

Evaluation Of Adherence To Anticoagulant Therapy And Its Impact On Stroke Prevention In Atrial Fibrillation

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Abstract:

Atrial fibrillation (AF) is one of the common cardiac arrhythmia with the risk of stroke and systemic embolism. In the prevention of thromboembolic damage the anticoagulant administration is contained in the given situation of AF yet the administration of this kind of agent primarily rests on whether the patient will adhere to the approach or not. The purpose of the project under consideration was to evaluate the adherence to oral anticoagulant treatment and its contribution to the prevention of the stroke in the sample of patients with a trial fibrillation. The research was a prospective observational study on war far in patients or direct oral anticoagulants (DOACs) patients over 6 months. The compliance was measured using a validated scale of medication adherence and confirmed using the prescription refill record. Such clinical outcomes like the frequency of stroke and bleeding were recorded and contrasted. The findings were that 68 percent of patients were good adherents and 32 percent were poor adherents. High patient adherence also had a much lower rate of stroke ($p < 0.05$) over poor adherence. The non-compliance was attributed to such aspects as polypharmacy, forgetfulness, and ignorance in terms of therapy benefits advantages. Based on the results, it can be concluded that patient education, regular follow-ups, and stroke monitoring should be sustained with the purpose of optimization of the prevention of a trial fibrillation. The advantages of adherence in a situation requiring greater results of treatment and the burden associated with AF can be significantly enhanced.

Keywords: Atrial fibrillation, anticoagulants therapy, adherence, stroke prevention, warfarin, direct oral anticoagulants, medication compliance

INTRODUCTION

The most prevalent sustained cardiac arrhythmia, which is met in clinical practice, is atrial fibrillation (AF), which is marked by irregular atrial depolarization and atrial contraction is lost. AF becomes more common among the elderly and patients with comorbidities like hypertension, diabetes mellitus, heart failure and ischemic heart disease. It is a significant health burden in the world and its prevalence estimates about 1-2 in the general population and much higher in the elderly. Ischemic stroke is one of the most severe complication of AF, and it is caused by the formation of thrombus in the left atrium or left atrial appendage because of the stagnation of blood [1]. The effectiveness of embolization of these thrombi to cerebral arteries may cause catastrophic neurological events.

The mainstay of stroke prevention in patients with AF is the anticoagulant therapy. Anticoagulation with vitamin K antagonists (VKAs), including warfarin, has been also widely used traditionally and has many requirements, like the constant monitoring of the international normalized ratio (INR), dietary limitations, and dose modifications. Direct oral anticoagulants (DOACs) dabigatran, rivaroxaban, apixaban and edoxaban have overcome these issues by making it easier to manage through fixed dosing and

reduced interactions, making it more convenient and safer to use to benefit the patient [2]. VKA, as well as DOAC have demonstrated benefits in clinical trials and in the real world, when administered appropriately they offer immense contribution to the decrease of risk of stroke and systemic embolism in AF patients.

Nevertheless, the clinical outcome of the anticoagulant treatment is interrelated with the adherence to the drugs. The lack of compliance or unwillingness of compliance can lead to a treatment failure that will cause the possibility of recession stroke, hospitalization and death. Conversely, the dosage would expose the patients to complications of bleeding because of excessive or inappropriate dosage [3]. The lack of adherence is also brought on by many factors, some of them include forgetfulness, regulatory complexity, fear of side effects, ignorance concerning the need of anticoagulation, impairment of the mind and inaccessibility to medical services.

Besides, other factors such as the socioeconomic and education also influence patient behavior change towards long-term therapy adherence with immense effect. The popularity of patient-centered care in the past several years has driven the adherence assessment to a premium because of being an important aspect of chronic disease management [4]. Some of the measures

that should be employed in improving adherence include follow-up visits, educating the patients, a reminder system, and simple dosing schedules. In addition, the role of medical experts is indispensable to spread the importance of continuous anticoagulation, monitoring of the effectiveness of therapy and control of side effects to enhance even more successful results of the long-term treatment [5].

The proposed study is to examine the adherence to anticoagulant treatment by people using atrial fibrillation and its impact on the results of stroke prevention. The study will present valuable information to inform the clinician in designing particular intervention programs to enhance adherence and improving overall prognosis of AF patients by determining the trends of adherence and associated factors [6].

MATERIAL AND METHODS

Study Design and Setting

It was both a prospective and an observational study and was conducted over a six-month period in the Department of Cardiology and General Medicine of one of the teaching hospitals, which was a tertiary care. The study had an objective of evaluating the level of adherence to anticoagulant therapy and its effects on preventing stroke among patients living with the condition of a trial fibrillation [7].

Data Collection

The demographic information (age, gender, occupation), clinical features (duration of AF, comorbidities, and concurrent medications) and type of anticoagulant therapy were noted. Patient medical records, prescription charts as well as direct interviews were used to get the required information [11].

Assessment of Adherence

The measure of medication adherence was morisky medication adherence Scale (MMAS-8) which is a valid scale that measures self-reported medication adherence behavior. The patients were divided into [12]:

- High adherence: MMAS-8 score = 8
- Medium adherence: MMAS-8 score = 6-7

Outcome Measures

- Primary outcome: Occurrence of stroke or transient ischemic attack (TIA) within the duration of the study.
- Secondary outcomes: Bleeding, hospitalization by thromboembolic or hemorrhagic complication, correlation of adherence score and clinical outcome [14].
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Statistical Analysis

The SPSS software (version 25.0) was used to analyse the data. To summarize the demographic and clinical variables, descriptive statistics were used. Categorical and continuous variables were compared using chi-square test and student t-test respectively. Pearson correlation coefficient was used to estimate correlation of the level of adherence and stroke incidence. P-value less than 0.05 was taken as statistically significant (Figure 1).

Ethical Considerations

The Institutional Ethics Committee reviewed and approved the protocol of the study. All participants were provided with informed consent in writing before enrolment. Confidentiality of patients was observed in the study [15].

Study Population

The study included patients aged 30 years and older with a diagnosis of atrial fibrillation who were prescribed oral anticoagulant therapy (warfarin or oral direct anticoagulants -dabigatran, rivaroxaban, apixaban) during a period of three months before the enrolment [8].

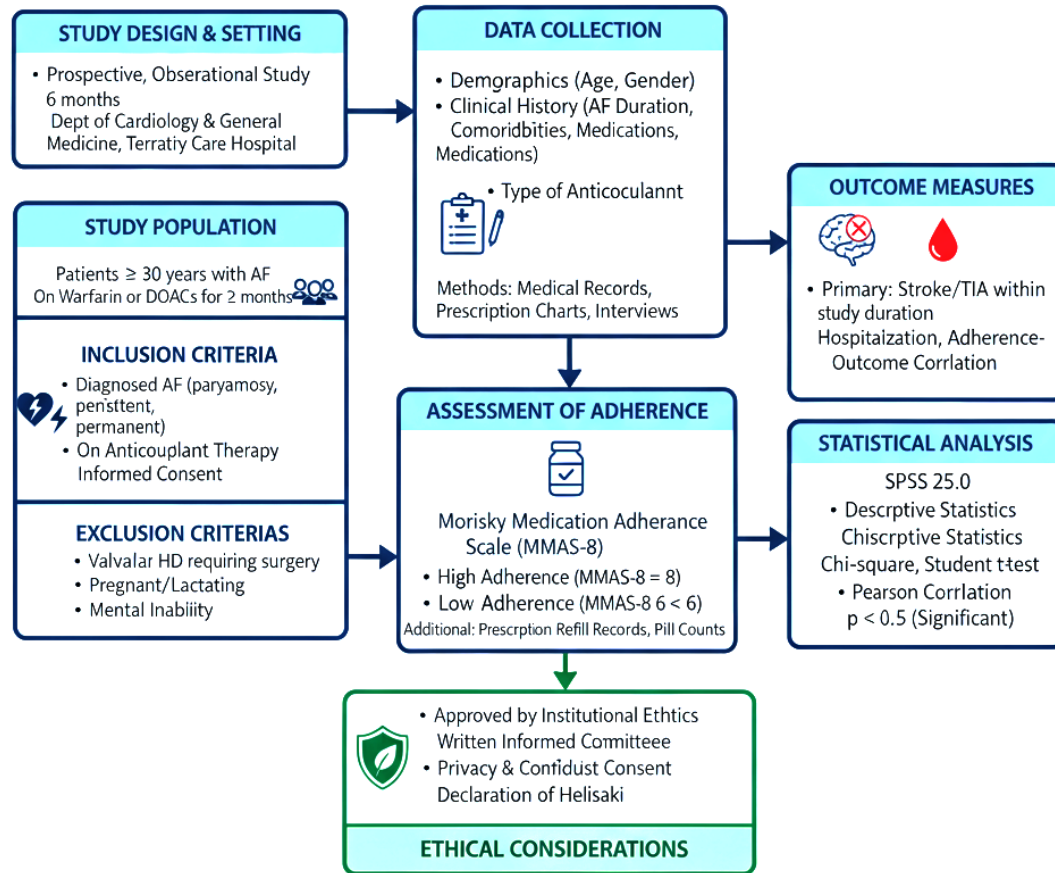
Inclusion Criteria

- Patients known to have atrial fibrillation (paroxysmal, persistent or permanent).
- Patients under anticoagulant stroke prevention with anticoagulant therapy.
- Patients who are ready to do an informed consent and follow-up visits [9].

Exclusion Criteria

- Valvular heart disease patients that need surgical repair.
- Patients having contraindications to anticoagulant therapy (e.g. active bleeding, severe liver or renal impairment).
- Pregnant or lactating women.
- Patients with mental inability or psychiatric disorder that disrupts the collection of reliable data [10].
- Additional ways of ensuring adherence level were prescription refills records and pill counts (when patients were on-follow-up) [13].

Figure 1: Research Methodology



RESULTS AND OBSERVATIONS:

The study enrolled 120 patients with atrial fibrillation who were put on oral anticoagulant treatment. Out of them, 72 (60%), were males and 48 (40%), females with a mean age of 64.2 ± 8.7 . Most of the patients (58) fell within the 60-70 years. The most common comorbidities included hypertension (65%), diabetes mellitus (48%), and ischemic heart disease (32%) occurred the most (Table 1).

Table 1: Demographic and Clinical Characteristics of Study Population (n = 120)

Parameter	Category	Number of Patients (n)	Percentage (%)
Gender	Male	72	60.0
	Female	48	40.0
Age (years)	40-50	12	10.0
	51-60	38	31.7
	61-70	70	58.3
Mean age	—	64.2 ± 8.7	—
Comorbidities	Hypertension	78	65.0
	Diabetes mellitus	58	48.3
	Ischemic heart disease	38	31.7

Compliance with the Anticoagulant Therapy.

According to MMAS-8 adherence scale, 82 (68.3) patients were highly adhering, 23 (19.2) patients were medium, and 15 (12.5) patients were low adhering. Patients on DOACs (74%) had high adherence than patients on warfarin (62%)(Table 2).

Table 2: Adherence to Anticoagulant Therapy (MMAS-8 Score)

Adherence Level	Number of Patients (n)	Percentage (%)	Common Therapy Type
High adherence	82	68.3	DOACs (74%), Warfarin (26%)
Medium adherence	23	19.2	Warfarin (60%), DOACs (40%)
Low adherence	15	12.5	Warfarin (80%), DOACs (20%)

Clinical Outcomes

Eight point three percent 10 patients suffered ischemic stroke or transient ischemic attack (TIA) during the six-month follow up. Among these, 8 cases were in either low or medium adherence group and only 2 cases were in highly adherent patients ($p < 0.05$). There were no major bleeding episodes nor minor bleeding episodes were reported except that it was reported in 14 patients (11.6%) (Table 3, Figure 2).

Table 3: Clinical Outcomes During Six-Month Follow-up

Clinical Outcome	High Adherence (n=82)	Medium Adherence (n=23)	Low Adherence (n=15)	Total (n=120)
Stroke/TIA incidence	2 (2.4%)	3 (13.0%)	5 (33.3%)	10 (8.3%)
Minor bleeding events	8 (9.7%)	3 (13.0%)	3 (20.0%)	14 (11.6%)
Major bleeding events	0	0	0	0
Hospitalizations (any cause)	5 (6.0%)	4 (17.4%)	6 (40.0%)	15 (12.5%)

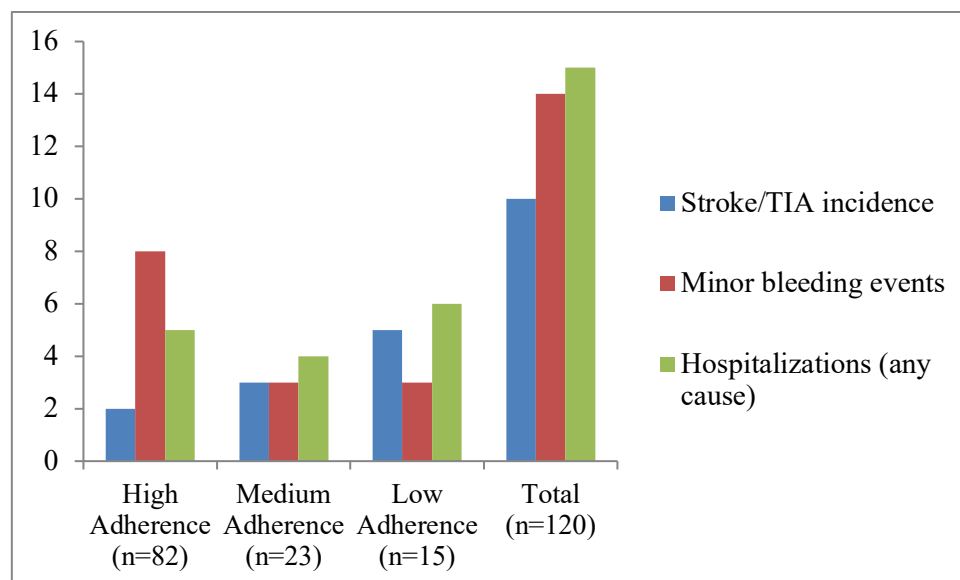


Figure 2: Graphical presentation of Clinical Outcomes During Six-Month Follow-up

Affectors of Adherence

Adherence determinants highlighted in the analysis included non-adherence that had close links with polypharmacy, ignorance regarding the importance of therapies, forgetfulness, and incompetence to adhere to follow-ups. The positive impact on adherence behavior was established to be associated with educational level and patient counseling.

The conduct of high adherence was related to the significant decrease in the occurrence of strokes. DOAC patients were shown to be better adherents compared to warfarin patients. The failure to adhere was associated with such modifiable variables as forgetfulness and awareness.

DISCUSSION

The current research determined compliance with anticoagulant therapy and its effect on stroke prevention in patients with atrial fibrillation (AF). The results showed that adherence is an important factor that influences the outcome of the therapeutic process, and the greater the adherence, the greater the decrease in stroke and transient ischemic attack (TIA) rates [16].

In the present research, 68.3 percent of patients adhered optimally to anticoagulant therapy that was prescribed to them. This is in line with the findings of past research that revealed that about two-thirds of AF patients are well adherent to oral anticoagulation. It was revealed that the direct oral anticoagulants (DOACs) were related to positive adherence in contrast to warfarin. It is explained by the fact that it is much easier to take, fewer interactions between drugs and food, and no regular monitoring of the patients, as it is done in the

case of DOAC and promotes better adherence to the medications [17].

Stroke or TIA was significantly lower in highly adherent patients (2.4) than in medium (13) and low (33.3) adherent patients. That is why regular intake of medication is very crucial to ensuring proper anticoagulation and thromboembolism prevention. These results are consistent with available literature on the adverse effects of poor compliance which results in subtherapeutic anticoagulation levels eventually predisposes one to the possibility of another stroke [18]. Minor bleeding was observed in 11.6% of patients though there were no major bleeding episodes. This implies that, when used properly and closely monitored, the effects of anticoagulant treatment in the prevention of strokes are more advantageous than the threat posed by the bleeding problems. There have also been no incidences of serious bleeding that would imply there were no unsafe practices of prescribing and effectiveness of patient monitoring was present throughout the study [19].

An assessment of determining variables established that the most important contributory variables with respect to non-adherence were forgetfulness, polypharmacy, no knowledge on the significance of therapy and poor adherence. These are mainly the variables that are adjustable which they could rectify through educating the patients, counselling and reminders. It is also discovered that the education of interventions and post-discharge visits can significantly improve the rate of adherence, and, consequently, treatment outcomes [20]. The conclusions of the present study define the relevance of patient-oriented approach to the management of AF. The compliance can be highly facilitated by physicians, pharmacists and nurses by instructions, misconception therapy and adherence to response of treatment [21].

In conclusion, it can be stated that the evidence can lead to the idea that encouraging high-level compliance with anticoagulant treatment of the patient is one of the most important factors that reduce the chances of stroke among patients with AF. The measures that can greatly improve the adherence and clinical outcomes consist of patient education, simplified medication and constant follow-ups [22].

CONCLUSION

Compliance with anticoagulant therapy, as demonstrated in the article, is a crucial variable in the prevention of strokes in patients of a trial fibrillation. Heavy adherence to the treatment eventually resulted in major decrease in stroke and transient ischemic attack incidence particularly among patients on direct oral anticoagulant providers. Lack of adherence contributed to the risk of thromboembolic events due to such factors as forgetfulness, polypharmacy, unawareness of the patient. These results highlight the need to educate

patients, follow up with them regularly and prescribe simplified medication schedules to improve adherence. With systematic measures taken to increase compliance, the AF-related burden of complications can be significantly decreased, clinical outcomes of the situation can be improved, and the overall patient quality of life can be enhanced.

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