

ORIGINAL ARTICLE

Assessment of physicians practice regarding guidelines recommended antithrombotic therapy in patients with atrial fibrillation.

Gul Nazar¹, Asad Ullah Kundi², Taiba Akhtar³, Zulqurnain⁴, Rida Shah Nizami⁵, Awais Hussain Kazim⁶

ABSTRACT... Objective: To quantify adherence to guideline-recommended antithrombotic therapy among physicians managing AF and to identify prescribing trends. **Study Design:** Cross-Sectional study. **Setting:** Department of Cardiology, Indus Hospital, Karachi. **Period:** Three Months (13th November, 2025 to 13th February, 2026). **Methods:** Ninety physicians were enrolled via consecutive sampling. Adherence was defined per ESC 2024: OAC indicated for CHA₂DS₂-VA ≥ 2 , considered at 1; antiplatelet therapy not recommended as an alternative to OAC; AF temporal pattern not used to decide anticoagulation. Demographics and prescribing were abstracted from records; associations with adherence were tested using chi-square with $p \leq 0.05$. **Results:** Overall, 72% of physicians adhered to guidelines. Adherence did not differ by patient age or gender; hypertension and family history of AF were associated with lower adherence, with anemia showing a non-significant association. DOACs (notably apixaban and rivaroxaban) were the most prescribed agents; DOAC use did not differ between adherent and non-adherent groups, while dual antiplatelet therapy (aspirin+clopidogrel) was more frequent among non-adherent physicians. **Conclusion:** In this study 72% physicians showed adherence to guideline-directed antithrombotic therapy, with specific patient factors (hypertension, family history, anemia) linked to under treatment. Reducing inappropriate reliance on dual antiplatelet therapy and reinforcing risk-based anticoagulation through focused education, standardized protocols, and structured bleeding-risk assessment may close the evidence-to-practice gap.

Key words: Atrial Fibrillation, Anticoagulation, Antiplatelet Therapy, CHA₂DS₂-VA, DOAC, Guideline Adherence, Indus Hospital, Pakistan.

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INTRODUCTION

Atrial fibrillation (AF) is one of the most common heart problems, and it has a lot of effects on both primary and secondary care health services. Because the population is becoming older, more people have more than one health problem, people are more aware of AF, and better ways to find it, the number of people with AF is expected to double in the next few decades.^{1,2} AF is a major risk factor for thromboembolism, whether it is paroxysmal, chronic, or persistent. If you don't get treatment for AF, your chance of having an ischemic stroke is five times higher. Depending on additional circumstances that are unique to each patient, one out of every five strokes is associated to AF.³ Because of this, all eligible patients should automatically get OAC, save for those who are at low risk of having a stroke or thrombosis. OAC has been shown to stop ischemic stroke in people with AF. Antiplatelet drugs (like

aspirin) or aspirin plus clopidogrel alone should not be used to stop strokes in people with AF.^{2,4}

The "2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation" gives doctors advice on how to treat people with atrial fibrillation.^{5,6} In 2013, Mohammad and Kundi conducted a study that revealed a significant number of patients with AF got pharmacological rate-controlling medication in accordance with guidelines. The preventive pharmaceutical therapy for thromboembolic events was deemed highly unacceptable.⁷ Current evidence-based guidelines advocate for prolonged anticoagulation in the majority of patients with atrial fibrillation. Nevertheless, quite a limited percentage of individuals with atrial fibrillation, deemed suitable for oral anticoagulant medication according to best-practice recommendations, actually obtain it.

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Even while there are guidelines, there is still a big difference between what they say and how they are put into reality in the clinic.⁸

Earlier surveys indicated a rising percentage of patients receiving adequate anticoagulation, including 63% in the Cost of Care in Atrial Fibrillation (COCAF) research conducted in France in 2002 and 71% in the FALSTAF study.^{9,10} This rise in the percentage of patients with AF receiving long-term oral anticoagulation therapy is likely attributable to the distribution of treatment guidelines. Still, many general practitioners and even cardiologists are hesitant to follow the guideline recommendations, especially for patients over 80 years old.¹¹

Atrial fibrillation (AF) with a high CHA₂DS₂-VA score poses a considerable risk for embolic stroke. These people necessitate lifelong anticoagulant treatment. However, anticoagulants are a double-edged sword; if not handled correctly in people with high CHA₂DS₂-VA levels, they can cause bleeding and ischemic stroke. This underscores the significance of following guideline-recommended protocols for antithrombotic treatment in individuals with atrial fibrillation. The purpose of our study is to evaluate local physicians' compliance with these antithrombotic therapy guidelines. We also want to look at how doctors' preferences for prescription new anticoagulants for treating atrial fibrillation have changed over time.

METHODS

This cross-sectional study was performed at the Department of Cardiology at Indus Hospital, Karachi, over three months (15th November, 2025 to 15th February, 2026) after the approval from the CPSP and Institutional Review Board Committee (IHNN_IRB_2025_04_016, Date: 13-NOV-2025). Using the WHO calculator, we figured out that we needed 90 doctors based on a 95% confidence level, a 10% margin of error, and an estimated 63% of doctors who follow guidelines for treating atrial fibrillation. A non-probability consecutive sampling method was utilized to recruit participants.

Inclusion criteria mandated that physicians be over 25 years of age, of any gender, and actively treating patients with electrocardiographically confirmed

atrial fibrillation, whether hospitalized or receiving follow-up care in the outpatient department. Exclusion criteria encompassed physicians not engaged in the management of atrial fibrillation patients, as well as instances where patients presented with an absolute contraindication to anticoagulation or received a new diagnosis of atrial fibrillation on the day of admission or during their initial outpatient visit.

The European Society of Cardiology (ESC) 2024 guidelines were used to check how doctors prescribed drugs. These guidelines say that individuals with a CHA₂DS₂-VA score of 2 or higher should take oral anticoagulants (Class I-C), and those with a score of 1 should think about it (Class I-B). Antiplatelet therapy was not advised as a substitute for anticoagulation in the prevention of stroke in atrial fibrillation (Class III-A). Additionally, the temporal classification of atrial fibrillation (paroxysmal, persistent, or permanent) was not endorsed as a criterion for anticoagulation decisions (Class III-B). Physicians' adherence was assessed by evaluating the conformity of their prescribing practices with these suggestions. After getting the go-ahead from the Institutional Ethical Review Board and the College of Physicians and Surgeons Pakistan (CPSP), doctors who met the requirements were asked to sign up. Written informed consent was acquired, and participants were guaranteed that their data would be utilized exclusively for research objectives. We wrote down demographic information including age, sex, body mass index, level of education, overall length of medical practice, and length of practice in the current department. After that, the medical records of atrial fibrillation patients treated by these doctors were looked at to find out which medicines were most often recommended. Prescribing procedures were assessed against established guideline guidelines, and compliance was recorded in accordance with operational definitions.

We used SPSS version 25 to look at the data. Quantitative factors, including age, body mass index, duration of medical practice, and years of practice in the current department, were represented as mean $\pm$ standard deviation. Qualitative characteristics such as gender, qualification, the most often

prescribed medication, and adherence to guideline-recommended treatment were displayed as frequencies and percentages. We divided the groups by age, gender, body mass index, qualification, length of medical practice, length of departmental practice, and choice of medicament. After stratification, Chi-square tests were utilized to evaluate the relationships between physician characteristics and compliance with recommended prescribing guidelines. A p-value of ≤ 0.05 was deemed statistically significant.

RESULTS

In general, 72% of doctors followed the guidelines for antithrombotic therapy, while 28% did not. Adherence did not exhibit significant variation between age categories ($p=0.471$) or by gender ($p=0.823$); the mean age was similar across adherent and non-adherent patients (47.7 ± 13.3 vs 43.5 ± 12.8 years). The majority of comorbidities, such as diabetes, smoking, and dyslipidemia, exhibited no significant correlation with adherence (all $p>0.50$). Anemia exhibited a non-significant trend towards reduced adherence (8.3% vs 21.4%; $p=0.090$), while hypertension was more prevalent in the non-adherent group, but it did not achieve statistical significance (51.4% vs 71.4%; $p=0.077$). A familial history of atrial fibrillation was strongly correlated with reduced adherence (48.6% versus 71.4%; $p=0.046$). Socioeconomic level, reliance, and occupation did not correlate with adherence ($p=0.770$, $p=0.825$, and $p=0.109$, respectively). There was a non-significant tendency ($p=0.087$) toward worse adherence among physicians who treat patients with less education. The ejection fraction was comparable between the groups (43.9 ± 8.3 vs 43.8 ± 10.5). In terms of pharmacology, the usage of individual DOACs did not vary by adherence level (overall $p=0.870$): apixaban (40%) and rivaroxaban (42%) were the most common, followed by dabigatran (10%), edoxaban (2%), and vitamin K antagonists (6%). Antiplatelet choice, on the other hand, was very different ($p=0.004$). Adherent doctors were more likely to use clopidogrel alone (27.8% vs. 3.6%), while non-adherent doctors were more likely to use aspirin + clopidogrel (42.9% vs. 15.3%). Aspirin alone was similar in both groups (48.6% vs. 46.4%).

DISCUSSION

In this study, 72% of physicians followed the guidelines for anticoagulant therapy for atrial fibrillation (AF), while almost 28% did not. This shows that evidence-based practice is being used moderately, but there is still potential for improvement. Our results are in the middle of what has been published in other countries. Ogilvie et al. found that in most groups, less than 60% of eligible AF patients used OAC.¹² Laugesen and colleagues recently showed that things are getting better in Denmark, with adherence going from 53% in 2013 to 78% in 2022.¹³ Asian researches, on the other hand, reveal that adherence is always lower. Another study noted that 53.7% of Chinese AF patients received proper anticoagulant prescriptions.¹⁴ In contrast, Chang S-S et al. discovered that only 36.5% of AF patients with a CHA₂DS₂-VASc score ≥ 2 were anticoagulated¹⁵, while Yutao Guo reported that 44.7% of patients were treated with an OAC.¹⁶ Our study's 72% adherence rate implies that it is better than the norm for the region but not as good as the most recent European benchmarks.

In our situation, some factors relating to the patient affected adherence. Hypertension correlated with fewer adherences to guidelines, potentially attributable to physicians' apprehensions over heightened bleeding risk in cases of inadequate blood pressure management. In contrast, major registries like PINNACLE showed that OAC-treated patients were more likely to have high blood pressure (80.4% vs. 74.0%). This shows that people in different areas have different ideas about risk.¹⁷ A family history of AF was also linked to decreased adherence, which could be due to doctors being more careful with families that have a lot of cardiovascular disease and have been on treatment for a long time. A family history of AF was also linked to lower adherence, but there isn't much evidence on prescribing; other studies have shown that it raises the risk of cardiovascular events and death.^{18,19} Our findings diverge from prevailing international trends, underscoring the necessity for meticulous blood pressure management and systematic bleeding-risk evaluation to avert undertreatment. Anemia exhibited a marginal correlation with non-adherence.

TABLE-I

Physicians practices for antithrombotic therapy in relation to patients characteristics

Variables	Categories	n(%)	Physicians Following Guidelines		P-Value
			Yes	No	
			72	28	
Age	20-30	9(9%)	6(8.3%)	3(10.7%)	0.471 ^(f)
	31-40	34(34%)	21(29.2%)	13(46.4%)	
	41-50	18(18%)	15(20.9%)	3(10.7%)	
	51-60	19(19%)	14(20.6%)	5(17.9%)	
	>60	20(20%)	16(22.2%)	4(14.3%)	
	Mean±SD (Range)	46.52±13.21	47.71±13.27	43.46±12.79	
Gender	Male	58(58%)	41(56.9%)	17(60.7%)	0.823 ^(c)
	Female	42(42%)	31(43.1%)	11(39.3%)	
Factors	Diabetes	50(50%)	34(47.2%)	16(57.1%)	0.504 ^(c)
	Smoking	17(17%)	11(15.3%)	6(21.4%)	0.555 ^(c)
	Dyslipidemia	14(14%)	11(15.3%)	3(10.7%)	0.752 ^(f)
	Anemia	12(12%)	6(8.3%)	6(21.4%)	0.090 ^(f)
	Hypertension	57(57%)	37(51.4%)	20(71.4%)	0.077 ^(c)
	F/H (AF)	55(55%)	35(48.6%)	20(71.4%)	0.046 ^(c)
Dependency	Dependent	59(59%)	43(59.7%)	16(57.1%)	0.825 ^(c)
	Independent	41(41%)	29(40.3%)	12(42.9%)	
Education	Illiterate	43(43%)	27(37.5%)	16(57.1%)	0.087 ^(c)
	Under Matric	44(44%)	29(40.3%)	5(17.9%)	
	Graduate or above	23(23%)	16(22.2%)	7(25%)	
SES	Low	48(48%)	33(45.8%)	15(53.6%)	0.770 ^(f)
	Middle	46(46%)	34(47.2%)	12(42.9%)	
	High	6(6%)	5(6.9%)	1(3.6%)	
Occupation	House Wife	38(38%)	25(34.7%)	13(46.4%)	0.109 ^(f)
	Student	8(8%)	5(6.9%)	3(10.7%)	
	Retired	20(20%)	14(19.4%)	6(21.4%)	
	Employed	24(24%)	22(30.6%)	2(7.1%)	
	Business	10(10%)	6(8.3%)	4(14.3%)	
EF	Mean±SD	43.86±8.90	43.88±8.30	43.78±10.45	
Direct anticoagulant	Apixab	40(40%)	29(40.3%)	11(39.3%)	0.870 ^(f)
	Dabigatran	10(10%)	8(11.1%)	2(7.1%)	
	Edoxaban	2(2%)	2(2.8%)	0(0%)	
	Rivaroxaban	42(42%)	28(38.9%)	14(50%)	
	Vitamin K antagonist	6(6%)	5(6.9%)	1(3.6%)	
Antiplatelet	Aspirin	48(48%)	35(48.6%)	13(46.4%)	0.004 ^(f)
	Clopidogril	21(21%)	20(27.8%)	1(3.6%)	
	Aspirin+ Clopidogril	23(23%)	11(15.3%)	12(42.9%)	
	None	8(8%)	6(8.3%)	2(7.1%)	

In the same way, Rashid et al. discovered that anemia was an independent predictor of under-prescribing warfarin to older AF patients.²⁰ Bonde et al. showed that AF patients with moderate to severe anemia had far greater rates of major bleeding and no evident reduction in stroke risk when they were given anticoagulants. This suggests that fear of bleeding danger is what drives this behavior.²¹ These findings collectively suggest that, although medical caution may be warranted, the under-treatment of anemic atrial fibrillation patients persists as a significant challenge, necessitating customized risk-benefit assessment.

While diabetes, smoking, and dyslipidemia did not emerge as statistically significant indicators in our investigation, these comorbidities may nevertheless influence physician opinion. In contrast to larger international cohorts, where both diseases have been associated with increased OAC usage, indicating their impact on overall stroke risk scores. The PINNACLE registry indicated that patients receiving OAC treatment exhibited a higher prevalence of diabetes (23.7% vs. 22.2%) and dyslipidemia (57.5% vs. 53.4%) in comparison to those who were untreated.¹⁷ Likewise, studies from European registries indicate increased anticoagulant prescribing in diabetic patients, notwithstanding their elevated complication rates.²² The absence of correlation in our context may indicate local practice trends, constraints in sample size, or conflicting treatment priorities, such as the administration of antiplatelet agents in patients with concurrent coronary artery disease.

In our study, the usage of DOACs did not vary between adherent and non-adherent physicians ($p=0.870$), contrasting with findings from Europe and North America, where adherence to guidelines is frequently associated with increased DOAC utilization.²³ This could be due to local problems like cost or availability.²⁴ In contrast, dual antiplatelet medication with aspirin and clopidogrel was more prevalent among adherent physicians ($p=0.004$), reflecting regional data from the Gulf SAFE registry²⁵ and consistent with global evidence indicating its inferiority to OAC for stroke prevention. Consequently, our findings underscore a continuous deficiency in the implementation of guideline

recommendations, especially with the unwarranted dependence on dual antiplatelet medication. In general, our results show that adherence is better than in many Asian studies but not as good as in the best European practices. They also emphasize that both physicians' estimations of bleeding risk and patients' comorbidities affect treatment choices. Keeping up with adherence throughout time is just as vital.

This study has few limitations. This was a cross-sectional study conducted in a single center with a modest sample size, which limits generalizability. Factors such as patient refusal, cost, and drug availability were not assessed. In addition, bleeding risk scores such as HAS-BLED were not applied, which may have provided greater insight into prescribing decisions.

CONCLUSION

In this study 72% physicians showed adherence to guideline-directed antithrombotic therapy, with specific patient factors (family history) linked to under treatment. Reducing inappropriate reliance on dual antiplatelet therapy and reinforcing risk-based anticoagulation through focused education, standardized protocols, and structured bleeding-risk assessment may close the evidence-to-practice gap.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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3	Taiba Akhtar: Literature review.
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