DOI: https://doi.org/10.53350/pjmhs22163925

ORIGINAL ARTICLE

Tolerability and Efficacy of Rivaroxaban Versus Warfarin for Non Vulvular Atrial Fibrillation

MAHBOOB UR REHMAN[1], ASMA RAUF[2], AMJAD ALI SHAH[3], ANWAR ALI[4], AMJAD IBRAR[5], ALI RAZA[6]
[1]*Associate Professor, Cardiac centre, Pakistan Institute of Medical Sciences Islamabad*
[2]*Consultant Cardiologist, Bilal Hospital Rawalpindi*
[3]*Senior registrar, Saidu Group of Teaching Hospitals Swat*
[4]*Consultant cardiologist, Kulsum International Hospital Islamabad*
[5]*Associate Professor Cardiology, Gomal Medical College Dera Ismail Khan*
[6]*Regsitrar Cardiology, Cardiac Centre Pakistan Institute of Medical Sciences Islamabad*
Correspondence to: Mahboob Ur Rehman, Email: drmehboobfcps@yahoo.com, Cell: 03339229552

ABSTRACT

Introduction: Atrial fibrillation (AF) is the most widespread chronic heart arrhythmia, affecting 1–2 % of the general population.
Objectives: Patients with non-valvular atrioventricular fibrillation are the major focus of this research. Rivaroxaban is compared against warfarin in terms of tolerability and efficacy.
Material and methods: This cross sectional comparative study was conducted in Pakistan Institute of Medical Sciences Islamabad during January 2020 till December 2020. A total of 120 OPD patients who satisfied the study's inclusion and exclusion criteria were included in the research after it was given the green light by the hospital's ethics committee. A complete medical history and physical examination were required to ensure that all participants met the criteria for inclusion. It was determined that obtaining express written consent was essential.
Results: As indicated above, 15 individuals were removed from the study; six patients in the NOAC group refused to participate and departed the study; while four patients were lost to follow-up. In this study, rivaroxaban was administered to twenty-one participants, whereas warfarin was administered to the remaining twenty-four.
Conclusion: Oral anticoagulants for stroke prevention in non-valvular AF have advanced in development, benefiting patients and clinicians alike with fewer medication and food interactions, no monitoring need, and a wider therapeutic index.

INTRODUCTION

An irregular heartbeat known as atrial fibrillation (AF) affects between 1 and 2 percent of the general population. There were 2.2 million Americans with AF in 2010 and it's expected that number would rise to 12 million by 2050, according to the CDC. Stroke, as well as systemic embolism, may be fatal consequences of atrial fibrillation (AF). It's estimated that 15% to 30% of all ischemic stroke cases in people over the age of 80 are due to AF [1].

Atrial fibrillation has been prevented for more than 50 years with the use of vitamin K antagonists (VKAs) (AF). In controlled studies, warfarin prevented stroke better than a placebo, aspirin, or an aspirin+clopidogrel combination. Restrictive therapeutic index and a number of dietary and drug interactions make Warfarin difficult to use [2]. It is estimated that only about a third of people with atrial fibrillation (AF) are being treated with warfarin, and that 30 to 50 percent of those people have INR values that are outside of the therapeutic range. As a consequence of Warfarin and many other VKAs' constricted and ineffective use [3], other oral anticoagulants (NOACs) have really been introduced.

Warfarin sodium, a vitamin K antagonist, has long been used to minimise thrombosis danger in patients with atrial fibrillation. However, it also raises the risk of intracranial and extrinsic bleeding, making it more challenging to maintain patients inside this recommended range using warfarin sodium therapy. NOACs, such as the direct thrombin inhibitor dabigatran etexilate mesylate, do not need therapeutic monitoring and are simpler to administer than warfarin. Dabigatran users had fewer strokes and ICHs than warfarin users in the Randomized Evaluation of Long-Term Anticoagulation Therapy (RE-LY) study, while warfarin users experienced more serious gastrointestinal bleeding [5].

Stroke and embolism prevention trials in patients with atrial fibrillation indicated that Rivaroxaban medication was not inferior to warfarin therapy compared with vitamin K antagonism for prevention of strokes and embolism (ROCKET-AF). However, cerebral bleeding decreased in the group using rivaroxaban whereas intravenous and lethal haemorrhage increased [6].
Objectives: It's all about non-valvular atrioventricular fibrillation patients here. In perspective of both tolerance and efficacy, Rivaroxaban is comparable to warfarin.

MATERIAL AND METHODS

This cross sectional comparative study was accompanied in Pakistan Institute of Medical Sciences Islamabad during from January 2020 till December 2020.
Sample Size: 70 patients (35 in each group) were analysed using a scientific formula:

$$n = \frac{\left\{ z_{1-\alpha}\sqrt{2\bar{P}(1-\bar{P})} + z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)} \right\}^2}{(P_1-P_2)^2}$$

Where,
α = level of significance (1%)
β = power of study (99%)
P_1 = 0.25 (population in Group I)
P_2 = 0.75 (population in Group II)
n = 70 (35 in each group)

Sample Selection:
Inclusion criteria:

- between 18 and 60 years of age.
- Together male and female.
- Patients identified with AF.
- Clinically stable patients.

Exclusion criteria:

- Pregnant Females.
- Already taking any other drugs or suffering from any renal disease.
- Diabetic patients.
- Patients who refuse to grant their permission.

Data Collection Method: A total of 120 OPD patients who satisfied the study's inclusion and exclusion criteria were included in the research after it was given the green light by the hospital's ethics committee. A complete medical history and physical examination were required to ensure that all participants met the criteria for inclusion. It was determined that obtaining express written consent was essential.

The data was divided into two categories in order to make it easier to understand:
Group I: Treated with Rivaroxaban
Group II: Treated with Warfarin

Patients in Group I got 15mg twice daily, whereas those in Group II received 10mg twice daily for the duration of treatment. Based on the patient's clinical presentation, the diagnosis was determined. Both the groups were followed during hospitalization and after discharge of the patient for 30 days for the development of any complications. Post discharge follow up was done telephonically and in weekly OPD follow up personally to the patient or close relative of the patient as focal person.

Statistical Analysis: SPSS (Statistical Package for Social Sciences, version 20.0) on Windows was used for any and all statistical analysis of the gathered data. In the case of continuous variables, the mean and standard deviation (SD) are employed, whereas in the case of categorical variables, the frequency and percentage are often used.

RESULTS

A total of 15 persons were excluded from the trial; six NOAC patients opted out of the study; and four patients were dismissed from the study because of exclusion criteria. In this study, rivaroxaban was administered to twenty-one participants, whereas warfarin was administered to the remaining twenty-four. Compared to group I, group II had a median age of 25.3 years old (p=0.705). There were 18 (86% of the total) female patients in the I group and 19 (79% of the total) female patients in the II group. Table I compares the two groups' risk factors, clinical signs, vascular damage, and brain lesions. The results of the two groups did not vary significantly (p>0.05).

Table 1: Demographic characteristics of selected patients

Baseline characteristics	All patients	Rivaroxaban	Warfarin	p-Value
AGE (mean, min-max)	25.3 (15–45)	26 (15–38)	27 (15–45)	
GENDER				
Male	08 (18%)	03 (14%)	05 (21%)	
Female	37 (82%)	18 (86%)	19 (79%)	
RISK FACTOR				
OCP	08 (18%)	03 (14%)	05 (21%)	.613
Anemia	13 (29%)	06 (29%)	07 (29%)	
Dehydration	06 (13%)	04 (19%)	02 (08%)	
Pregnancy/Puerperium	22 (49%)	10 (48%)	12 (50%)	
Unknown Factor	07 (16%)	03 (14%)	04 (17%)	
Thrombophilia	04 (09%)	01 (03%)	03 (13%)	
Ischemic stroke	25 (56%)	12 (57%)	13 (54%)	.843
Hemorrhagic stroke	17 (38%)	08 (38%)	09 (38%)	.968
Myocardial infarction	13 (29%)	06 (29%)	07 (29%)	.965
Intracranial hemorrhage	17 (38%)	08 (38%)	09 (38%)	.968
Duration (months) mean (min-max)	05 (03–12)	03 (03–12)	03 (03–12)	.058

Table 2: Complications and clinical outcomes in both groups

VARIABLES	All Patients	Rivaroxaban	Warfarin	p-Value
At 3 months				
Overall	32 (71%)	15 (71%)	17 (71%)	.377
Partial	11 (24%)	03 (14%)	08 (33%)	
Complete	21 (47%)	12 (57%)	09 (38%)	
At 6 months				
Overall	38 (84%)	18 (86%)	20 (83%)	.598
Partial	10 (22%)	04 (19%)	06 (25%)	
Complete	28 (62%)	14 (67%)	14 (58%)	
At 12 months				
Overall	45 (100%)	21 (100%)	24 (100%)	.754
Partial	05 (11%)	02 (10%)	03 (13%)	
Complete	40 (89%)	19 (90%)	21 (87%)	
All bleeding events	08 (18%)	02 (10%)	06 (25%)	.161
Clinically non relevant minor bleeding	06 (13%)	02 (10%)	04 (17%)	
Clinically relevant non major bleeding	02 (4%)	00	02 (8%)	
Major bleeding	00	00	00	

DISCUSSION

Even though there have been several research on NOAC cost-effectiveness in high-income countries, our examination is one of the few in lower middle-income countries (LMICs) and the first complete economic analysis research on AF patients in Iran, as far as we would be informed [9, 10]. Region of the Eastern Mediterranean. The study's overall objective is to examine innovative oral anticoagulation strategies for the prevention of ischemic stroke [9].

Patients with atrial fibrillation (AF) who received Rivaroxaban had less adverse effects than those who received warfarin treatment [10]. As compared to individuals on warfarin, those on rivaroxaban had more mobility and self-care and daily activities, pain and discomfort, nervousness and depression, and a lower mean score [11].

The most frequent kind of long-term irregular heartbeat is atrial fibrillation (AF). Heart attack and stroke are the two most common and lethal complications from AF. Vitamin K antagonists are used to prevent stroke and systemic thromboembolism in people with atrial fibrillation (AF) (VKAs). VKA treatment has a long list of unpleasant side effects. Low therapeutic index; necessity for constant monitoring; and a number [12] of food-drug interactions are a few of the drawbacks.

CONCLUSION

Oral anticoagulants for stroke prevention in non-valvular AF have advanced in development, benefiting patients and clinicians alike with fewer medication and food interactions, no monitoring need, and a wider therapeutic index. Severe haemorrhage outside of the brain including substantial gastrointestinal bleeding was more likely with rivaroxaban 20 mg once day than dabigatran 150 mg twice daily, according to the research.

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