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Original Article

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Nonvalvular Atrial Fibrillation in a Tertiary Care Centre: Insights from a Prospective Observational Study

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Abstract

Objective: To study the clinical profile of patients with non-valvular atrial fibrillation (NVAF), identify and analyze the risk factors for NVAF, and assess the outcomes and complications in patients with NVAF. ***Design:*** Observational study. ***Subjects/Patients:*** 42 patients diagnosed with NVAF. ***Methods:*** Prospectively, a cohort of 42 patients diagnosed with NVAF were assessed for clinical presentation, risk factors, treatment, and outcomes. ***Results:*** Advanced age, male gender, and systemic hypertension were identified as significant risk factors. Common clinical presentations included palpitations, dyspnoea, fatigue, and angina. The study showed that CHA_2DS_2-VASc scores were higher in those with complications, and the mean hospital stay was longer in patients with more severe outcomes. ***Conclusion:*** The study underscores the importance of recognizing risk factors such as advanced age, male gender, and hypertension in the management of NVAF. Proper anticoagulation therapy is critical in preventing complications, while ongoing monitoring is essential pto manage bleeding risks.

Keywords: ***atrial fibrillation, cardiac arrhythmia, cha2ds2-vasc score, hypertension, non-valvular atrial fibrillation.***

Introduction

Atrial fibrillation (AF) is a significant global health issue, with a prevalence of approximately 0.47%, though regional variations exist. The prevalence increases notably with age, reaching up to 10% among individuals over 80 years. However, most data on AF prevalence comes from North America and Western Europe, with limited insights from low- and middle-income countries like India. In the Indian population, AF prevalence is estimated to range between 0.4% and 1%, also increasing with age [1].

Multiple studies, including those from the Framingham Study, Olmsted County, Scotland, Holland, and Australia, reveal consistent findings: AF is rare in individuals under 60 years but increases significantly after, affecting about 10% of those aged 80 and older. By 2050, most AF patients are projected to be 80 years or older. Studies also indicate a higher prevalence of AF in men compared to women, though the reasons remain unclear [2-4].

AF is the most prevalent type of cardiac arrhythmia, caused by abnormal electrical activity in the atria that leads to fibrillation. It is classified as a tachyarrhythmia, characterized by a rapid and irregular heart rate, and can be either paroxysmal (lasting less than seven days) or persistent (lasting more than seven days). The irregular rhythm disrupts normal blood flow, increasing the likelihood of thrombus formation, which can lead to stroke. Notably, AF is the leading cardiac cause of stroke. Understanding prevalence is crucial for estimating the disease's impact and devising effective public health strategies. For instance, strokes caused by AF-related embolism are largely preventable through timely anticoagulation therapy.

Risk factors for AF include advanced age, hypertension, heart and lung diseases, congenital heart defects, and excessive alcohol consumption. Symptoms range from asymptomatic presentations to chest pain, palpitations, rapid heart rate, shortness of breath, dizziness, fatigue, and diaphoresis (excessive sweating). While AF may become a chronic condition, various treatments and strategies exist to reduce stroke risk. These include anticoagulation therapy, rate and rhythm control medications, cardioversion, catheter ablation, and other interventional procedures [5-7].

Valvular AF occurs in the presence of valvular heart disease. It is typically associated with rheumatic mitral stenosis, whereas non-valvular AF (NVAF) refers to atrial fibrillation without valvular pathology like mitral stenosis or valvular prostheses. As the prevalence of rheumatic heart disease has declined, the proportion of NVAF cases has significantly increased.

The GARFIELD-AF registry represents the first true report of NVAF in India, as previous registries included a significant

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proportion of patients with rheumatic heart disease. The concurrent burden of rheumatic and NVAF is a pattern that appears unique to India and other emerging nations. However, with improvements in healthcare, increased life expectancy, rising prevalence of hypertension and diabetes, and a decreasing incidence of rheumatic fever, the epidemiology of AF in India is expected to evolve. This will likely lead to a higher number of patients presenting with NVAF in the future [5,8].

NVAF can be life-threatening if not diagnosed and treated early. While various studies have examined the clinical profile of NVAF in Western populations, there is limited knowledge about it in the Indian context. Our objective is to investigate the clinical profile and prevalence of NVAF in India, which would aid in its early detection and management. The present study aims to evaluate the clinical profile of patients with NVAF, identify risk factors associated with AF in patients without valvular heart disease, and assess the outcomes of these patients.

Methods

A prospective observational study was conducted in the Medicine Department of a tertiary care center over 18 months, following approval from the institutional ethics committee. The study included patients with NVAF who met the inclusion criteria: willingness to provide informed consent, age above 18 years, and both newly diagnosed and previously diagnosed cases of NVAF. Exclusion criteria were congenital heart disease, pregnancy, and valvular heart disease. Based on a prevalence rate of 2.8%, the sample size was calculated as 42 using the Cochran formula [9].

Patients with NVAF were recruited from inpatient admissions and outpatient departments of the Medicine and Cardiology units. Of the 100 patients screened, 42 who fulfilled the inclusion criteria were enrolled after obtaining written informed consent. Detailed medical histories and clinical examination findings were documented, and baseline investigations including Complete Blood Count (CBC), Liver Function Test (LFT), Renal Function Test (RFT), lipid profiles, Electrocardiogram (ECG) and chest X-ray findings were recorded. The standard treatment protocol for NVAF was administered by the treating physicians and cardiologists.

Data were analyzed using Epi Info (v7.2.1.0) and represented in tables and graphs for frequency analysis. Measures of central tendency, mean and standard deviation were calculated for quantitative data. Chi-square tests were applied to assess associations between categorical variables, while independent t-tests were used for quantitative variables. A p-value < 0.05 was considered statistically significant.

Results

Table I illustrates the distribution of study subjects based on age, sex, Body Mass Index (BMI), medical history, addictions, and clinical presentation. The mean age of the participants was 69 ± 11 years, with the majority falling in the 66-75 years age group. The male-to-female ratio was 1.56:1. Regarding BMI, 64.29% of the subjects had a BMI between 17 and 25, followed by 16.67% who were overweight (BMI 26–30). Personal and medical histories were also assessed. Tea consumption emerged as the most common addiction, reported in 26 cases. Other significant findings included hypertension as the most prevalent comorbidity (80.95%), followed by diabetes mellitus (30.95%). The study also documented the clinical presentations, with dyspnea being the most frequent symptom (69.05%), followed by palpitations, fatigue, and angina.

Table I: Distribution of age, sex, BMI, addiction history, comorbidities, and clinical presentation in patients with nonvalvular atrial fibrillation

Parameter	Number of subjects (%)
Age (years)	
Less than 35 years	1 (2.38%)
36 to 45	1 (2.38%)
46 to 55	3 (7.14%)
56 to 65	9 (21.43%)
66 to 75	15 (35.71%)
More than 76 years	13 (30.95%)
Gender	
Male	26 (61.9%)
Female	16 (38.1%)
BMI (kg/m^2)	
17 to 25	27 (64.29%)
26 to 30	7 (16.67%)
30 to 40	8 (19.05%)
More than 40	0 (0%)
Personal History	
Nil	6 (14.29%)
Tea	26 (61.90%)
Alcoholic	6 (14.29%)
Tobacco	3 (7.14%)
Coffee	1 (2.38%)
Medical History	
HTN	34 (80.95%)
DM	13 (30.95%)
IHD	8 (19.05%)
CVA	6 (14.29%)
Heart Failure	5 (11.90%)
COPD	2 (4.76%)
Tuberculosis	2 (4.76%)
CKD	1 (2.38%)
Hyperthyroidism	1 (2.38%)
Clinical Presentation	
Dyspnoea	29 (69.05%)
Palpitation	8 (19.05%)
Fatigue	7 (16.67%)
Angina	6 (14.29%)
Stroke	6 (14.29%)
Bleeding Manifestation	6 (14.29%)
Asymptomatic	2 (4.76%)

BMI: Body Mass Index, HTN: Hypertension, DM: Diabetes Mellitus, IHD: Ischemic Heart Disease, CVA: Cerebrovascular Accident, COPD: Chronic Obstructive Pulmonary Disease, CKD: Chronic Kidney Disease

In the present study, the mean pulse rate among participants was observed to be 111.8 ± 34.1 beats per minute, with a range of 60 to 200 beats per minute. The apex pulse deficit ranged from 0 to 20 beats per minute, with a mean of 13.28 ± 4.38 beats per minute.

Blood pressure measurements showed a mean systolic blood pressure (SBP) of 130.9 ± 16.3 mmHg and a mean diastolic blood pressure (DBP) of 78.2 ± 6.3 mmHg.

Table II presents the distribution of study participants based on cardiovascular examination findings, including hypertension stages, clinical and ECG findings, and ventricular rate.

Table II: Distribution of patients with nonvalvular atrial fibrillation according to blood pressure stages, clinical findings, ECG changes, and ventricular rate at admission

Parameter	Number of subjects (%)
Hypertension grade	
Normal (90-120/60-80 mm Hg)	14 (33.33%)
Elevated (120-129/80 mm Hg)	10 (23.81%)
High: Stage 1 (130-139/80-89 mm Hg)	2 (4.76%)
High: Stage 2 (>140/>90 mm Hg)	16 (38.1%)
Clinical findings	
Pedal oedema	4 (9.52%)
Murmur	0 (0%)
Apex deficit	21 (50%)
ECG changes	
ST-T changes	2 (4.76%)
LVH	2 (4.76%)
RBBB	1 (2.38%)
LBBB	1 (2.38%)
Ventricular rate	
Slow (less than 60)	0 (0%)
Controlled (60 to 100)	34 (80.95%)
Fast (more than 140)	8 (19.05%)
ECG: Electrocardiogram, ST-T changes: ST Segment-T Wave Changes, LVH: Left Ventricular Hypertrophy, RBBB: Right Bundle Branch Block, LBBB: Left Bundle Branch Block	

Table III shows the mean levels of various laboratory investigations in patients with NVAF.

Table III: Mean Laboratory values in patients with nonvalvular atrial fibrillation

Laboratory parameters	Mean ± SD
FBS (n = 42)	97.2 ± 30.3
PLBS (n = 42)	140 ± 17.3
TSH (n = 42)	1.9 ± 1
TG (n = 42)	112 ± 67.5
HDL cholesterol (n = 42)	45.4 ± 5
LDL cholesterol (n = 42)	87.4 ± 29.3
TC (n = 42)	152.2 ± 35.4
TC: HDL ratio (n = 42)	3.1 ± 1
HbA1c (n = 13)	8.1 ± 0.9
FBS: Fasting Blood Sugar, PLBS: Postprandial Blood Sugar, TSH: Thyroid Stimulating Hormone, TG: Triglycerides, HDL: High-Density Lipoprotein, LDL: Low-Density Lipoprotein, TC: Total Cholesterol, TC: HDL: Total Cholesterol to High-Density Lipoprotein Ratio, HbA1c: Glycated Hemoglobin The number of subjects tested for each parameter is indicated in parentheses.	

Table IV shows the distribution of patients with NVAF according to echocardiographic findings, X-ray findings, degenerative valve changes, CHA_2DS_2-VASc score, complications, and days of hospitalization. The mean left atrial size was found to be 34.2 mm, with a standard deviation of 8.2 mm. The mean ejection fraction (EF) was 55.51%, with a minimal variation as reflected by the low standard deviation of 0.1. The mean hospital stay duration for the patients in this study was 12.7 ± 5.2 days, with the shortest stay being 5 days and the longest stay extending to 24 days.

Table IV: Distribution of patients with nonvalvular atrial fibrillation according to echocardiographic findings, X-ray findings, CHA_2DS_2-VASc score, complications, and days of hospitalization

Parameters	Number of subjects
Echocardiography	
Clot/vegetations	0 (0%)
MS/MR/TR/PR/AR	0 (0%)
Chest X-ray	
Bilateral fluffy opacities	2 (4.76%)
Normal	39 (92.86%)
Degenerative affection of valve	
Present	11 (26.19%)
Absent	31 (73.81%)
Degenerative affection of valve	
Aortic only	7 (16.67%)
Mitral only	0 (0%)
Both aortic and mitral	4 (9.52%)
CHA_2DS_2-VASc scores	
1	5 (11.90%)
2	9 (21.43%)
3	12 (28.57%)
4	10 (23.81%)
5	6 (14.29%)
Complications	
Embolism	6 (14.29%)
Bleeding manifestations	6 (14.29%)
Hospitalization (days)	
< 2	35 (83.33%)
≥ 2	7 (16.67%)
MS: Mitral Stenosis, MR: Mitral Regurgitation, TR: Tricuspid Regurgitation, PR: Pulmonary Regurgitation, AR: Aortic Regurgitation, CHA_2DS_2-VASc: (C: Congestive heart failure, H: Hypertension, A_2: Age ≥75 years, D: Diabetes Mellitus, S_2: Prior Stroke or transient ischemic attack (TIA), V: Vascular disease, A: Age 65-74 years, Sc: Sex category [female gender])	

In the present study, we compared the ECG changes on admission and follow-up examination as shown in Figure 1.

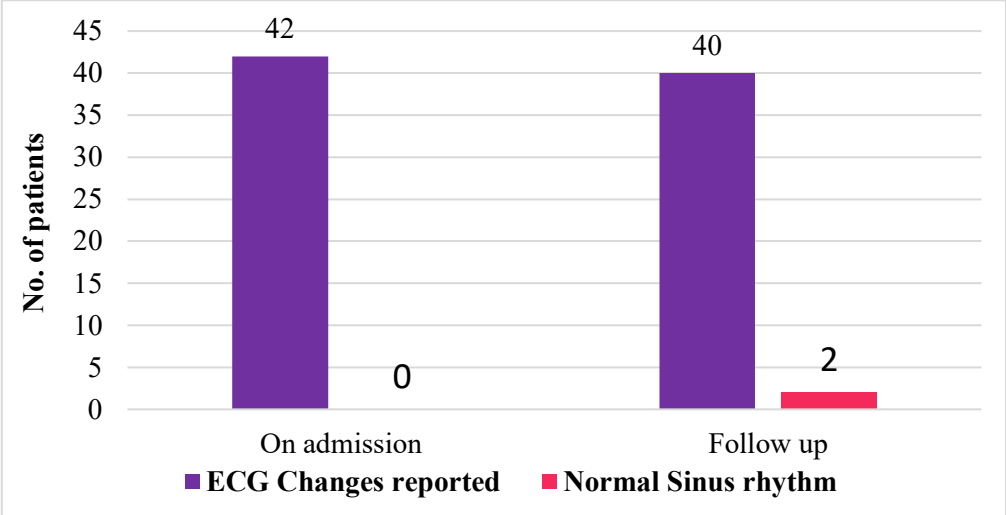

Figure 1: ECG changes on admission and follow-up in patients with NVAF

In this study, the comparison between hypertension and stroke showed a chi-square statistic of 0.03 and a p-value of 0.87, indicating no statistically significant association. The difference in mean atrial size between patients with and without stroke was also not significant by t-test, with a p-value of 0.35. However, the CHA_2DS_2-VASc score showed a significant difference, with a p-value <0.001, indicating a statistically significant association with stroke. When comparing the CHA_2DS_2-VASc score with embolism, the p-value <0.001, which was statistically significant. In contrast, the comparison between the CHA_2DS_2-VASc score and hemorrhage yielded a p-value of 0.21, indicating no statistical significance. Finally, the comparison of INR levels with bleeding manifestations showed a p-value <0.001, which was highly significant (Table V).

Table V: Outcomes in terms of stroke, Embolism, hemorrhage, and bleeding manifestation in patients with nonvalvular atrial fibrillation

Parameter	Yes	No	Statistical test	p-value
HTN	**Stroke**	**NAD**		
Yes, (n=34)	5 (14.7%)	29 (85.3%)	*Chi-Square, X^2= 0.0257*	p = 0.87
No, (n=8)	1 (12.5%)	7 (87.5%)		
Total subjects, (n=42)	6 (14.3%)	36 (85.7%)		
Mean atrial size	33.0	34.4	*t* = -0.39	*p = 0.35*
Mean CHA_2DS_2-VASc score	4.5	2.8	*t* = 3.5	**p < 0.001**
	Embolism	**NAD**		
Mean CHA_2DS_2-VASc score	4.1	2.7	*t = 3.47*	**p < 0.001**
	Hemorrhage	**NAD**		
Mean CHA_2DS_2-VASc score	2.7	3.1	*t = -0.81*	p = 0.21
	Bleeding Manifestation	**NAD**		
Mean INR	4.8	0.9	*t = 25.86*	**p < 0.001**

HTN: Hypertension, CHA_2DS_2-VASc: Congestive heart failure, Hypertension, Age ≥75 years, Diabetes mellitus, Stroke (previous history), Vascular disease, Age 65-74 years, Sex category (female), INR: International Normalized Ratio, NAD: no abnormality detected
Statistically significant p values are bolded.

Table VI shows the distribution of patient presentations and complications according to BMI.

Table VI: Distribution of clinical presentation and complications according to BMI range in patients with nonvalvular atrial fibrillation

	BMI		
	Normal	**Overweight**	**Obese**
Presentation			
Dyspnoea, n = 29	15 (51.7%)	9 (31.1%)	5 (17.2%)
Fatigue, n = 7	4 (57.1%)	1 (14.3%)	2 (28.6%)
Palpitations, n = 8	5 (62.5%)	1 (12.5%)	2 (25%)
Angina, n = 6	4 (66.67%)	1 (16.67%)	1 (16.67%)
Stroke, n = 6	3 (50%)	2 (33.3%)	1 (16.67%)
Complications			
Embolism, n = 6	3 (50%)	2 (33.3%)	1 (16.67%)
Hemorrhagic manifestations, n = 6	5 (83.33%)	0 (0%)	1 (16.67%)
Mean CHA_2DS_2-VASc score	2.8	4.1	3
Mean hospital stay	12.5	11	14.2

BMI: Body Mass Index, CHA_2DS_2-VASc: Congestive heart failure, Hypertension, Age ≥75 years (doubled), Diabetes mellitus, Stroke (doubled), Vascular disease, Age 65-74 years, Sex category (female)

Tables VII and VIII outline the comparison of clinical presentations and complications among patients based on gender, ventricular rate, diabetes mellitus, and diagnosis.

Table VII: Comparison of clinical presentation and complications according to gender, ventricular rate, diabetes, and time of diagnosis in patients with nonvalvular atrial fibrillation

	Male (n = 26), n(%)	**Female (n = 16), n(%)**
Presentation		
Dyspnoea, n = 29	15 (51.7%)	14 (48.3%)
Fatigue, n = 7	3 (42.9%)	4 (57.1%)
Palpitations, n = 8	6 (75%)	2 (25%)
Angina, n = 6	1 (16.67%)	5 (83.33%)
Stroke, n = 6	4 (66.67%)	2 (33.33%)
Complications		
Embolism, n = 6	4 (66.67%)	2 (33.33%)
Hemorrhagic manifestations, n = 6	3 (50%)	3 (50%)
	Controlled Ventricular rate (n = 34), n(%)	**Fast Ventricular rate (n = 8), n(%)**
Presentation		
Dyspnoea, n = 29	23 (79.3%)	6 (20.7%)
Fatigue, n = 7	2 (28.6%)	5 (71.4%)
Palpitations, n = 8	5 (62.5%)	3 (37.5%)
Angina, n = 6	5 (83.33%)	1 (16.67%)
Stroke, n = 6	4 (66.67%)	2 (33.33%)
Complications		
Embolism, n = 6	6 (100%)	0 (0%)
Hemorrhagic manifestations, n = 6	5 (83.33%)	1 (16.67%)
	Diabetic (n = 13), n(%)	**Non-diabetic (n = 29), n(%)**
Presentation		
Dyspnoea, n = 29	13 (44.83%)	16 (55.17%)
Fatigue, n = 7	7 (100%)	0 (0%)
Palpitations, n = 8	3 (37.5%)	5 (62.5%)
Angina, n = 6	3 (50%)	3 (20%)
Stroke, n = 6	2 (33.33%)	4 (66.67%)
Complications		
Affection of valves, n = 11	5 (45.45%)	6 (54.54%)
Embolism, n = 6	2 (33.33%)	4 (66.67%)
Hemorrhagic manifestations, n = 6	1 (16.67%)	5 (83.33%)
	Already diagnosed, n(%)	**Newly diagnosed, n(%)**
Presentation		
Dyspnoea, n = 29	8 (27.6%)	21 (72.4%)
Fatigue, n = 7	2 (28.6%)	5 (71.4%)
Palpitations, n = 8	2 (25%)	6 (75%)
Angina, n = 6	2 (33.33%)	4 (66.67%)
Stroke, n = 6	1 (16.67%)	5 (83.33%)
Complications		
Embolism, n = 6	2 (33.33%)	4 (66.67%)
Hemorrhagic manifestations, n = 6	4 (66.67%)	2 (33.33%)

Table VIII: Comparison of mean CHA_2DS_2-VASc score and hospital stay according to gender, ventricular rate, diabetes, and time of diagnosis in patients with nonvalvular atrial fibrillation

	Male (n = 26), n(%)	**Female (n = 16), n(%)**
Mean CHA_2DS_2-VASc score	2.8	3.5
Mean hospital stay (days)	13	12
	Controlled Ventricular rate (n = 34), n(%)	**Fast Ventricular rate (n = 8), n(%)**
Mean CHA_2DS_2-VASc score	3.1	2.7
Mean hospital stay (days)	13.3	9.
	Diabetic (n = 13), n(%)	**Non-diabetic (n = 29), n(%)**
Mean CHA_2DS_2-VASc score	3.4	2.9
Mean hospital stay (days)	13.1	12.3
	Already diagnosed, n(%)	**Newly diagnosed, n(%)**
Mean CHA_2DS_2-VASc score	3	3.1
Mean hospital stay (days)	12.4	12.7
CHA_2DS_2-VASc: Congestive heart failure, Hypertension, Age ≥75 years (doubled), Diabetes mellitus, Stroke (doubled), Vascular disease, Age 65-74 years, Sex category (female)		

Discussion

This prospective observational study included 42 patients meeting the inclusion criteria out of 100 screened, with a mean age of 69 ± 11 years. Most participants were aged 66 to 75 years (34.15%), followed by those over 76 years (31.71%). Dharma Rao et al. reported a higher prevalence of AF in individuals aged 40 to 60 years (53%), with a slight female predominance (male-to-female ratio of 1:1.2) [10]. So RYoung Lee et al. observed a higher mean age and a larger proportion of individuals aged ≥75 years in suburban/rural areas compared to urban areas [11]. Lip Gy et al. found AF prevalence increasing significantly after age 50, while PT Onundarson et al. noted a low prevalence of chronic AF in populations aged 32 to 64 years [12,13]. These findings emphasize the age-related nature of AF and its variability across demographics.

The majority of participants were males (61.90%), with females accounting for 38.10%, resulting in a male-to-female ratio of 1.56:1. Similarly, Jain M et al. reported that among 165 patients, the majority (56.36%) were males, highlighting a predominance of males in atrial fibrillation cases [14].

Most participants had a BMI between 17 and 25 (64.29%), followed by overweight individuals with a BMI of 26 to 30 (16.67%), and 19.05% were between a BMI of 30 to 40. Similarly, Jain M et al. reported BMI values ranging from 15.94 to 33.75 kg/m², with a mean BMI of 23.8 ± 4.3 kg/m² [14].

In our study, 80.95% of participants had hypertension, 30.95% had diabetes mellitus, 14.29% had a history of cerebrovascular accidents (CVA), 19.05% had ischemic heart disease (IHD), 11.90% had heart failure, and 2.38% had hyperthyroidism. Jain M et al. also identified systemic hypertension as the most commonly associated condition among their patients [14].

In this study, the most common addiction observed was tea consumption, reported by 61.90% of the subjects, followed by alcohol use in 14.29%, tobacco in 7.14%, and coffee in 2.38%. We intended to inquire about tea and coffee consumption, as these substances can increase sympathetic activity, potentially leading to arrhythmias. In a study by Jain M et al., 63 patients had a history of chronic tobacco use, and 21 patients reported alcohol use [14].

In this study, clinical presentations among the subjects included dyspnea (69.05%), fatigue (16.67%), palpitations (19.5%), angina (14.29%), stroke (14.29%), and bleeding manifestations (14.29%), with 4.76% being asymptomatic for cardiac complaints. Dharma Rao et al. observed dyspnea as the most common symptom, followed by palpitations, with stroke, reported in 13.33% of cases [10]. Similarly, Lok NS and Lau CP reported dyspnea and palpitations as the most frequent symptoms [15]. Gregory YH Lip described dyspnea (52%), chest pain (34%), and palpitations (24%) as common presentations in emergency admissions for atrial fibrillation, noting that symptoms lasted longer in cases of rheumatic etiology compared to other causes [12].

CHA_2DS_2-VASc score

In this study, CHA_2DS_2-VASc scores were assessed, with 23.81% of subjects scoring 4, 28.57% scoring 3, and 21.43% scoring 2. According to Jain M et al., most patients had scores >2 [14]. Although guidelines recommend oral anticoagulant (OAC) therapy for AF patients with a CHA_2DS_2-VASc score ≥2, these drugs are often underused, as shown in studies from Korea, where factors like female sex, old age, and lower socioeconomic status predicted lower OAC utilization [11,16].

In India, Balbir Singh highlighted significant gaps in AF management. Aspirin alone was the most commonly prescribed antithrombotic agent (40%), while 20% of patients received no antiplatelet or antithrombotic therapy. The use of newer oral anticoagulants (NOACs) was alarmingly low at 6%. This underuse is concerning, as aspirin is less effective for stroke prevention and not necessarily safer than OACs, leaving many patients inadequately protected against stroke [8].

Echocardiogram analysis

A comparison of ECG changes at admission and during follow-up revealed that all study subjects exhibited ECG changes on admission. However, sinus rhythm was achieved in 4.76% of patients during follow-up, following rate control medications. Notably, none of these patients required rhythm-controlling medication. Among the study population, 40 patients had persistent atrial fibrillation (lasting more than 7 days), while 2 patients experienced paroxysmal atrial fibrillation (lasting less than 7 days).

Comparison of mean CHA_2DS_2-VASc Score and complication

This study compared the mean CHA_2DS_2-VASc score with complications such as embolism and hemorrhage. The mean score for patients with embolism was 4.1, significantly higher than 2.7 in those without embolism ($t=3.47$, $p<0.001$). Complications were observed in 14.29% of subjects for both embolism and bleeding manifestations, with bleeding mainly attributed to OAC drug therapy rather than the disease itself. Patients with bleeding had a significantly higher mean INR of 4.8 compared to 0.9 in those without bleeding ($t=25.87$, $p<0.001$). We also noted that the mean CHA_2DS_2-VASc score was 2.7 among those with hemorrhage compared to 3.1 in those without, with no statistically significant difference (t-value: -0.81, $p = 0.21$).

Comparison of patients according to body mass index

This study found that symptoms such as palpitations, dyspnea, fatigue, and angina were more common in subjects with normal BMI compared to those with higher BMI. There was no increased risk of complications like embolism in overweight or obese patients, likely due to good anticoagulation control. Hospital stays were the longest for overweight subjects, while the CHA_2DS_2-VASc score was the highest among obese individuals. Similarly, Proietti et al. reported no increased complication rates with higher BMI. Overweight and obese patients had a lower composite risk of stroke and all-cause death, with good anticoagulation control further mitigating risks [17].

Comparison of patients according to gender

In this study, palpitations, dyspnea, and stroke were more common in male subjects, whereas fatigue and angina were more prevalent in females. Complications like embolism, bleeding manifestations, and valve involvement were also higher among males. However, the mean CHA_2DS_2-VASc score was lower in males, as females are assigned an additional point in the scoring system. Male subjects also had a longer average hospital stay.

Comparison between fast and controlled ventricular rate

In this study, ventricular rates were assessed among the subjects. Controlled ventricular rates were observed in 80.95% of cases, while faster rates were noted in 19.05%. According to John M Rawle et al., managing atrial fibrillation often requires reducing a rapid ventricular rate to enhance patient comfort or alleviate pulmonary edema, especially in cases with mitral stenosis. However, it is crucial to balance rate reduction with its impact on cardiac output and exercise tolerance, avoiding arbitrary reductions [18].

Comparison between diabetic and nondiabetic patients

In this study, diabetic patients had a mean CHA_2DS_2-VASc score of 3.4, compared to 2.9 in nondiabetics. The mean hospital stay was

slightly longer in diabetics (13.1 days) compared to nondiabetics (12.4 days), but these differences were not statistically significant.

According to A.J. Scheen et al., diabetic patients are at higher risk for NVAF, cerebral embolism, and anticoagulant-related bleeding [19].

Comparison between newly diagnosed and already diagnosed cases

In this study, palpitations, dyspnea, fatigue, and angina were more common in newly diagnosed cases compared to those already diagnosed. Complications like embolism were also higher in newly diagnosed cases, likely due to the absence of anticoagulant therapy. Conversely, bleeding manifestations were more frequent in already diagnosed cases, attributed to anticoagulant toxicity from prolonged therapy.

Newly diagnosed cases had a higher mean CHA_2DS_2-VASc score and longer hospital stays, primarily due to increased complications like embolism in this group.

Limitations of study

The sample size in this study was insufficient for robust statistical analysis, which may have affected the generalizability of the findings. Additionally, the lack of previous Indian research on this specific topic limited the ability to draw direct comparisons and provide a comprehensive contextual understanding of the results.

In conclusion advanced age and male gender emerged as significant risk factors for the development of NVAF, with systemic hypertension being the most common etiological association. The predominant clinical presentations included palpitations, dyspnoea, fatigue, and angina. Notably, patients presenting with stroke did not exhibit residual clots on echocardiography. Complications observed in the study were embolism and hemorrhage, each affecting 14.29% of subjects, while no mortality was reported. Importantly, bleeding manifestations were attributed primarily to anticoagulant therapy rather than the condition itself, underscoring the need for cautious management of treatment strategies.

Declarations

Conflict of interest declaration

None

Funding/ financial support

None

Ethical Clearance

Cleared

Trial details

None

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