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Nonvalvular Atrial Fibrillation: Etiological and Clinical Profile

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Introduction

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia with an estimated global prevalence of 37.574 million cases (0.51% of the world population) [1]

AF has a heterogeneous clinical presentation and can be asymptomatic. It is often associated with heart disease but may occur in patient with no other detectable cardiac disease.[1]

By convention, the term "nonvalvular AF" is restricted to cases in which the rhythm disturbance occurs in the absence of mitral valve disease, a prosthetic heart valve or mitral valve repair.[6]

AF has significant morbidity and mortality due to the occurrence of both hemodynamic impairment and thromboembolic events.

The hemodynamic impairment and rhythm disturbances may be symptomatic and can lead to a decrease in the quality of life. However, most of the mortality and functional impairment associated with AF is due to ischemic stroke and other systemic emboli. The frequency of ischemic stroke and systemic embolism in patients with nonvalvular AF is approximately 5% per year that is about 2 to 7 times the rate for patient without AF. [2]

Mortality in AF patient is double that of patients in normal sinus rhythm this islinked with the severity of the underlying heart disease.[3]

The risk of stroke and systemic embolism in patients with AF is determined by patient risk factors. Risk factors for stroke and systemic embolism in patient with nonvalvular AF are a history of previous stroke of transient ischemic attacks (TIA), a history of hypertension, left ventricular dysfunction (LVD) or congestive heart failure (CHF), age (over 75years), diabetes mellitus and coronary artery disease.[4]

Patients without any of these risk factors i.e. lone AF, have a more favourable prognosis, In the Framingham heart study, patient with rheumatic heart disease and AF had a 17- fold increased risk of stroke compared with age matched controls and the attributed risk was 5 time greater than in those with non-rheumatic AF.[5]

The aim of the present was to study the epidemiology AND clinical profile of nonvalvular atrial fibrillation

Methods

This was an prospective randomized study of patients with nonvalvular atrial fibrillation. The study database was accumulated by registering patients presenting to the hospital with a diagnosis of atrial fibrillation, either chronic or paroxysmal.

All consecutive patients aged ≥18 years of either gender presenting during the period of January 2021 to December 2021 were included in the study.

Inclusion Criteria

- Both gender age ≥18 years
- Electrocardiographic documentation of atrial fibrillation, either chronic or transient, during the preceding 6 months.

Persistent AF: defined as that lasting more than 7 days, and which would continue indefinitely unless cardioverted.

Permanent AF; AF, in which cardioversion has failed or has not been attempted.

Paroxysmal AF: defined as the presence of paroxysms of AF previously documented on an electrocardiogram or 24-hour Holter monitoring, with subsequent reversion to sinus rhythm within a period of 7 days, but usually within 24 hours.

Exclusion Criteria

- Patient with valvular heart disease.
- Patients with other arrhythmias.

Written informed consent was obtained from all patients for participation in the study.

Study protocol Patients underwent detailed clinical evaluation, routine laboratory testing, 12 lead ECGs with rhythm strip recording, echocardiography, thyroid hormone estimation, pulmonary function testing.

Primary etiological diagnosis was made in each case, cardiovascular or non- cardiac, on the basis of clinical evaluation and laboratory parameters. Co-existing medical conditions and illnesses were also recorded.

Statistical Analysis

Patient population was analysed for demographic distribution, etiological associations, continuous data are expressed as the mean value ±2 standard deviations. Percentage analysis was used to describe distribution of demographic variable and p value is calculated

Baseline Characteristics

Table 1 shows the baseline characteristics of the participants; the age of patients ranged from 31 years to 82 years and mean age was 61.2±7.1 years, the mean body mass index was 26.1±5.2kg/m2, the mean systolic blood pressure was 110.2±16.9 mmHg, and the mean diastolic blood pressure was 70.1±11.6mmHg.38.8% are alcoholics , 28% are smokers and 41.4% are diabetics

Table - 1

Characteristics	Mean
AGE	61.2 ± 7.1Years
BMI	26.1 ± 5.2Kg/m^2
HEART RATE	126.3± 12.2bpm
SYSTOLIC BP	110.2±16.9mmHg
DIASTOLIC BP	70.1± 11.6mmHg
ALCOHOLICS	58 (38.6%)
SMOKERS	42 (28%)
DIABETICS	62 (41.4%)

Table 2 showing that more male patients (58%) when compared to females (42%) they are depicted in figure 1 .

Table - 2

Gender	No (%)
Male	87 (58)
Female	63 (42)

Figure - 1

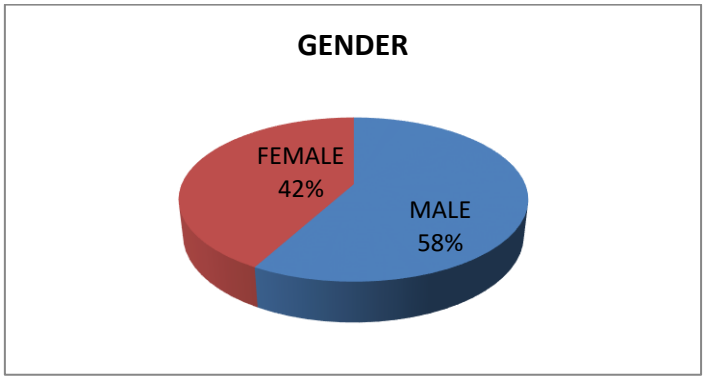


Table 3 showing different risk factors among them most of the patients are Hypertenstive (20%) and corpulmonale (18.6%) they are showed in figure 2

Table - 3

RISK FACTORS	No (%)
ACUTE MI	5 (3)
PRIOR MI	22 (14.6)
DCMP	23 (15.3)
HTN	30 (20)
CORPULMONALE	28 (18.6)
HYPERTHYROIDISM	10 (6.6)
ASD	5 (3)
WPW	3 (2)
CONSTRUCTIVE PERICARDITIS	2 (1.3)
RCM	5 (3)
LONE	14 (9.3)
HCM	1 (0.6)
PULMONARY EMBOLISM	2 (1.3)

Figure - 2

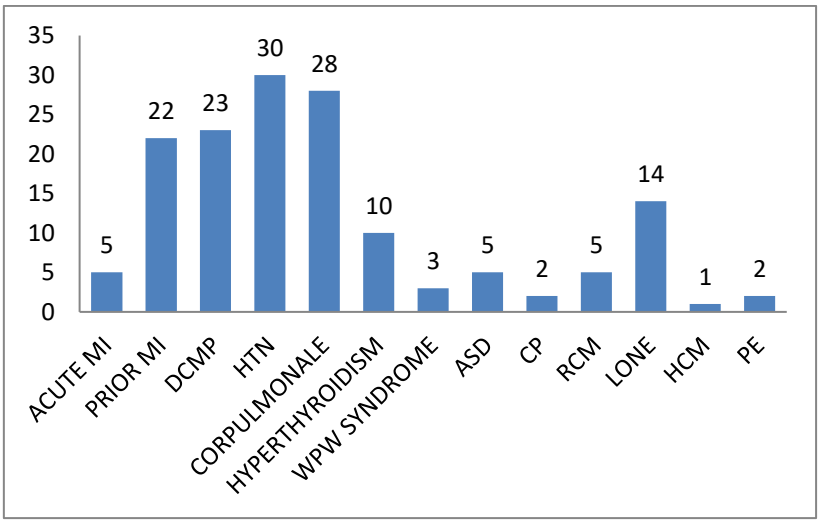


Table 4 showing more no of patients are (53.4%) have permanent AF

Table - 4

TYPE OF AF	No (%)
PAROXYSMAL	28 (18.6)
PERSISTENT	42 (28)
PERMINENT	80 (53.4)

Figure - 3

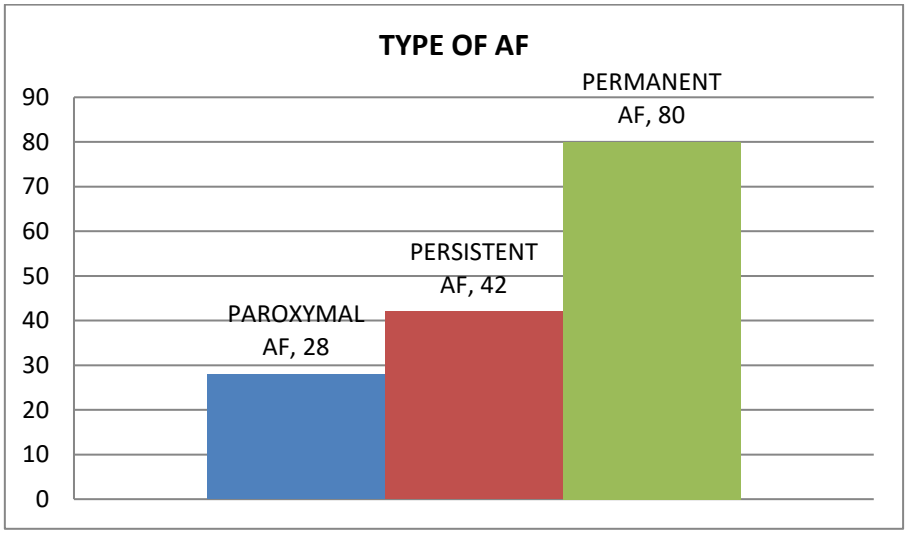


Table 5 showing that more no of patients have CHA2S2 VASc Score more than 2 (68.7%)

Table – 5

CHA2DS2 VASc SCORE	No (%)
0	5 (3.3)
1	42 (28)
>2	103 (68.7)

Figure - 4

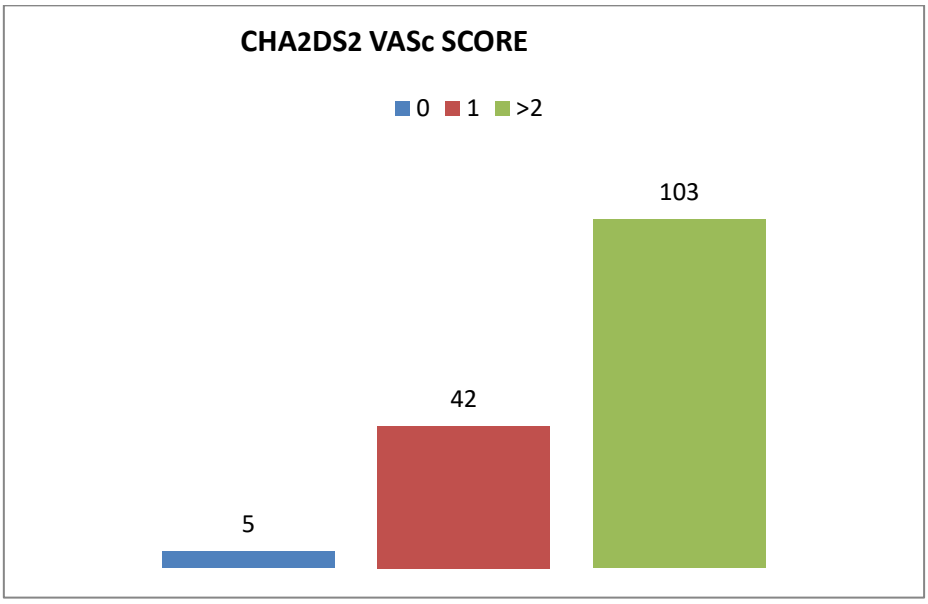


Table 6 showing the functional class of the atrial fibrillation patients most of them are in NYHA II (41.3%

Table - 6

NYHA CLASS	No (%)
I	28 (18.6)
II	62 (41.3)
III	48 (32)
IV	12 (8)

Figure - 5

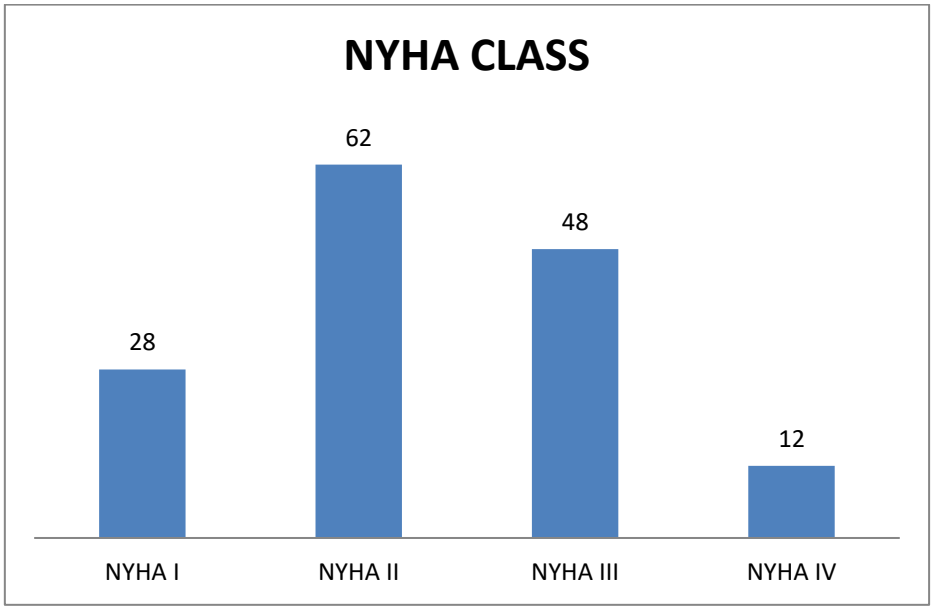


Table 7 showing HASBLED score to estimate the bleeding risk (84%) has less bleeding risk

Table - 7

HASBLED SCORE	No (%)
0-2	127 (84)
>2	23 (16)

Figure - 6

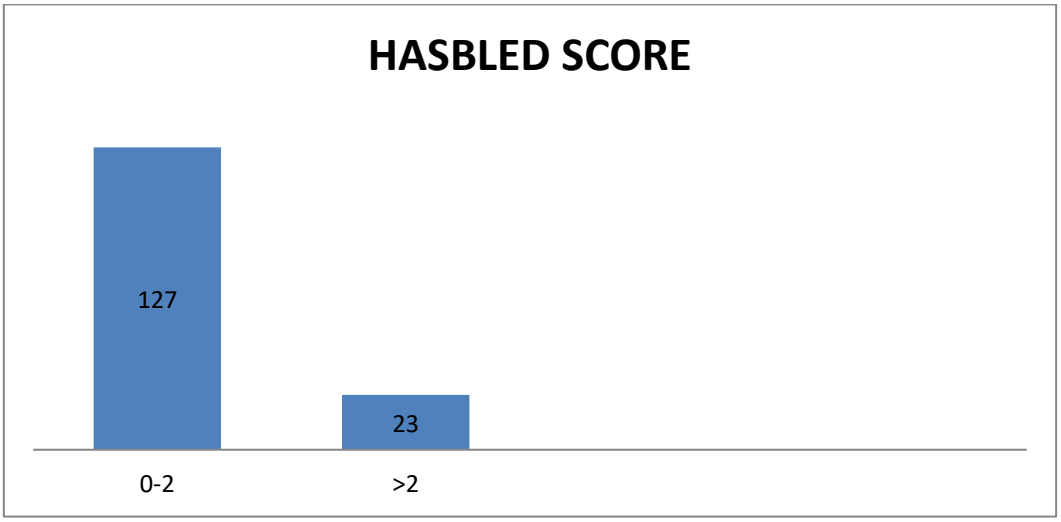
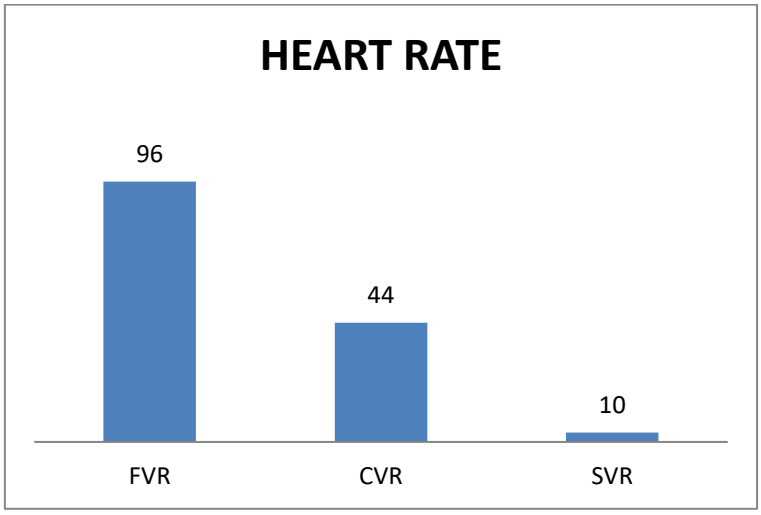


Table - 8

HEART RATE	No (%)
FVR	96 (64)
CVR	44 (29.3)
SVR	10

Table 8 showing more no of fast ventricular rate patients and less no of slow ventricular patients

Figure - 7



The 150 patients are divided into 3 groups based on NOACs treatment RIVAROXABAN 20mg OD, DABIGATRAN 150mg BID and APIXABAN 5mg BID and followed up to 6 months

	RIVAROXABAN (n=49)	DABIGATRAN (n=50)	APIXABAN (n=51)
MEAN AGE	64±2.1 years	59±2.6 years	58±3.4 years
HEART RATE	126±8.7 bpm	128±7.8 bpm	127±6.8 bpm
HTN	11	9	10
COR PULMONALE	10	9	9
DCMP	8	9	7
PRIOR MI	9	7	6

Table 9 Stroke

RIVAROXABAN	DABIGATRAN	APIXABAN
5	4	5

Table 9 showing incidence of stroke in the period of 6 months follow up in different NOAC groups and its showing there is no significance

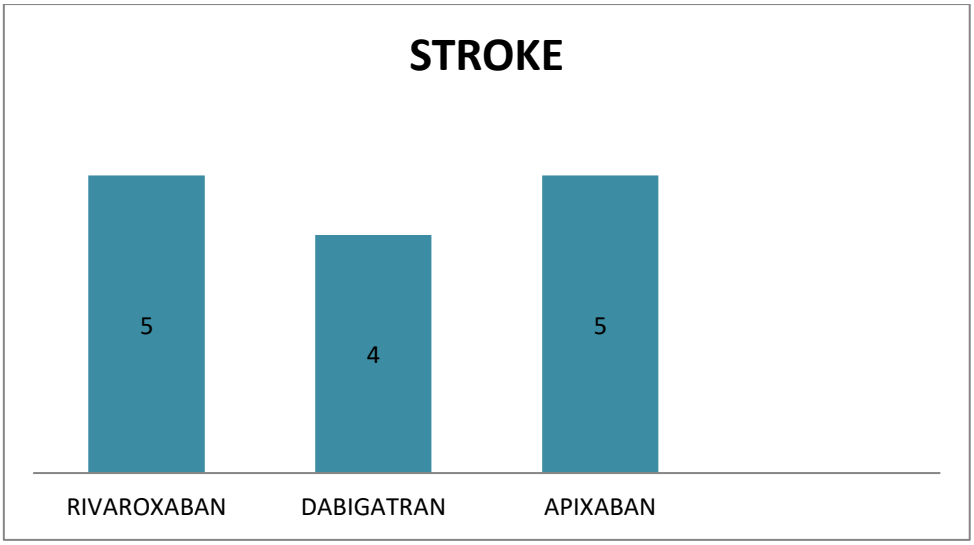


Table 10 Death

RIVAROXABAN	DABOGATRAN	APIXABAN
4	5	5

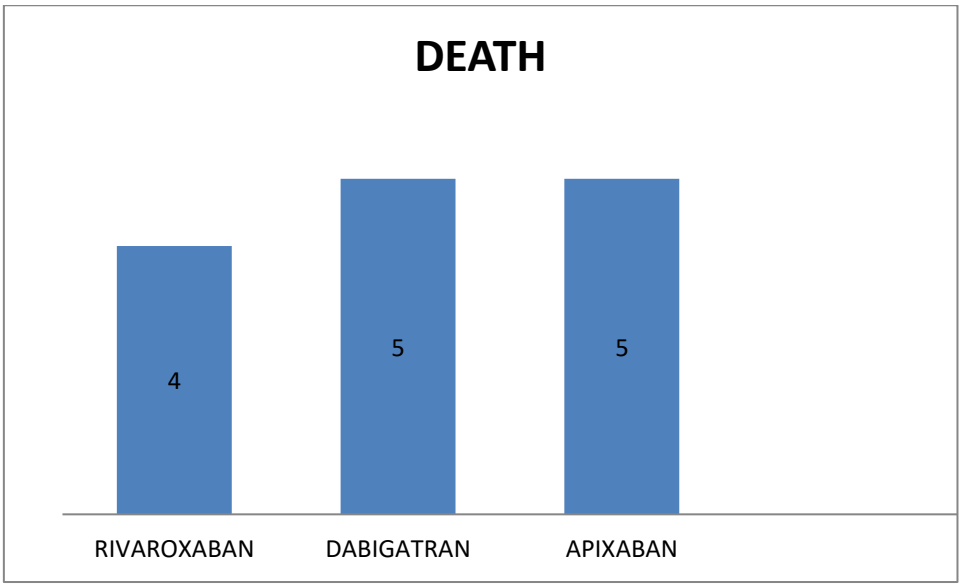
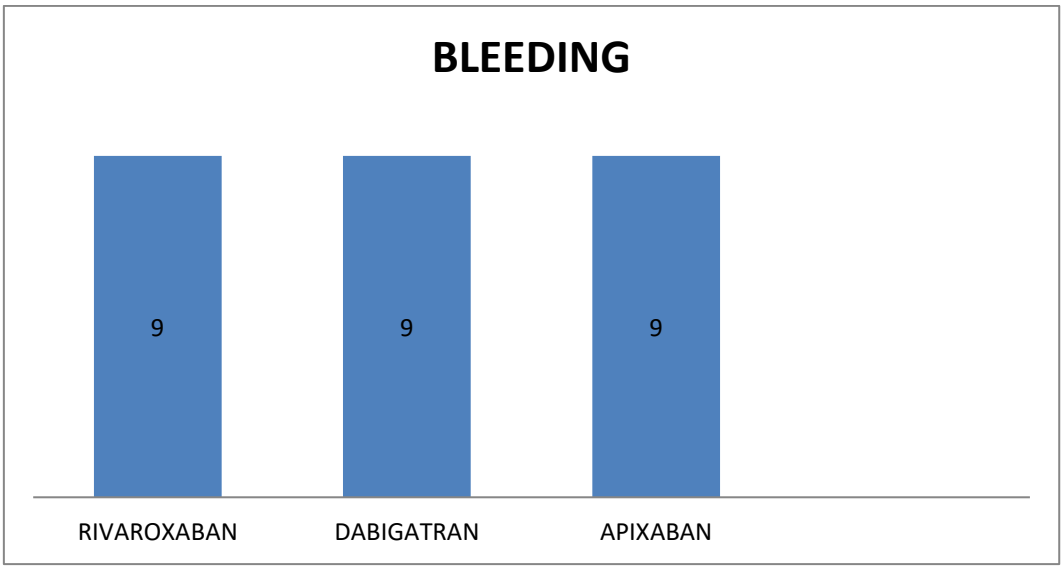


Table 10 showing the incidence of death in the period of 6 months follow up in different NOAC groups and its showing there is no significance

Table 11 Bleeding

RIVROXABAN	DABIGATRAN	APIXABAN
6	7	6

Table 11 showing the incidence of death in the period of 6 months follow up in different NOAC groups and its showing there is no significance



Discussion

This is the prospective study to investigate the epidemiology efficacy and safety of apixaban, dabigatran, and rivaroxaban specific focus on NVAF during 1 year follow-up period

In our study more male patients (58%) when compared to females (42%), systolic blood pressure was 110.2±16.9 mmHg most of the patients are Hypertensive (20%) and corpulmonale (18.6%)

Our study showing incidence of stroke death and bleeding complications in the period of 1 year follow up in different NOAC groups (rivaroxaban, dabigatran, apixaban) and its showing there is no statistical significance

Larsen et al[7] compared 3 standard-dose NOACs versus warfarin in anticoagulant naïve patients with AF using Danish nationwide databases. They concluded that all 3 NOACs and warfarin had a similar risk of ischemic stroke. However, the risk

of death or all major bleeding was significantly higher for warfarin and rivaroxaban versus apixaban and dabigatran.

Yao et al[8] evaluated the efficacy and safety of 3 NOACs by comparing each agent with warfarin using a large US insurance database. Their results indicated that apixaban had lower risks of both stroke and major bleeding and dabigatran had a similar risk of stroke but a lower risk of major bleeding, while rivaroxaban had similar risks of both stroke and major bleeding compared with warfarin.

Graham et al[9] conducted a retrospective new-user cohort study with enrollment of 118 891 patients with NVAF using the US Medicare system. Their data showed that standard-dose rivaroxaban was associated with a greater number of incidents of ICH and major GIB than standard-dose dabigatran.

The Asian subgroup analysis from the ARISTOTLE (Apixaban for Reduction in Stroke and Other Thromboembolic Events in Atrial Fibrillation) trial indicated a lower trend of thromboembolic events with apixaban (HR, 0.73; 95% CI, 0.49–1.09) and a significantly lower risk of major bleeding (HR, 0.52; 95% CI, 0.34–0.80) as compared with warfarin.[10]

The Asian subgroup analysis from the RE-LY trial (Randomized Evaluation of Long-Term Anticoagulation Therapy) indicated that low-dose dabigatran caused a similar risk of thromboembolic events (HR, 0.82; 95% CI, 0.55–1.24) and a significantly lower risk of major bleeding [11]

(The subgroup analyses of Asians from the ROCKET-AF trial (Rivaroxaban Once Daily Oral Direct Factor Xa Inhibition Compared With Vitamin K Antagonism for Prevention of Stroke and Embolism Trial in Atrial Fibrillation) showed a trend toward lower rates of all major bleeding (HR, 0.63, 95% CI, 0.37–1.09) and a similar risk of thromboembolic events (HR, 0.76, 95% CI, 0.42–1.37) for rivaroxaban versus warfarin. HR, 0.57; 95% CI, 0.38–0.86) compared with warfarin.[12]

CONCLUSION: In our study in the etiological aspect of NVAF most of the patients are Hypertenstive (20%) and corpulmonale (18.6%) and showing incidence of stroke death and bleeding complications in the period of 6 months follow up in different NOAC groups (rivaroxaban, dabigatran, apixaban) and its showing there is no statistical significance

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