



## Assessment of Family Physician's Knowledge, Attitude and Barriers to the use of Oral Anticoagulation Therapy among Atrial Fibrillation Patients in Riyadh City

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### Abstract

**Background:** Atrial fibrillation (AF) is the most common arrhythmia type. The prevalence of AF is associated with different factors such as age, body mass index (BMI), physical activity, genetic factors and lifestyle factors. AF is associated with an increased risk of stroke and embolic events. Treatment guidelines recommend the combination of anticoagulant and rate control with rhythm control for highly symptomatic patients.

**Aim:** To evaluate the knowledge, attitude, and barriers of family physicians to use oral anticoagulation in arterial fibrillation.

**Methods:** This study is a cross sectional study which was conducted in 4 hospitals and 8 primary care centers at Riyadh, Saudi Arabia, on family physicians. The study used pre-designed questionnaire which involved questions about demographics, knowledge, attitude and barriers.

**Results:** There were 52 physicians had average awareness about practice guidelines, 27 had good awareness, 4 had excellent awareness, 17 and 14 had fair and poor awareness respectively. The overall knowledge was significantly associated with job position, where consultants had higher mean knowledge. The most common barriers were lack of follow-up system and lab investigations.

**Conclusion:** There was positive attitude with moderate overall knowledge, it is recommended to increase knowledge by establishing educational program and it is necessary to provide follow-up system and facilitate performing of lab investigations to decrease parries and facilitate practice of use of anti-coagulants.

**Keywords:** AF, Oral anticoagulants, Family physicians, knowledge of anticoagulants, attitude of anticoagulants, anticoagulants barriers.

### Introduction

The most common arrhythmia encountered type is atrial fibrillation (AF)<sup>[1]</sup>, in 2010, the global prevalence of AF was 33.5 million, 20.9 of them were males and 12.6 were females<sup>[2]</sup>. The prevalence of AF was reported to be 14.7% in Saudi adults with chronic heart failure in Qassim

region<sup>[3]</sup>. The prevalence of AF is associated with age, where it increase with age as the prevalence was 0.5% in those patients with age <40 years, whereas it was prevalent in 5% of patients aged >65 years<sup>[4]</sup> the prevalence of AF is increasing due to population aging<sup>[5]</sup>. There are several risk factors for AF including BMI, physical activity,

genetic factors and lifestyle factors such as smoking and alcohol consumption<sup>[4]</sup>. AF is associated with an increased risk of embolic events, stroke<sup>[6]</sup>, ischemic heart disease and valvular diseases<sup>[7]</sup>. 20-30 % of patients who suffer stroke have AF<sup>[8]</sup>. The AF patients who are under the risk of stroke include individuals with age older than 65 years and those with history of diabetes, hypertension, prior transient ischemic attack or stroke<sup>[9]</sup> heart failure, arteriopathy and female sex<sup>[5]</sup>. AF is associated with an increasing procoagulant in the blood<sup>[10]</sup>, so it is possible to form thrombi in the left atrium in case of absence of regular effective mechanical contractions<sup>[11]</sup>. The management of AF involves two strategies; rhythm and rate control, which can be achieved pharmacologically and non-pharmacologically<sup>[7]</sup>. Treatment guidelines recommend anticoagulant and rate control with combination of rhythm control for highly symptomatic patients<sup>[12,13]</sup>. AF management often depends on the administration of anticoagulant therapy<sup>[14]</sup>. Vitamin K antagonists oral anticoagulants significantly decrease the risk of stroke in AF patients<sup>[15,16]</sup>. The use of these oral anticoagulants is complex as they require continuous monitoring for the international normalised ratio (INR) in order to make the patient at optimum protection against thrombosis with avoiding the risk of haemorrhage<sup>[17,18]</sup>, these medications also show drug and food interactions<sup>[5]</sup>. The novel oral anticoagulants (NOACs) are new oral anticoagulants which make the AF patients show lower risk of stroke, hemorrhage and death but with higher risk of gastrointestinal bleeding<sup>[19]</sup>, however there are no drug or food interactions of these anticoagulants<sup>[5]</sup>. Several clinical trials have investigated the prevention of stroke in patients with AF by using anticoagulant such as warfarin and with or without aspirin<sup>[20-23]</sup>. The use of aspirin has resulted in a significant effect with lower risk reduction (36%) as reported by study of five randomized controlled trials in 1994<sup>[9]</sup>. In another randomized controlled trials, it was shown that the combination of aspirin and low-dose oral anticoagulation (INR<1.5)

showed additive little protection against stroke than aspirin alone in patients with AF<sup>[24]</sup>. The combination of higher intensity oral anticoagulant with aspirin may increase the risk of intracranial hemorrhage, especially in elderly patients<sup>[25]</sup>. It was found that the risk of stroke resulting from AF can be reduced by warfarin treatment from 4.5 to 1.45% per year<sup>[20-23]</sup>. There are several barriers for the use of anticoagulants related to physicians including facing difficulty in keeping patients within the therapy range and some physicians are aware of clinical practice guidelines, however these guidelines can't be applied to their patients<sup>[1]</sup>. Another barrier is the fear of physicians to prescribe anticoagulants for advanced age patients, in one systematic review it was reported that physicians were against prescribing anticoagulants to elderly patients especially those older than 80 years<sup>[26]</sup>. Also concerning about falls risk and bleeding risk of patients was another barrier<sup>[14]</sup>. In cross sectional survey<sup>[14]</sup> several barriers were reported to treatment with warfarin including advanced age, poor patient compliance, monitoring issues. these barriers has affected physicians in decision making. It is very important to empower the knowledge of physicians's about anticoagulants to improve using of anticoagulants for AF patients as new anticoagulant medication are available<sup>[11]</sup>. Anderson et al 2007<sup>[27]</sup> have found that physicians rarely chose anti-coagulants for AF patients and the knowledge of doctors about stroke and bleeding differs. The use of anticoagulant is underused with broad variety in clinical practice. Research demonstrates that numerous patients who should receive anticoagulants, don't receive them, with misperception of the dangers and advantages associated with oral anticoagulation. There was no previous study included knowledge, attitude and barriers in gulf countries and as far as we know there was no study in Saudi Arabia investigated the knowledge, attitude and barriers of family physicians to use oral anticoagulants for AF patients, so we conducted this study to assess knowledge, attitude and barriers of family

physicians to use oral anticoagulants therapy for AF patients. This study will be useful to enhance attitudes of physicians about decision making in atrial fibrillation and the use of oral anticoagulation, also it will help to recognize the practice patterns of the physicians to use oral anticoagulation for stroke prevention in atrial fibrillation.

## Subjects and Method

### Subjects and Study Design

This study is a cross-sectional study which was conducted in the period from November 2017 to January 2018. The study has included 114 family physicians who are working in 4 hospitals and 8 primary care centers at Riyadh, Saudi Arabia, the study included residents, registrars, and consultants. sample size was calculated by MINITAB 15 .This study was approved by the responsible management to be conducted on participants in 8 centers only of health ministry. The study used pre-designed questionnaire which involved questions about demographics and ten questions to assess the knowledge and attitude and 1 question to investigate the barriers toward the use of an anticoagulant. Informed consent was obtained from all participants and data were used

with high confidentiality. A pilot study was performed including 28 physicians from the two different places.

### Statistical analysis

Data were analyzed using SPSS software version 16, chi-square was used as a test of significance to compare qualitative variables between different groups, with P-value significant level of less than 0.05

### Results

In the present study, there were 18 consultants, 11 senior specialists, 31 specialists and 54 residents. There were 30 physicians had less than five years of experience after residency, 26 physicians had 5-9 years, and 20 physicians had ten years and more of experience. Females were more dominant (62) than males (52). In this study there were 2 questions to investigate attitude; the first question was to investigate the practice of physicians to the guidelines in managing AF with oral anticoagulants, the large majority of physicians (52%) had average awareness, followed by those who had good awareness (27) then fair and poor awareness (17 &14) respectively and there was 4 only had excellent awareness, table1.

**Table1:** Correlation of different variables and the awareness of practice guidelines

Factor	Poor (14)	Fair (17)	Average (52)	Good (27)	Excellent (4)	P-value
<b>job title</b>						
Consultant	2 (11.1%)	2 (11.1%)	6 (33.3%)	6 (33.3%)	2 (11.1%)	0.194
Senior specialist	0 (0%)	4 (36.4%)	4 (36.4%)	2 (18.2%)	1 (9.1%)	
Specialist	3 (9.7%)	2 (6.5%)	17 (54.8%)	8 (25.8%)	1 (3.2%)	
Resident	9 (16.7%)	9 (16.7%)	25 (46.3%)	11 (20.4%)	0 (0%)	
<b>Gender Type</b>						
Male	4 (7.7%)	6 (11.5%)	27 (51.9%)	13 (25%)	2 (3.8%)	0.508
Female	10 (16.1%)	11 (17.7%)	25 (40.3%)	14 (22.6%)	2 (3.2%)	
<b>Years of experience after residency program</b>						
<5 years	4 (13.3%)	6 (20%)	11 (36.7%)	8 (26.7%)	1 (3.3%)	0.553
5-9 years	2 (7.7%)	4 (15.4%)	11 (42.3%)	8 (30.8%)	1 (3.8%)	
	1 (5%)	2 (10%)	9 (45%)	6 (30%)	2 (10%)	

10-Or more						
not applicable	7 (0%)	4 (11.8%)	18 (52.9%)	5 (14.7%)	0 (0%)	
<b>Prescribing oral anticoagulant for treatment of AF in last 6 month</b>						0.453
Yes	0 (0%)	0 (0%)	4 (57.1%)	3 (42.9%)	0 (0%)	
No	14 (13.1%)	17 (15.9%)	48 (44.9%)	24 (22.4%)	4 (3.7%)	
<b>Attending training or workshop on anticoagulation therapy in last 6 month</b>						0.403
Yes	0 (0%)	2 (16.7%)	5 (41.7%)	5 (41.7%)	0 (0%)	
No	14 (13.7%)	15 (14.7%)	47 (46.1%)	22 (21.6%)	4 (3.9%)	
<b>type of working setting</b>						0.180
Hospital-based family medicine	5 (8.9%)	11 (19.6%)	27 (48.2%)	13 (23.2%)	0 (0%)	
community based family primary	8 (14%)	6 (10.5%)	25 (43.9%)	14 (24.6%)	4 (7%)	

**Table2:** Correlation between different variables and attitude of physicians

Variables	Awareness of the current practice guidelines in managing AF with oral anticoagulant (Mean±SD)	AF is not a disease of family medicine scope (Mean±SD)
<b>Job title</b>		
Consultant	3.22±1.16	2.33±0.76
Senior specialist	3.00±1.00	2.27±0.78
Specialist	3.06±0.92	2.67±1.10
Resident	2.70±0.98	3.00±1.18
P-value	0.18	0.05
<b>Gender</b>		
Male	3.05±0.91	2.44±1.03
Female	2.79±1.07	2.98±1.09
P-value	0.16	0.00
<b>Years of experience after residency program</b>		
<5 years	2.86±1.07	2.40±1.07
5-9 years	3.07±0.97	2.38±0.89
10 and more	3.30±0.97	2.60±0.88
Not applicable	2.61±0.98	3.26±1.10
P-value	0.91	0.002
<b>Prescribing oral anticoagulant for treatment of AF in last 6 month</b>		
Yes	3.42±0.53	2.42±0.53
No	2.87±1.02	2.75±1.12
P-value	0.16	0.44
<b>Attending training or workshop on anticoagulation therapy in last 6 month</b>		
Yes	3.25±0.75	2.83±0.93
No	2.87±1.03	2.72±1.11
P-value	0.22	0.75
<b>Type of working setting</b>		
Hospital-based family medicine	2.85±0.88	2.69±0.98
Community based family primary	3.00±1.10	2.73±1.17
P-value	0.44	0.84

The mean physicians' attitude was assessed regarding characteristics of participants and it is shown in table 2. The mean score of awareness of the practice guidelines and opinion of physicians

if AF was a disease of family medicine scope wasn't differ regarding job position, prescribing oral anticoagulants, attending training on anticoagulants and type of work setting of physicians. Gender and years of experience were significantly affecting the mean score of physicians' opinion if AF is a disease of family

medicine scope (P-value=0.00, 0.00 for each gender and years of experience), while no significant effect of gender or years of experience found on awareness of practice guidelines, table(1,2).

**Table 3:** Correlation between different variables and knowledge of physicians

Variables	Knowledge (Mean±SD)
<b>Job title</b>	
Consultant	2.44±1.54
Senior specialist	1.63±1.28
Specialist	1.12±1.05
Resident	1.35±1.03
P-value	0.00
<b>Gender</b>	
Male	1.59±1.33
Female	1.40±1.12
P-value	0.40
<b>Years of experience</b>	
<5 years	1.33±1.02
5-9 years	1.76±1.42
10 and more	1.75±1.51
Not applicable	1.35±1.04
P-value	0.38
<b>Prescribing oral anticoagulant for treatment of AF in last 6 month</b>	
Yes	1.00±1.41
No	1.52±1.20
P-value	0.27
<b>Attending training or workshop on anticoagulation therapy in last 6 month</b>	
Yes	1.50±1.56
No	1.49±1.18
P-value	0.97
<b>Type of working setting</b>	
Hospital-based family medicine	1.58±1.3
Community based family primary	1.38±1.14
P-value	0.38

The second part of the questionnaire was to assess the knowledge of physicians which included 5 questions, the overall score of knowledge was significantly (P-value=0.00) higher in consultants, where the mean±SD score of knowledge was

2.44±1.54, while gender, years of experience, prescribing oral anticoagulants, attending training on anticoagulants and type of work setting of physicians was not affecting the mean score of knowledge of physicians, table 3.

**Table 4** (most common barriers for each variable)

Variable	The most common barrier
consultants	lack of follow-up system (55.6%)
senior specialists,	AF patients non attending family medicine (40%),
specialists	lack of lab investigations (53.3%)
residents	limited knowledge and experience (50%).
male	lack in lab investigations (43.1%)
female	limited knowledge and experience (47.5%) and lack of follow-up system (47.5%)
physicians of <5 years	Lack of follow-up system was the major barriers (48.3%)
5-9 years of experience	Lack of follow-up system was the major barriers (44%)
≥10 years of experience	lack of lab investigation (80%).
physicians who prescribed anticoagulants for treatment of AF in the previous 6 month	Lack of lab investigations (57.1%)
physicians who did not prescribe anticoagulants for treatment of AF in the previous 6 month	lack of follow-up systems (47%)
Physicians who attended training on anticoagulant therapy	lack of follow-up system (41.7%)
Physicians who did not attend training on anticoagulant therapy	limited knowledge and experience (46%).
Hospital-based family medicine	limited knowledge and experience (56.4%)
community-based family medicine	lack of lab investigations (69.6%).

The mean score of each question of knowledge part was correlated with characteristics of participants. Regarding job position, consultants answered correctly the time to investigate INR in warfarin-treated patients (P-value=0.00) and both senior specialists and specialists answered correctly the advantage of novel oral anticoagulants (P-value=0.00). Physicians with 5-9 years of experience answered correctly the time to investigate INR in warfarin-treated patients (P-value=0.00), while those with experience of 10 years and more answered correctly the advantage of novel oral anticoagulants (P-value=0.04). The question about the cutoff value for CHA<sub>2</sub>DS<sub>2</sub>-VASc score was answered correctly by hospital-based family medicine physicians (P-value=0.01). Regarding other questions there were no significant differences between physicians with regard to different characteristics.

Barriers to the use of oral anticoagulation therapy were assessed according to demographics of participants. Lack of follow-up system as well as lab investigations were the most common barriers reported.

The most common barriers for each variable shown in table 4.

### Discussion

The present study is the first study to assess physicians' knowledge, attitude and barriers of using anticoagulant for AF patients in Saudi Arabia. There was no previous similar study, so we couldn't find any previous findings to compare with. Assessing attitude of physicians involved the investigation of the awareness of practice guidelines in managing AF with oral anticoagulants and investigating if they were agree that AF wasn't a disease of family medicine

scope. The large majority of physicians reported average awareness (52), while 27 reported good awareness and only 4 reported excellent awareness, while 14 and 17 reported poor and fair awareness respectively. This indicates a positive attitude of family physicians, average, good and excellent awareness collectively referred to positive attitude, whereas poor and fair awareness referred to negative attitude; 83 vs 31 for positive and negative attitude respectively. Attitude of physicians was not affected by any of physicians' characteristics, the job position, years of experience, gender, prescription of oral anticoagulants, attendance of training about anticoagulants and type of work settings had no significant effect on the attitude of family physicians. However the attitude of physicians was significantly affected by gender and years of experience when investigating if AF was a disease of family medicine scope. The overall knowledge of participants was significantly associated with job position (P-value=0.00), where consultants had the highest knowledge among other physicians, which could be attributed to their long experience compared to others, dealing with more patients, and having more exposure to source of knowledge, all these factors played a critical role in increasing the knowledge of consultants. There were no significant difference in the level of knowledge regarding gender and years of experience, prescribing anticoagulants, attending training on anticoagulants and type of work settings. Each question in knowledge part was correlated with characteristics of physicians, consultants answered correctly the time for INR to be performed in warfarin treated patients, while both senior specialist and residents answered correctly the advantage of novel oral anticoagulants compared to warfarin as they reported that novel oral anticoagulants can be given to end-stage renal disease patients. The previous two questions were significantly affected by the job position, while there was no significant difference between knowledge about other questions regarding job position. The same was

found regarding experience years, the knowledge of correct answers of the previous two questions were significantly associated with experience years, physicians with experience of 5-9 years knew the correct answer about the time to perform INR for warfarin-treated patients, while those with 10 years and more knew the correct answer about the advantage of novel oral anticoagulants. Gender and prescribing anticoagulants and training on anticoagulants had no influence on the answers of physicians. Being hospital-based family medicine physicians, this group have answered correctly the cutoff value of CHA2DS2-VASc score for strong recommendation for oral anticoagulation, however no other significances found. The most common barriers reported by participants were lack of follow-up system, followed by lack of lab investigations and limited knowledge. Residents and physicians who didn't attend training reported limited knowledge and experience and this reflects the importance of the training programs and workshops. The availability of supportive services as follow-up systems and lab investigations are important factor to encourage family physicians to see more AF patients especially in primary health care settings (community-based family medicine).

This study has many limitations including; The formulation of unprecedented questionnaire, the sample size was small and we couldn't find any previous study to compare our findings with , so further studies with large sample size are very recommended.

### Conclusion

There was positive attitude of physicians about oral anticoagulants for AF patients and good awareness toward AF management. The physician's attitude was affected by many different factors. Overall, knowledge was moderate, higher in consultants.

Lack of follow-up system as well as lab investigation were the most common barriers reported.

### Recommendations

It is recommended to increase knowledge by establishing educational program and it is necessary to provide follow-up system and facilitate performing of lab investigations to decrease parries and facilitate practice of use of anti-coagulants.

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