Original Article

Nonadherence to Guideline-Directed AntiCoagulations in Atrial Fibrillation in Iraq

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Abstract

Background: Anticoagulations remain an essential step to minimize the mortality and morbidity associated with thromboembolic phenomena in atrial fibrillation (AF). Nevertheless, the adherence to OAC stands for (Oral Anticoagulant) throughout the paper is not universal among the different populations. In Iraq, there are no data about adherence to (OAC) in patients with AF. **Objectives:** This study aimed to assess the adherence to oral anticoagulants (OAC) based on the American College of Cardiology/American Heart Association performance measures in eligible patients with a CHA_2DS_2-VASc ≥ 2 in patients with AF in Duhok, Iraq. **Materials and Methods**: A total of 132 patients who were diagnosed with AF were consecutively reviewed during 2018–2019 in Azadi Teaching Hospital, Duhok, Kurdistan Region, Iraq. For eligibility of taking an OAC, the VAS score derived from CHA_2DS_2-VASc for all patients was calculated. **Results:** The mean age of the patients was 65.29 (standard deviation [SD]: 17.18 years). The average duration of AF was (2.0) years. The mean of VAS score was 2.97 (SD: 1.75, ranged between 0 and 8.0). 78.0% of all patients were eligible for OAC at admission. Only 15.9% of the patients were on OAC. In the logistic regression analysis, none of the patient's characteristics predict significantly the nonadherence to OAC. **Conclusion:** The present study showed that a high percentage of AF patients were eligible for OAC. However, only a small percentage of them were receiving OAC at admission in our area.

Keywords: Atrial fibrillation, guideline adherence, oral anticoagulants

Introduction

The current evidence presents a low rate of anticoagulant taking in patients with AF.[1] The quality improvement in the treatment of many cardiovascular (CV) diseases, including myocardial infarction, stroke, and heart failure has been confirmed by American Heart Association's (AHA's) Get with the Guidelines program. This program was started in 2013 to improve the quality of care in patients with AF.[2,3]

AF has been shown to contribute to both thromboembolic events and mortality whether from all causes or from CV causes.[4-6] The risk of thromboembolism and mortality amongst AF patients is significantly decreased by taking oral anticoagulant (OAC) therapy.[6] Both OAC persistence and good quality anticoagulation control reduce major adverse events among AF patients.[7-10]

The physician has different attitudes and adherence to prescription OAC.[11] The recent data from the EURO observational Research Programme AF (EORP-AF) Pilot Registry showed that up to 40% of the patients who were

managed by European cardiologists do not adhere to European Society of Cardiology guidelines. This under treatment has been shown to associate with worse outcomes.[12]

This study aimed to assess the adherence to OAC based on the American College of Cardiology/AHA's performance measures in eligible patients with a CHA2DS2-VASc score ≥ 2 in patients with AF in Duhok province, Iraq.

Materials and Methods

Study design and patients

A total of 132 patients who were diagnosed with atrial fibrillation (AF) were consecutively reviewed for OAC

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taking during 2018–2019 in Azadi Teaching Hospital, Duhok, Kurdistan Region, Iraq. Patients met enrolment eligibility if they were male or female, aged 18 years and older and diagnosed with AF whether primary or secondary. Those patients with already diagnosed with significant mitral valve stenosis and a mechanical heart valve were excluded from the study.

Baseline demographic of the patients, including age and gender, was taken. Major chronic diseases including diabetes mellitus, hypertension, congestive heart failure, transient ischemic attack/ischemic stroke, and any vascular diseases including myocardial infarction, peripheral arterial diseases were recorded. The [VAS] score of the patients, the duration of AF, and the status of anticoagulants were documented. The diagnosis of AF was performed in accordance with the International Classification of Diseases–9th Edition system.

The risk of thrombo-embolic was defined according to the CHA2DS2-VASc score. In this assessment, the male and female patients with low risk of thrombosis were given 0 and 1, respectively. The male patients with moderate risk were given 1, and all patients with a high risk were rated ≥2.[12]

Statistical analysis

The difference in baseline and clinical characteristics between the patients on OAC and not on OAC was examined in independent t-test and Chi-square tests. The predictors of non-adherence to OAC were examined in binary logistic regression analysis model. The statistically significant difference was determined in a $P < 0.05$. The statistical calculations were performed by the Statistical Package for the Social Sciences software version 24.0 (SPSS, IBM Company, Chicago, IL 60606, USA).

Ethical consideration

The study was conducted in accordance with the ethical principles that have their origin in the declaration of Helsinki. It was carried out with patients verbal and analytical approval before the sample was taken. The study protocol and the subject information and consent form were reviewed and approved by the ethical committee of the Iraqi Board for Medical Specializations, Duhok center in 2018.

RESULTS

The mean age of the patients was 65.29 years (standard deviation [SD]: 14.18) ranged between 26 and 95 years. Females were 64.4%. Among our patients, hypertension constituted 62.1% followed by ischemic heart failure (39.4%), diabetes mellitus (25.8%), and transient ischemic attack (10.6%). No difference in the demographic and CV characteristics of the patients who were on OAC and not on OAC was found ($P = 0.415, 0.463$), as shown in Table 1.

The mean VAS score of patients was 2.97 (SD: 1.75) ranged between 0 and 8.0. The mean duration of AF was 2.00 years. In addition, the study revealed that 78.0% of the patients were eligible for OAC taking. However, only 15.9% of all patients were on anticoagulant at admission, as shown in Table 2.

The comparison of VAS scores and disease duration between the patients on OAC and not on OAC showed nonsignifcant difference (3.00 vs. 2.96; $P = 0.918$ and 3.10 vs. 2.51; $P = 0.280$, respectively), as shown in Table 3.

The eligibility for oral anticoagulant was considered dependent variable and other characteristics as independent variables in binary regression analysis. The study did not show that the eligibility is predicted by any factors in the patients [Table 4].

DISCUSSION

The total percentage of the patients who were eligible for OAC was 78.0%, but only 15.9% were receiving the OAC in the region. This is a very low percentage of eligible patients who were receiving OAC. We found a far fewer rates of adherence to OAC in our study compared to many studies worldwide, and this should encourage our doctors and cardiologists to prescribe more OAC in cases of AF to minimize the rate of ischemic strokes and other complications related to thrombo-embolic phenomena in AF.

Piccini *et al.* evaluated the adherence to guidelines of prescribing OAC in patients diagnosed with AF in their study. It showed that 59.5% of AF patients were taking OAC agents at admission and at discharge of patients from hospital in their study, the rate of OAC in eligible patients with no contraindications was reached to 93.5%.[13]

Table 1: Baseline patient characteristics in patients with a atrial fibrillation and were on oral anticoagulants and not on oral anticoagulants

Patients' characteristics (n=132)	Overall (n=132), n (%)	On OAC (n=21), n (%)	Not on OAC (n=111), n (%)	P
Mean age (years)	65.29 (14.18)	63.67 (8.52)	65.59 (15.03)	0.415*
Sex				
Male	47 (35.6)	6 (28.6)	41 (36.9)	0.463**
Female	85 (64.4)	15 (71.4)	70 (63.1)	
Diabetes mellitus	34 (25.8)	7 (33.3)	27 (24.3)	0.387**
Hypertension	82 (62.1)	12 (57.1)	70 (63.1)	0.608**
Ischemic heart failure	52 (39.4)	8 (38.1)	44 (39.6)	0.894**
Transient ischemic attack	14 (10.6)	3 (14.3)	11 (9.9)	0.550**

*Independent t-test, **Chi-square tests were performed for the statistical analyses. OAC: Oral anticoagulants

Proietti *et al*. from Italy assessed the physicians' adherence to guidelines in a cohort AF patient who were admitted to internal medicine and geriatric wards. In addition, to explain the main factors related to guideline non-adherence. The investigators found that 40.9% of the patients were on guideline-adherent thromboprophylaxis, 6.8% of them were overtreated, and 52.3% were undertreated. The factors that were associated with nonadherence to guidelines were increasing age, coronary artery disease (CAD), heart failure, concomitant cancer, and peripheral arterial disease. Specifically, under-treatment was significantly associated with increasing age and cancer and inversely associated with HF ($P = 0.023$), and guideline adherence was independently associated with a lower risk of all-cause and CV deaths ($P = 0.019$ and $P = 0.006$).[14] In the present study, we did not find any specific predictors of nonadherence to OAC.

Navarro-Juan *et al*.[15] study from Spain determined the extent of lack of adherence to oral anticoagulant and antiplatelet therapy in patients diagnosed with AF. They found that nonadherence to the OAC among their patients was 62.5%. The greater nonadherence was found in older patients. Interestingly, they found that the patients with a higher VAS score were more likely to have a lack of adherence to the OAC. The patients with an increased risk of stroke were more likely to have a lack of adherence to the guidelines.

The present study did not find a significant difference in adherence to OAC in patients with different age groups. However, increased age has been showing to associate with under treatment. However, the younger ages, female, and a previous history of CAD, stroke, TIA were related to overtreatment OAC and antiplatelet therapy. The undertreatment has been shown to contribute to both all-cause and CV mortalities.[16]

In the present study, a very low percentage of the patients who were eligible for OAC were treated with OAC. This possibility raises the risk of morbidity and mortality in this kind of patients. The rate of adherence to guideline-directed OAC in eligible AF cases was quite lower than it's reported in other investigations.[16-18] The burden of morbidity and mortality from AF due to thromboembolic phenomena in the region potentially will be significant, taken in the consideration that, the resistance to antiplatelet including to aspirin and clopidogrel is higher than many other countries according to available studies from the region.[19-22]

Up to our knowledge, this is the first study conducted on nonadherence to OAC in Iraq. However, the study has many limitations including the lack of including the contraindications

Table 2: Disease-related characteristics of patients with atrial fibrillation

Patients' characteristics (*n*=132)	Mean	SD/%
VAS score		
Range: 0-8.0	2.97	1.75 (SD)
Disease duration (years)		
Range: 0-15.04	2.00	1.76 (SD)
Anticoagulant (number)		
Yes	21	15.9 (%)
No	111	84.1 (%)
VAS cut-offs		
Eligible for OAC	103	78.0 (%)
Noneligible for OAC	29	22.0 (%)

OAC: Oral anticoagulants, SD: Standard deviation

Table 3: Comparison of VAS scores and disease duration between the patients on oral Anticoagulants and not on oral anticoagulants

Patients' characteristics	On OAC (*n*=21)		Not on OAC (*n*=111)		*P*
	Mean	SD	Mean	SD	
VAS score	3.00	1.38	2.96	1.82	0.918
Disease duration (years)	3.10	2.15	2.51	2.78	0.280

Intendant *t*-test was performed for the statistical analysis. OAC: Oral anticoagulants, SD: Standard deviation, VAS: CHA2D2-VASc

Table 4: Predictors of nonadherent to oral anticoagulant in patients with atrial fibrillation

Predictors	Dependent variable: Eligibility for OAC							
	B	SE	Wald	Significance	OR	95% CI for OR		
						Lower	Upper	
Age	−0.006	0.031	0.034	0.853	0.994	0.935	1.057	
Sex	−0.645	0.725	0.791	0.374	0.525	0.127	2.174	
Diabetes mellitus	0.932	0.756	1.516	0.218	2.538	0.576	11.180	
Hypertension	−0.074	0.699	0.011	0.915	0.928	0.236	3.656	
Ischemic heart failure	0.174	0.771	0.051	0.822	1.190	0.263	5.390	
Transient ischemic attach	1.627	1.455	1.251	0.263	5.089	0.294	88.056	
VAS score	0.396	0.516	0.590	0.443	1.487	0.540	4.089	
Disease duration	−0.099	0.087	1.289	0.256	0.906	0.764	1.075	

OAC: Oral anticoagulants, OR: Odds ratio, CI: Confidence interval, SE: Standard error, VAS: CHA2D2-VASc

of OAC in AF patients. In addition, the VAS score was not measured at discharge for the patients and absence of follow-up of patients who were not receiving the OAC for either CV events or prescription of OAC.

CONCLUSION

The present study showed a high rate of eligible patients for OAC; however, only small percentage of them was receiving the OAC. Besides, there was no significant difference in the baseline clinical characteristics between the patients on OAC and those not on OAC. The VAS score between the patients on OAC and those not on OAC was not differ significantly, and there were no particular predictors for nonadherence to OAC in this study. Based on these conclusions, we do recommend to enhance the adherence to guidelines in the treatment of AF in our area. Moreover, further studies are warranted to search to potential causes and mechanisms, related to patients and their doctors, behind the undertreatment of AF in Iraq.

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Conflicts of interest

There are no conflicts of interest.

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