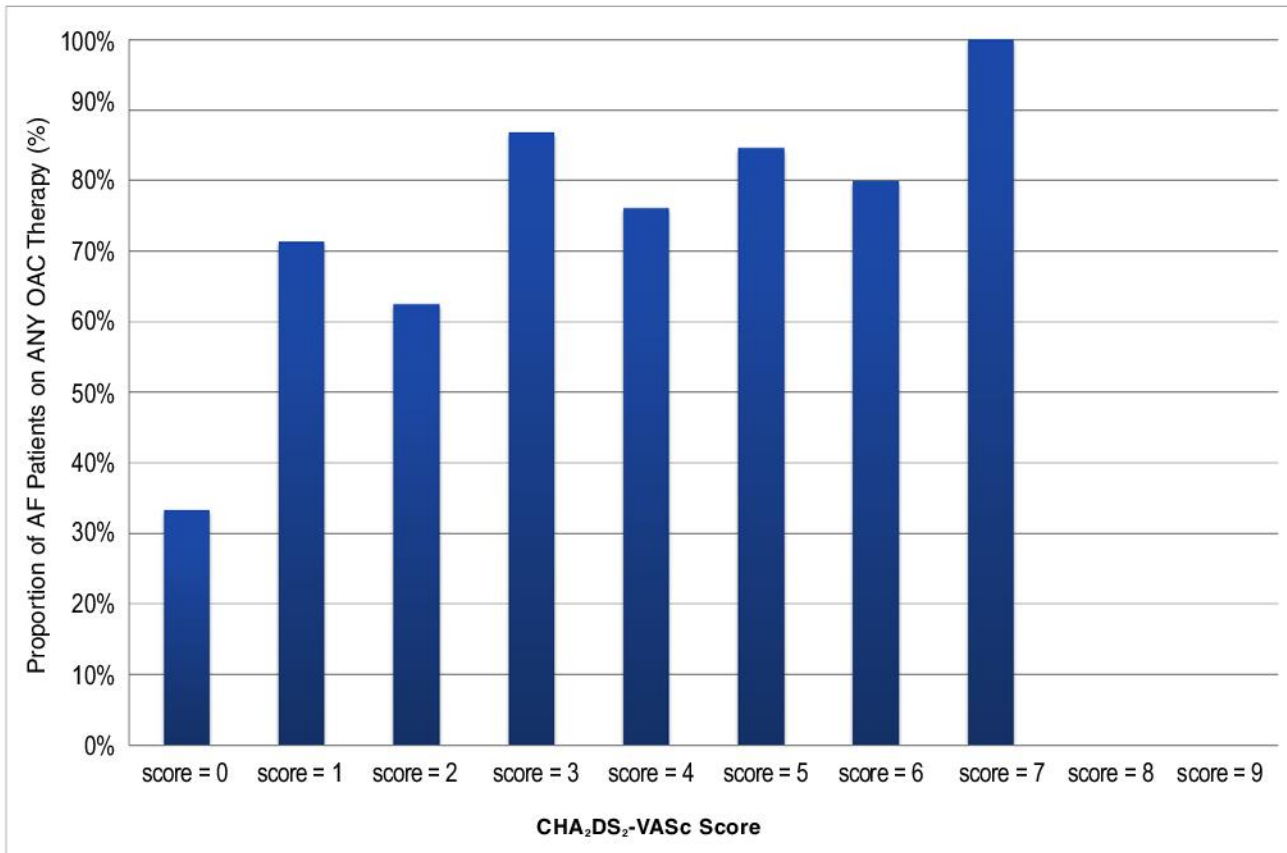


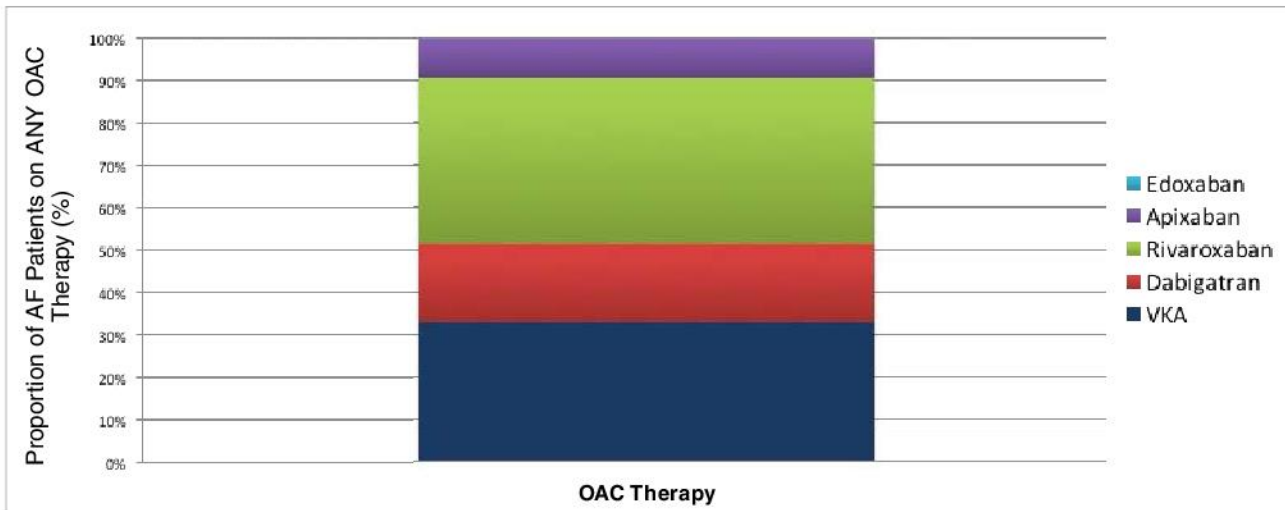
Figure 1b. Distribution of all AF patients CHA<sub>2</sub>DS<sub>2</sub>-VASc Scores



**Figure 2a.** Prevalence of any oral anticoagulant therapy across spectrum of CHADS<sub>2</sub> Scores



**Figure 2b.** Prevalence of any oral anticoagulant (OAC) therapy across spectrum of CHA<sub>2</sub>DS<sub>2</sub>-VASc Scores



**Figure 3.** Prevalence of treatment strategies in all AF patients on OAC therapy

For those with low risk (CHA<sub>2</sub>DS<sub>2</sub>-VAsC score = 0) antithrombotic therapy is not recommended [5].

Our data showed that a large proportion of our patient population had a CHADS<sub>2</sub> and CHA<sub>2</sub>DS-VAsC scores greater than 2. Hence, a large proportion of the population requires oral anticoagulation. Those results add another layer of complexity to the status of atrial fibrillation in Lebanon where a lot of our patients require prevention against strokes. This requires a national effort to raise awareness, improve diagnostics, and probably subsidize anticoagulants for those who can't afford them since the future social and economic burden of the complication of atrial fibrillation outweigh the present cost.

Furthermore, we found that a significant proportion of patients with atrial fibrillation whose CHADS<sub>2</sub> and CHA<sub>2</sub>DS<sub>2</sub>-VaSc scores are greater than 2 are not being treated with oral anticoagulation. Those data present an additional evidence to the need of awareness campaigns on stroke prevention in the setting of atrial fibrillation.

Our data shows that rivaroxaban was the most common OAC used. The choice of the most suitable OAC is subject to several considerations. Even though warfarin is efficient in reducing stroke from atrial fibrillation, it has numerous limitations that include: need for frequent monitoring of the international normalized ratio (INR), numerous drug-drug interactions, and dietary restrictions.

Furthermore, a new focused update to atrial fibrillation management guidelines from several North American societies explicitly prefers the latest generation of OAC over warfarin in stroke prevention [6]. Those new findings call for applying the latest standard of care as part of a national effort to reduce the social and economic burden of stroke due to atrial fibrillation.

## CONCLUSIONS

We describe our single center experience in developing an AF registry. There is a need for developing a national registry for patient with atrial fibrillation. This will help decision makers in assessing the needs of the population and intervening when necessary. Also, this could be helpful in improving AF research in Lebanon.

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