Antithrombotic Prescribing Pattern and Predictors of Oral Anticoagulants Use in Patients with Atrial Fibrillation: Results from a hospital-based cross-sectional study of Nepal

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ABSTRACT

Background

Patients with atrial fibrillation (AF) are at an increased risk of stroke and require oral anticoagulants (OACs) to reduce the risk of stroke and improve clinical outcomes. Guidelines do not recommend antiplatelet therapy without a specific indication; however, its use persists in clinical practice. Identifying the factors associated with oral anticoagulants use may help optimize patient care.

Objective

To assess the antithrombotic use pattern and predictors of oral anticoagulant use.

Method

This cross-sectional study included patients aged ≥ 18 years with atrial fibrillation who attended the cardiopulmonary unit of the Dhulikhel Hospital, Kathmandu University Hospital, from March 2022 to April 2023. Stroke risk was assessed using the CHA2DS2-VASc score. Patients taking antiplatelet agents, vitamin K antagonists, and non-vitamin K antagonists were considered to be receiving antithrombotic therapy. Binary logistic regression was performed to identify the predictors of oral anticoagulant use.

Result

Among 215 patients with atrial fibrillation, 63.2% were receiving oral anticoagulants, and 30.2% were on antiplatelet therapy. Within the oral anticoagulant group, rivaroxaban was the most commonly used (38.6%). Among patients classified as high risk of stroke, 61.8% were on oral anticoagulants, whereas 32.8% were on antiplatelet therapy. Congestive heart failure, coronary artery disease, and moderate-to-severe bleeding risk were identified as significant predictors of oral anticoagulant use among patients atrial fibrillation ($p < 0.05$).

Conclusion

Many patient atrial fibrillation were prescribed oral anticoagulants to prevent stroke; however, antiplatelet therapy continues to be administered. Congestive heart failure, coronary artery disease, and elevated bleeding risk predicted of oral anticoagulant use. These findings underscore the importance of optimizing oral anticoagulant therapy according to individual patient risk profiles.

KEY WORDS

Atrial fibrillation, Oral anticoagulant, Predictor of oral anticoagulant

INTRODUCTION

Atrial Fibrillation (AF) is the predominant sustained supraventricular arrhythmia. The global burden of AF is approximately 0.51%, with an Asian prevalence of 0.3–16.4%.[1-7] Risk factors for AF include aging, male sex, alcohol consumption, smoking, hypertension (HTN), chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), coronary artery disease (CAD), obstructive sleep apnea (OSA), and diabetes mellitus (DM).[8] HTN, COPD, CHF, DM, and stroke coexist with AF.[9-11]

AF is associated with morbidity and mortality, primarily due to stroke.[12] AF confers a five-fold greater risk of ischemic stroke, a three-fold risk of heart failure (HF), and a 3.5-fold mortality risk compared to those without AF.[8,13] AF-related ischemic strokes are more disabling and life-threatening.[14]

Guidelines recommend the CHA2DS2-VASc score for stroke risk assessment in AF, scores ≥ 2 in men and ≥ 3 in women indicate a high risk of stroke.[15-17] Most AF patients are at a high risk of stroke.[18-20] And guidelines recommend OACs to prevent stroke in high-risk patients.[8,15,21] OACs include vitamin K antagonist and non-vitamin K antagonist oral anticoagulants (NOACs).[8] OAC treatment reduces the risk of stroke in patients with AF by two-thirds.[22] Although guidelines recommend OACs and no longer recommend antiplatelet (AP) therapy for stroke prevention, OACs remain underutilized, and AP use indicates a gap between guideline recommendations and OAC use in our context.[8,20,23] Nepalese data on prescribing patterns and predictors of OAC use are limited. Therefore, this study was designed to assess the clinical characteristics, antithrombotic utilization patterns, and factors associated with OAC treatment in patients with AF.

METHODS

This cross-sectional study was conducted at the cardiopulmonary unit of Dhulikhel Hospital, Kathmandu University Hospital (KUH), located in Dhulikhel, Kavre, Bagmati Province, Nepal. It is a 475-bedded, tertiary-level hospital serving a population of approximately 2.5 million people from the surrounding districts. The hospital provides a wide range of medical services, including inpatient and outpatient services, and specialized cardiac care.

Ethical approval was obtained from the Nepal Health Research Council (Ref. no. 806) and the Institutional Research Committee (IRC), Kathmandu University, School of Medical Sciences, Dhulikhel (Ref. no. 104/2021). Informed consent was taken from patients in writing before data collection.

Patients aged ≥ 18 years with a diagnosis of AF, including both valvular AF (VAF) and nonvalvular AF (NVAF), who attended the cardiopulmonary unit of Dhulikhel Hospital KUTH, were enrolled from March 2022 to April 2023. A non-probability purposive, convenience-sampling technique was used to enroll the patients.

The exclusion criteria included patients who were unresponsive or mentally challenged, postoperative AF cases, critically ill patients with a life expectancy of < 30 days, and those experiencing transient AF secondary to infection, acute myocardial infarction, or alcohol intoxication.

Written informed consent was obtained from all participants. A self-designed, validated questionnaire was used to obtain patient data. Information on sociodemographic traits, medical history, and current medications was gathered.

Stroke risk was assessed using the CHA2DS2-VASc score.

1 point each for congestive heart failure (CHF), hypertension (HTN), diabetes mellitus (DM), vascular disease, age 65–74 years, and female sex

2 points each for age ≥75 years and prior stroke or transient ischemic attack (TIA)

A CHA2DS2-VASc score of 0 in males and 1 in females was categorized as **"low risk"**; a score of 1 in males and 2 in females as **"moderate risk"**; and a score of ≥ 2 in males and ≥ 3 in females as **"high risk"**.

Similarly, bleeding risk was assessed using the HAS-BLED score, assigning one point each for HTN, abnormal renal/liver function, previous stroke, bleeding history or predisposition, labile international normalized ratio (INR), age > 65 years, use of drugs predisposing to bleeding, such as non-steroidal anti-inflammatory drugs (NSAIDs), and alcohol use (> 8 drinks per week). Information on labile INR was not available; therefore, the HAS-BLED score ranged from 0 to 8, instead of 0 to 9, in this study. A HAS-BLED score of 0 indicated **"low risk"**, 1-2 indicated **"intermediate risk"** and ≥ 3 indicated **"high risk"**. The Charlson Comorbidity Index (CCI) was used to assess comorbidities.

Patients were grouped based on their antithrombotic therapy. Those taking aspirin and clopidogrel either alone or in combination were classified into the **"antiplatelet (AP)"** group, and those taking warfarin, dabigatran, and rivaroxaban as an **"oral anticoagulant"** group. The **"combination therapy"** group consisted of patients receiving both OACs and AP drugs. Patients receiving any of these therapies were classified as receiving antithrombotic therapy. Patients who did not receive any antithrombotic therapy were categorized into the **"no antithrombotic therapy"** group.

For the predictor analysis, patients taking only "antiplatelet agents or no antithrombotic agents were grouped as **"no anticoagulant therapy''**, and patients taking VKA or NOAC were grouped as "anticoagulant therapy". Contraindications for OAC use included active bleeding, severe thrombocytopenia (platelet count < 50,000/µL), expected invasive procedure or surgery, major trauma,

hemorrhagic stroke, active peptic ulcer, advanced dementia without a caregiver, and frequent falls. Patients with a CHA_2DS_2-VASc score of zero were not considered candidates for OAC therapy.

All quantitative data were coded, entered, and processed using the Statistical Package for Social Sciences (SPSS) version 23. Data cleaning and validation were performed prior to the analysis.

Descriptive statistics were presented as frequencies and percentages for categorical variables, means ± standard deviations for normally distributed continuous variables, and medians with interquartile ranges (IQR) for non-normally distributed continuous variables.

The normality of the continuous variables was assessed using appropriate statistical tests. Based on these results, parametric or non-parametric tests were applied.

To identify the predictors of OAC use, univariate logistic regression analysis was performed, and crude odds ratios (ORs) with 95% confidence intervals (CIs) were calculated. Variables with P ≤ 0.20 in the univariate analyses were included in the multivariate logistic regression model. From this model, the adjusted odds ratio (AOR) with 95% confidence interval was reported, which was used to identify independent predictors of OAC use among patients with AF. Statistical significance was set at $p < 0.05$.

RESULTS

A total of 215 patients who met the inclusion criteria were enrolled in the cardiopulmonary department. The demographic and clinical characteristics of the enrolled patients are summarized in table 1.

The median age of the included patients was 69 (59-77) years, with the majority being aged ≥ 65 years (64.2%) and female (52.1%). The median BMI was 24.2 kg/m^2 (22-26.4 kg/m^2). The median SBP, DBP, and pulse rate were 120 mmHg, 80 mmHg, and 84 bpm, respectively. Newly diagnosed AF was observed in 24.7% of patients, whereas NVAF accounted for 80.0% of cases.

The median CHA_2DS_2VASc score was 2 (IQR: 2-3), and the median HAS-BLED score was 1 (IQR: 1-2). Based on these scores, 63.3% were classified as high-risk for stroke and 74.0% as intermediate-risk for bleeding.

Table 2 summarizes the medical history of the enrolled patients. The most prevalent comorbidities among patients with AF were HTN (39.5%), followed by COPD (26.0%), CHF (23.7%), and cardiomyopathy (15.8%). Additionally, 10.2% of the patients had a history of stroke or TIA.

The details of the medication use among patients with AF are presented in table 3. The most commonly used antithrombotic agents were OACs (63.2%), followed by AP therapy (30.2%). Among OACs, Rivaroxaban was the

Table 1. Socio-demographic and clinical characteristics of enrolled patients with AF (n=215)

Variables	Result n(%)
Age (years), median (IQR)	69 (59-77)
< 65	77 (35.8)
≥ 65	138 (64.2)
Female	112 (52.1)
BMI (kg/m^2), median (IQR)	24.2 (22.0- 26.4)
Underweight	11 (5.1)
Normal weight	116 (54.0)
Overweight	75 (34.9)
Obese	13 (6.0)
SBP (mmHg), median (IQR)	120 (110-130)
DBP (mmHg), median (IQR)	80 (70-80)
PR (bpm), median(IQR)	84 (78-90)
CCI	3.4 ±1.42
New onset of AF	53 (24.7)
Previous AF	162 (75.3)
NVAF	172 (80.0)
VAF	43(20.0)
CHA2DS2 -VASc score, median (IRQ)	2 (2-3)
Low risk (male 0, female 1)	38 (17.7)
Moderate risk (male 1, female 2)	41 (19.1)
High risk (male ≥ 2, female ≥ 3)	136 (63.3)
HAS-BLED score, median (IRQ)	1 (1-2)
Low risk (0)	39 (18.1)
Intermediate risk (1-2)	159 (74.0)
High risk (≥ 3)	17 (7.9)

Abbreviations: BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; PR, pulse rate; CCI, Charlson comorbidity index; NVAF, non valvular atrial fibrillation; AF, atrial fibrillation

Table 2. Medical history of patients with AF (n=215)*

Medical History	n (%)
Hypertension	85 (39.5)
COPD	56 (26.0)
Congestive Heart failure	51 (23.7)
Cardiomyopathy**	34 (15.8)
Diabetes Mellitus	28 (13.0)
Coronary artery disease	12 (5.6)
Valvular heart disease (VHD)	-
Rheumatic heart disease	32 (14.9)
Non rheumatic VHD	28 (13.0)
Previous stroke or TIA	11 (10.2)
Peripheral artery disease (PAD)	4 (1.9)
Pulmonary embolism	1 (1.9)

*Multiple responses were possible for each patient.
**Cardiomyopathy included dilated and ischemic cardiomyopathy.

most frequently prescribed (38.6%), whereas aspirin was the most commonly prescribed antiplatelet agent (28.4%). A smaller proportion of patients (2.8%) received a combination of AP and OAC therapy.

Table 3. Medicine use distribution in patients with AF (n=215)

Medications	n (%)
Rate/ rhythm control treatment	
Class III antiarrhythmic	1 (0.5)
β blocker	164 (76.3)
CCBs (diltiazem)	9 (4.2)
Cardiac glycoside(digoxin)	56 (26.0)
Concomitant medications	
Statin	76 (35.3)
ARBs	49 (22.8)
CCBs	17 (7.9)
ACEIs	30 (14.0)
Diuretics	185 (86.0)
α blocker	17 (7.9)
ARBs and CCBs	24 (11.5)
Bronchodilator	95 (44.2)
Anti-diabetic	68 (31.6)
PPIs	65 (30.2)

VKA, vitamin K antagonist; NOAC, non vitamin K antagonist oral anticoagulant; AP, antiplatelet; OAC, oral anticoagulant; CCB, calcium channel antagonist; ARB, angiotensin receptor blocker; ACEI, angiotensin converting enzyme inhibitor; PPI, proton pump inhibitor

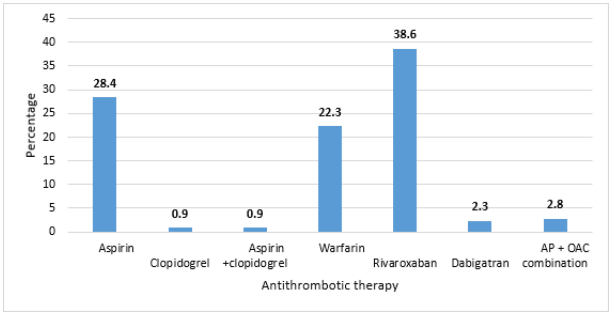

Figure 1. Antithrombotic drug distribution in patients with AF (n=215)

Table 4. Use of Antithrombotic therapies according to CHA_2DS_2-VASc stroke risk stratification[a] (n=210)

Stroke risk stratification	No ATT n (%)	AP n (%)	OAC n (%)	AP+OAC n (%)	Any ATT n (%)
Low risk (n=38) (Male=0, Female=1)	2 (5.3)	6 (15.8)	30 (78.9)	0	36 (94.7)
Moderate risk (n=41) (Male=1, Female=2)	-	16 (39.0)	25 (61.0)	0	41(100)
High risk (n=131) (Male ≥ 2, Female ≥ 3)	1(0.8)	43 (32.8)	81 (61.8)	6 (4.6)	130 (99.2)

[a]excludes those with contraindications take OAC

Table 5. Predictor of OAC use among patients with AF (n=210)

Variables	Univariate binary logistic regression			Multivariate binary logistic regression		
	B	COR (95% CI)	P	B	AOR(95% CI)	P
Age	-0.02	0.98 (0.96-1.06)		- 0.00	1.00(0.97-1.03)	0.82
Gender	-0.36	0.07 (0.39-1.26)				
BMI	0.02	1.02 (0.95-1.10)				
Comorbidities						
CHF	1.11	3.05 (1.338-6.93)	0.008	1.32	3.76 (1.57- 9.0)	0.003
CAD	-1.82	0.16 (0.042-0.63)	0.009	-1.77	0.17 (0.04-0.72)	0.017
COPD	-0.42	0.66 (0.35-1.25)	0.199	0.06	0.85 (0.41-1.78)	0.670
DM	-0.17	0.84 (0.37-1.94)	0.686			
HTN	0.01	0.99 (0.55-1.77)	0.970			
Previous stroke	0.10	1.11 (0.43-2.83)	0.835			
Stroke risk stratification						
Low risk	Ref					
Moderate risk	-0.88	0.42 (0.153-1.13)	0.086	0.193	1.213 (0.33-4.49)	0.772
High risk	-0.64	0.53 (0.223-1.25)	0.145	0.736	2.087 (0.57- 7.61)	0.265
Bleeding risk						
Low	Ref					
Moderate	2.42	0.09 (0.02-0.38)	0.001	-2.82	0.06 (0.01-0.32)	0.001
High	-2.38	0.09 (0.02-0.53)	0.008	-2.89	0.06 (0.01-0.41)	0.005

BMI, body mass index; HTN, hypertension; CAD, coronary artery disease; CHF, congestive heart failure; DM, diabetes mellitus; COPD, chronic obstructive pulmonary disease. Values in bold indicate statistically significant results

For rate control, most patients were prescribed beta-blockers (76.3%). Given the high prevalence of hypertension, antihypertensive medications were widely used in the cohort.

Among the total cohort, five patients (2.3%) were excluded due to contraindications to OACs. Therefore, 210 patients were included in the analysis of antithrombotic therapy according to stroke risk stratification. Among patients at a low risk of stroke, 78.9% were on OAC therapy. In contrast, among high-risk patients, only 61.8% were on OACs, 32.8% were on AP therapy, and 0.8% were not taking any thromboprophylaxis.

Among the high risk patients, four patients (3.0%) on AP therapy refused OAC therapy, and ten (7.6%) had concomitant CAD. Of these, six patients received AP therapy alone, three received a combination of AP and OAC, and one was planned for surgery; therefore, they did not receive any antithromboprophylactic therapy (Table 4).

Table 5 presents the predictors of OAC use in patients with AF. This study explored the association between OAC use and various patient characteristics, including age, sex, BMI, CHF, CAD, COPD, HTN, stroke risk stratification, and bleeding risk stratification. The analysis demonstrated that CHF (p=**0.003**), CAD (p=**0.017**), moderate (p=**0.001**) and high bleeding risks (p=**0.005**) were significant predictors of OAC use. Specifically, the multivariate model showed that CHF was a significant positive predictor and increased the likelihood of OAC prescription, whereas CAD and moderate to high bleeding risk were negative predictors of OAC and were significantly associated with reduced OAC use.

Other variables, such as age, sex, BMI, HTN, COPD, DM, previous stroke, and stroke risk stratification, were not significantly associated with OAC use.

DISCUSSIONS

This study evaluated a cohort of 215 patients diagnosed with AF at a tertiary care hospital in Nepal. It offers comprehensive insights into the clinical characteristics and management of AF, with a special focus on the use of antithrombotic therapy in the Nepalese context.

The median age of the enrolled patients was 69 years (IQR 59-77), which is comparable to the findings from previous studies reporting mean ages ranging from 69.8 to 72.3 years.[9,11,24,25] This similarity suggests a consistent age distribution of AF across different populations, reinforcing its predominance in older adults.

Female patients constituted 52.1% of the study population, aligning with other studies that reported a female predominance exceeding 50%.[23,26,27] This observation may reflect greater health-seeking behaviors among women, who are often more likely to access healthcare services than men.

The median body mass index (BMI) was 24.2 kg/m^2 (IQR 22-26.4 kg/m^2), which is comparable to values reported by another Nepalese study conducted by Sherpa et al. (22.5 ± 2.9 kg/m^2) and a Japanese study by Akao et al. (23.1 ± 4.0 kg/m^2).[20,28] Most of the patients had normal body eight, followed by overweight, which is consistent the findings of khanal et al.[29] These results indicate a relatively similar anthropometric profile among AF cohorts in same settings and across different regions.

Newly diagnosed AF accounted for 24.7% of the cases in this study, which is consistent with previously reported proportions of 26.3% and 29.0% in other studies.[10,23] This similarity suggests comparable patterns of AF detection and presentation across different populations.

In our study, 80.0% of patients were diagnosed with non-valvular atrial fibrillation (NVAF). This proportion is higher than that reported in a previous Nepalese study (62.0%) 23 yet comparable to another study conducted in Nepal, which documented an NVAF prevalence of 81.7 %. 27 These findings suggest variability across cohorts but indicate the predominance of NVAF in contemporary clinical practice within the Nepalese setting.

Rheumatic heart disease (RHD) is a well-recognized etiological factor for VAF, particularly in South Asian populations. However, in our cohort, comorbid conditions such as HTN, CHF, Cardiomyopathy, COPD, DM, and CAD were more prevalent than RHD. The higher burden of these non-rheumatic cardiovascular and metabolic risk factors may explain the increased proportion of NVAF observed in this study, reflecting an epidemiological transition toward lifestyle-related and degenerative cardiac conditions.

AF in our cohort was frequently associated with multiple cardiac and noncardiac comorbidities. HTN was the most prevalent associated medical condition, observed in 39.5% of patients. Although HTN is a well-established risk factor for AF, its prevalence in our study was lower than that reported in other cohorts, where rates ranged from 62.2% to 85.8%, but slightly higher than that reported in a Nepalese study (30.8%).[10,11,27,30] The pathological link between HTN and AF has been well established. Neurohormonal (sympathetic nervous system and renin-angiotensin-aldosterone system) activation and structural and electrical remodeling secondary to HTN can lead to the development of AF in hypertensive patients.[31]

COPD was present in 26.0% of the patients with AF, comparable to the 25.7% reported in a Tasmanian cohort.[10] Hypoxia-induced atrial remodeling, pulmonary hypertension, and systemic inflammation are proposed mechanisms linking COPD and AF.[32] Furthermore, CHF was identified in 23.7% of patients with AF, consistent with previously reported ranges of 22.8-27.9%.[10,28,30,33,34] AF and CHF share a bidirectional relationship; structural remodeling, neurohormonal activation, and ventricular dysfunction in HF promote atrial arrhythmogenesis,

whereas AF can further impair cardiac output and worsen HF.[35]

The CHA2DS2VASc score is widely used to analyze the stroke risk in patients with AF. The median CHA_2DS_2-VASc score in our cohort was 2 (IQR, 2–3). Stroke risk stratification revealed that 63.3% of the patients were at a high risk of stroke. Although this proportion of somewhat lower than other studies, the majority of patients were eligible for OAC therapy according to contemporary guideline recommendations.[8,10,30,36]

Likewise, the HAS-BLED score is calculated to assess the bleeding risk of patients so that proper management with OAC therapy can be performed by identifying modifiable bleeding risk factors that should be either managed or assessed during every patient contact, as well as non-modifiable risk factors requiring close monitoring.[8] The median HAS-BLED score was 1 (IQR 1-2), and 74.0% of patients were categorized as having intermediate bleeding risk, consistent with previous findings.[10,37] These data emphasize that while many patients require anticoagulation, careful bleeding risk assessment and regular monitoring remain essential components of management.

Anticoagulant therapy is widely used, well established, and recommended for stroke prevention. OACs were the most commonly prescribed thromboprophylactic therapy (62.8%), comparable to reports of 55.7–66.1% in other cohorts.[28,38,39] Other studies reported OAC usage for thromboprophylaxis as 43.0%, 31.5%, and 39.1% which is slightly less than our finding.[10,23,30] The increasing use of OACs in patients with AF likely reflects the robust evidence of the effectiveness of OACs in preventing stroke and thromboembolism.[40]

In our study, 22.3% of patients received warfarin and 40.5% received non-vitamin K antagonist oral anticoagulants (NOAC). Among NOAC users, rivaroxaban predominated (38.1%) while dabigatran use was limited (2.3%). Warfarin use was lower than that reported in some earlier international studies (> 40%), but higher than that reported in one Nepalese study (7.14%).[11,27,28,41] The relatively lesser use of warfarin compared to NOAC may be attributed to its narrow therapeutic index, which requires close INR monitoring, frequent follow-up visits, frequent dose adjustments, and numerous drug – drug and drug-food interactions.[42] In contrast, NOACs offer predictable pharmacokinetics, fixed dosing, rapid onset of action, and no need for routine monitoring, making them more convenient for routine practice.[43]

Antiplatelet (AP) therapy was prescribed in 30.2% of patients, consistent with previous reports ranging from 26.7% to 35.9%.[10,28,30,41] Aspirin alone was used in 28.4% of cases, comparable to rates reported in other studies (26.2-29.0%), though higher than 13.7% reported in a Lithuanian tertiary hospital.[11,12,38,41] Current guidelines do not recommend the use of AP therapy alone for thromboprophylaxis in AF unless there is a specific indication.[8,31,44] However, its continuous use may reflect clinicians' preferences, concerns about bleeding risks associated with OACs, coexisting coronary artery disease (CAD), and historical prescribing practices.

A smaller number of patients (2.8%) received a combination of AP and OAC, which was slightly lower than in other studies, where OAC and AP use was reported to be 8.8%.[45] Combination therapy is typically reserved for patients with AF and recent acute coronary syndrome or percutaneous coronary intervention, in which balancing thrombotic and bleeding risks is critical.[46]

Among patients eligible for OAC therapy, five patients (2.3%) were not receiving antithrombotic treatment due to active bleeding or planned surgery and were excluded from the stroke risk-based analysis.

Among patients with a high stroke risk, a subset refused OAC therapy, and some with coexisting CAD were maintained on AP therapy with or without OAC. Overall, more than one-quarter of high-risk patients for stroke were treated with AP therapy rather than with OAC. Among them, 28.2% were prescribed AP therapy without clear indication, whereas 4.6% of patients had documented CAD. Although AP therapy has limited efficacy in preventing cardioembolic stroke, it carries a bleeding risk comparable to that of OACs, and adding AP to OAC in stable CAD does not significantly reduce stroke, myocardial infarction, or mortality.[47,48]

Contemporary Guidelines recommend the use of OAC for patients with a high stroke risk, whereas no thromboprophylaxis is recommended for low-risk patients.[8] Based on this guideline, our data demonstrated that despite 62.4% of patients being eligible for OAC therapy, underutilization was observed, with only 61.8% of patients receiving OACs. The underutilization of OAC therapy has been repeatedly reported in multiple studies.[10,20,23] Our study site serves semi-urban areas, including patients from rural areas, where regular motoring is challenging. Advanced age, multiple comorbidities, perceived fall risk, prior bleeding, anemia, and clinician concern regarding hemorrhagic complications may also contribute to reluctance in prescribing OACs.[12,49]

Multivariate analysis identified CHF, CAD, and elevated bleeding risk as independent predictors of OAC prescription in our population, with CHF being the only positive predictor. After adjustments, patients with CHF were more than three times more likely to receive OAC therapy. Similarly, in a study conducted by Agarwal et al., CHF was associated with a higher rate of anticoagulant use.[50] Heart failure often coexists with AF and can exacerbate each other through mechanisms such as cardiac remodeling and activation of neurohormonal mechanisms, causing impaired ventricular function. This can lead to blood stasis and thromboembolism. Hence, CHF is part of the CHA_2DS_2-VASc stroke risk assessment tool, and guidelines

recommend the use of OAC therapy to prevent adverse outcomes.[16] Therefore, clinicians prefer to use OAC in patients with AF and CHF, as reflected in our findings.

Conversely, CAD was a negative predictor of OAC use, with approximately 80% lower odds of receiving OAC. This finding is consistent with other studies, and likely reflects clinical preference for AP therapy in patients already receiving treatment for coronary artery disease.[51] Elevated bleeding risk was also independently associated with reduced OAC prescribing, similar to the finding reported by Lubitz et al.[52] Components of the HAS-BLED score, such as renal dysfunction, liver dysfunction, and concurrent AP use, may discourage OAC use in routine practice.

Overall, OAC prescribing decisions in our cohort were strongly influenced by comorbidity burden and the perceived bleeding risk. These findings highlight the need for improved risk-benefit communication, structured bleeding risk mitigation strategies, and context-specific interventions to optimize guideline-directed stroke prevention in patients with AF.

In context of Nepal, there are limited evidence related to prescribing pattern, and predictor analysis for OAC use. Therefore this study provides baseline data from resource limited setting

This study has a few limitations. Although patient enrollment was conducted over a one-year period, the overall sample size remained small, largely due to the low prevalence of the disease. A limited sample size may reduce the statistical power to detect certain associations and affect the generalizability of the findings.

Additionally, the study was conducted at a single tertiary care hospital in Nepal. Therefore, the findings may not be fully representative of the entire Nepalese AF population.

To improve the generalizability of the study, additional multicenter studies with larger and more diverse populations should be conducted to depict the current status of ATT prescription and predictors of OAC use among patients with AF. Such research could enhance the nationwide use of OACs for stroke prevention.

CONCLUSION

The present study provides important insights into the management of AF in the Nepalese context, particularly the current practices in the use of antithrombotic agents and the predictors for the use of OACs. The findings indicate that the use of OAC for stroke prevention has increased in recent years. However, AP therapy continues to be prescribed for thromboembolism prevention, and a considerable proportion of patients at high risk of stroke remain on AP therapy instead of guideline-recommended OACs.

This study further demonstrated that CHF, CAD, and moderate to high bleeding risk were independently associated with OAC prescription patterns in patients. Our study showed that CHF was associated with an increased use of OAC. In contrast, CAD and increased bleeding risk reduce OAC use. This finding underscores the influence of comorbid conditions on OAC prescription in clinical practice, despite the guideline recommendation to use OAC. These results highlight a persistent gap between guideline recommendations and real-world clinical practice in stroke prevention among patients with AF.

This underscores the need for in-depth investigations to identify context-specific facilitators and barriers to OAC use. Based on these findings, targeted interventions can be designed and implemented to improve guideline adherence, optimize anticoagulation practices, and ultimately enhance patient outcomes.

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