Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

STUDY OF CLINICAL PROFILE, RISK FACTORS, ECG FINDINGS AND OUTCOME IN ATRIAL FIBRILLATION PATIENTS

Milind Raghunathn Waykole[1*], Vivek Divakar Chaudhari[2]

[1]Assistant Professor, [2]Assistant Professor, Department of Cardiology, Dr Ulhas Patil Medical College and Hospital Jalgaon Khurd, NH6, Jalgaon, Maharashtra 425309, INDIA.

Address for Correspondence:

Dr. Vivek Divakar Chaudhari, Assistant Professor, Department of Cardiology, Dr Ulhas Patil Medical College and Hospital Jalgaon Khurd,NH6,Jalgaon, Maharashtra 425309, INDIA.

Email: dupmcj@yahoo.in

Receive Date: 21/12/2018 ***Acceptance Date: 26/12/2018***

ABSTRACT

Background:

Atrial fibrillation (AF) is the most common clinical arrhythmia worldwide and is expected to increase in the coming decades. It currently affects up to 3 % of Western populations aged 20 years or older, and the number of affected individuals in the EU will increase from about 7 million to almost 13 million by 2030. This growing epidemic is not only caused by the natural ageing of the population, but also by the accumulation of chronic cardiovascular diseases and risk factors, and thus at least in part is caused by inadequate lifestyle. AF is a chronic condition and is independently associated with increased morbidity and mortality, including ischaemic stroke, dementia, cognitive dysfunction, heart failure (HF), MI and all-cause mortality. **Aim & Objective:**1. To study Echocardiography finding in atrial fibrillation.2. To study various risk factors of atrial fibrillation.3. To study clinical profile of atrial fibrillation. **Methods: Study design:** Prospective Observational Study. **Study setting:** Cardiology department of tertiary care centre. **Study duration:** from January 2016 to December 2016 **Study population:** The study population included all the cases with Atrial fibrillation admitted at a tertiary care center. **Sample size:** 100 **Results:** majority of cases were found in above 60 years group 34 (34%) followed by 46-60 years group 30 cases, 24 and 12 cases were found in 31-45 and 18-30 years age group respectively. majority of study participants were Males contributing 65 (65%) and Females 35 (35%). majority of cases had a history of Hypertension 86, followed by Smoking were present in 40 cases, Alcohol history reported by 37 cases, 23 cases were found with DM, Rheumatic heart disease in 17 cases and metabolic syndrome found in 15 cases. Ejection Fraction (EF) was found to be more than 44% in 72 cases (72%) and less than 44% in 28 cases (28%) as evaluated in the study. Left ventricular hypertrophy (LVH) was seen in 58 cases. Diastolic Dysfunction was seen in 24 cases (24%) out of 100. Regional wall motion abnormalities (RWMA) were present in 15 cases and LA (left atrial) clot was seen in 3 cases

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

(3%) and that too in cases of Valvular AF. majority of cases had a complaint of Dyspnea 76, followed by Palpitations in 67 cases, pedal edema were found in 35 cases, 17 cases complained chest pain and 8 cases were asymptomatic and diagnosed during other diseases investigations. majority of cases Discharged after treatment 65, followed by 27 cases DAMA and 8 cases Death during treatment. **Conclusions:** Majority of cases were found in above 60 years group. Most of study participants were Males. Most common Risk factors were Hypertension. Majority of cases presented with Ejection Fraction (EF) was found to be more than 44%.The integrated use of echocardiography will be an important component in the optimal management of the looming AF epidemic

Keywords: Echocardiography, HHD, Atrial Fibrillation , Ejection Fraction

INTRODUCTION:

Atrial fibrillation (AF) is the most common clinical arrhythmia worldwide and is expected to increase in the coming decades.[1,2] It currently affects up to 3 % of Western populations aged 20 years or older, and the number of affected individuals in the EU will increase from about 7 million to almost 13 million by 2030.[3–5]

This growing epidemic is not only caused by the natural ageing of the population, but also by the accumulation of chronic cardiovascular diseases and risk factors, and thus at least in part is caused by inadequate lifestyle.[5–7]

AF is a chronic condition and is independently associated with increased morbidity and mortality, including ischaemic stroke, dementia, cognitive dysfunction, heart failure (HF), MI and all-cause mortality.[8–14]

Stroke and HF can even be the first manifestation of AF. Although AF can be completely asymptomatic, about two-thirds of patients experience at least intermittent symptoms, which can be disabling and markedly impair health-related quality of life.[15,16]

AF-related symptoms and complications, as well as underlying cardiovascular diseases, lead to unplanned hospital admissions in a substantial number of patients every year.[17,18] Therefore, it is not surprising that inpatient AF care accounts for more than two-thirds of the annual direct costs of AF and is the major cost driver.[19–21]

AIM AND OBJECTIVE

OBJECTIVE:

1. To study Echocardiography finding in atrial fibrillation
2. To study various risk factors of atrial fibrillation
3. To study clinical profile of atrial fibrillation

MATERIAL AND METHODS

Study design: Prospective Study.

Study setting: Cardiology department of tertiary care centre

Study duration: from January 2016 to December 2016

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

Study population: The study population included all the cases with Atrial fibrillation admitted at a tertiary care center

Inclusion criteria:

Clinically and electrocardiographically proven all cases of atrial fibrillation

Admitted in ward and ICCU of Department of Medicine in tertiary care center

Exclusion criteria:

Not willing to participate in the study

Loss to follow up

Approval for the study:

Written approval from Institutional Ethics committee was obtained beforehand. Written approval of Cardiology and Related department was obtained. After obtaining informed verbal consent from all patients with the definitive diagnosis of Atrial fibrillation admitted to Medicine ward of tertiary care centre such cases were included in the study.

Sample Size: With reference to study by **Mohan G et al (2017)** [23] He found that the CHA2DS2-VASc score of more than 2 was seen in 86% of the patients

Formula for sample size = 4* P* Q / L2

Where P = 86%

Q = 100 -86 = 14

L = Allowable error = 10% (Absolute error)

Sample size = 4 * 86 * 14 / 70.56=68.25

Sample size Rounded to = 100

Sampling technique:

Convenient sampling technique used for data collection. All patients admitted in the Medicine department of tertiary care center from Jan 2020 to Dec 2021 with Atrial fibrillation were included in the study.

Methods of Data Collection and Questionnaire: Predesigned and pretested questionnaire was used to record the necessary information. Questionnaires included general information, such as age, sex, religion, occupation of parents, residential address, and date of admission. Medical history- chief complain, past history, general examination, systemic examination

Data on demographic profile of Atrial fibrillation patient, investigation, personal history, medical past history, treatment modalities, and clinical outcome data collected from patients admitted in medicine ward.

All the procedures and investigations conducted under direct guidance and supervision of pg guide. Proforma of Atrial fibrillation notes maintained.

Screening procedure:

With the written informed consent, a detailed history was taken, and a physical examination was done. Twelve-lead electrocardiography (ECG) was taken and transthoracic echocardiography

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

with GE. Vivid seven was done to look for left atrium (LA) size, LVEF, and left ventricular wall thickness assessed in the parasternal long-axis view. The LA dimension of more than 40mm was considered dilated.

The septal and posterior left ventricular wall was measured and considered abnormal if ≥10mm in females and ≥11mm in males. The LV function was calculated by M-mode or Simpson's method and was considered abnormal if below 55 percent; however severe LV systolic dysfunction was considered if LVEF was less than 30 percent. The valvular morphology, stenotic or regurgitant lesions, clots or any other defects were also noted.

Data entry and analysis:

The data were entered in Microsoft Excel and data analysis was done by using SPSS demo version no 21 for windows. The analysis was performed by using percentages in frequency tables and correlation of Atrial Fibrillation. $p<0.05$ was considered as level of significance using the Chi-square test

Results and observations

The present Cross sectional study was done among 100 Atrial Fibrillation cases admitted to tertiary care centre during study period.

Table No. 1: Distribution of cases according to age (N=100)

Age in years	Frequency	Percentage
18-30	**12**	**12%**
31-45	**24**	**24%**
46- 60	**30**	**30%**
>60	**34**	**34%**
Total	**100**	**100 (100%)**

Above table shows that majority of cases were found in above 60 years group 34 (34%) followed by 46-60 years group 30 cases , 24 and 12 cases were found in 31-45 and 18-30 years age group respectively.

Table No.2: Distribution of cases as per sex (N=100)

Gender	Frequency	Percentage
Male	**65**	**65%**
Female	**35**	**35%**
Total	**100**	**100 (100%)**

Above table shows that majority of study participants were Males contributing 65 (65%) and Females 35 (35%)

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

Table No. 3: Distribution of cases according to Risk factors (N=100)

Risk factors	Frequency	Percentage
Hypertension	**86**	**86%**
Diabetes mellitus	**23**	**23%**
Alcohol	**37**	**37%**
Smoking	**40**	**40%**
Rheumatic heart Disease	**17**	**17%**
Metabolic syndrome	**15**	**15%**

The above table shows majority of cases had a history of Hypertension 86, followed by Smoking were present in 40 cases, Alcohol history reported by 37 cases, 23 cases were found with DM, Rheumatic heart disease in 17 cases and metabolic syndrome found in 15 cases.

Table no 4: Distribution according to various parameters assessed on echocardiography (N=100)

Echocardiography	No of Patients		Frequency
	Present	Absent	
EF<44%	**28**	**72**	**100**
LVH	**58**	**42**	**100**
Diastolic Dysfunction	**24**	**76**	**100**
RWMA	**15**	**85**	**100**
LA Clot	**3**	**97**	**100**

The above table shows Ejection Fraction (EF) was found to be more than 44% in 72 cases (72%) and less than 44% in 28 cases (28%) as evaluated in the study. Left ventricular hypertrophy (LVH) was seen in 58 cases.

Diastolic Dysfunction was seen in 24 cases (24%) out of 100. Regional wall motion abnormalities (RWMA) were present in 15 cases and LA (left atrial) clot was seen in 3 cases (3%) and that too in cases of Valvular AF.

Table no 5: Distribution of cases according to Clinical manifestations (N=100)

Clinical manifestations	Frequency	Percentage
Dyspnea	**76**	**76%**
pedal edema	**35**	**35%**
Stroke	**24**	**24%**
Palpitations	**67**	**67%**
Chest Pain	**17**	**17%**
Asymptomatic	**8**	**8%**

The above table shows majority of cases had a complaint of Dyspnea 76, followed by Palpitations in 67 cases, pedal edema were found in 35 cases, 17 cases complained chest pain and 8 cases were asymptomatic and diagnosed during other diseases investigations.

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

Table no 6: Distribution of cases according to Outcome (N=100)

Outcome	Frequency	Percentage
Discharged	**65**	**65%**
DAMA	**27**	**27%**
Death	**8**	**8%**
Total	**100**	**100 (100%)**

The above table shows majority of cases Discharged after treatment 65, followed by 27 cases DAMA and 8 cases Death during treatment

DISCCUSSION

The present Cross sectional study was done among 100 Atrial Fibrillation cases admitted to tertiary care centre during study period.

In present study Table No. 1: Distribution of cases according to age (N=100) majority of cases were found in above 60 years group 34 (34%) followed by 46-60 years group 30 cases , 24 and 12 cases were found in 31-45 and 18-30 years age group respectively. Similar result found in the study conducted by In a study done by N Vidya et al [22] most of cases were found in above 60 years and mean age was found to be 47 yrs. Another study reported similar result by Mohan G et al [23] He found that the Among the total 100 patients with Atrial Fibrillation enrolled , Mean Age of the patients was 67.02±12.50 yrs and maximum were in the >50 yrs age group (n = 90; 90%).

Table No.2: Distribution of cases as per sex (N=100) majority of study participants were Males contributing 65 (65%) and Females 35 (35%). Similar result found in the study by Farman MT et al [24] He reported there were 52 male and 48 female patients with the mean age of 39.20 ± 11.41 years. similar result reported by Mohan G et al [23] He found that the Males were predominant in study as 62 % (n = 62) and females were 38 % (n = 38).Contrast result observed in the study by Boonyasirinant T et al [25] He observed that the There were 77 men and 183 women in the present study.

Table No. 3: Distribution of cases according to Risk factors (N=100) most of cases had a history of Hypertension 86, followed by Smoking were present in 40 cases, Alcohol history reported by 37 cases, 23 cases were found with DM, Rheumatic heart disease in 17 cases and metabolic syndrome found in 15 cases. Similar result observed in the study by Shakya S et al [26] He found that the majority 68 (38.9%) had Rheumatic heart disease, 29 (16.6%) had Dilated Cardiomyopathy (DCM), 10 (5.7%) had congenital heart disease (included Atrial Septal Defect Ostium Secundum type, Ventricular Septal Defect and Pulmonary Stenosis), 13 (7.4%) had coronary artery disease (STEMI or NSTEMI), 5 (2.9%) had ischemic cardiomyopathy, 17 (9.7%) had hypertension only (in 16 patients hypertension was associated with other diseases), 16 (9.1%) had degenerative valvular heart disease (DVHD), 2 (1.1%) had mitral valve prolapse (MVP), 2 (1.1%) had hypertrophic cardiomyopathy, 8 (4.6%).

Similar result observed in the study by Benjamin EJ et al [27] In Framingham study also hypertension and diabetes were the significant independent predictors of atrial fibrillation after adjusting for age and other predisposing conditions.

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

Table no 4: Distribution according to various parameters assessed on echocardiography (N=100) The above table shows Ejection Fraction (EF) was found to be more than 44% in 72 cases (72%) and less than 44% in 28 cases (28%) as evaluated in the study. Left ventricular hypertrophy (LVH) was seen in 58 cases. Diastolic Dysfunction was seen in 24 cases (24%) out of 100. Regional wall motion abnormalities (RWMA) were present in 15 cases and LA (left atrial) clot was seen in 3 cases (3%) and that too in cases of Valvular AF. Similar result observed in the study by Kannel et al [28]

Table no 5: Distribution of cases according to Clinical manifestations (N=100) The above table shows majority of cases had a complaint of Dyspnea 76, followed by Palpitations in 67 cases, pedal edema were found in 35 cases, 17 cases complained chest pain and 8 cases were asymptomatic and diagnosed during other diseases investigations. Similar result found in the study by Tischler et al[29] dyspnea was reported in 62% of patients, palpitations in 33% patients, and syncope in 12% patients, Flaker et al[30] in his study observed that 78% patients had dyspnea and 11% had chest pain at presentation.

Table no 6: Distribution of cases according to Outcome (N=100) majority of cases Discharged after treatment 65, followed by 27 cases DAMA and 8 cases Death during treatment. Similar result observed in the study by Mozaffarian D et al [31] Atrial Fibrillation increases the risk of stroke, heart failure, and overall mortality.

CONCLUSIONS

Majority of cases were found in above 60 years group.Most of study participants were Males.Most common Risk factors was Hypertension.Majority of cases presented with Ejection Fraction (EF) was found to be more than 44%.The integrated use of echocardiography will be an important component in the optimal management of the looming AF epidemic

REFERENCES

1. Chugh SS, Havmoeller R, Narayanan K, et al. Worldwide epidemiology of atrial fibrillation: a Global Burden of Disease 2010 Study. Circulation. 2014;129:837–47.
2. Colilla S, Crow A, Petkun W, et al. Estimates of current and future incidence and prevalence of atrial fibrillation in the U.S. adult population. Am J Cardiol. 2013;112:1142–7.
3. Bjorck S, Palaszewski B, Friberg L, Bergfeldt L. Atrial fibrillation, stroke risk, and warfarin therapy revisited: a population-based study. Stroke. 2013;44:3103–8.
4. Haim M, Hoshen M, Reges O, et al. Prospective national study of the prevalence, incidence, management and outcome of a large contemporary cohort of patients with incident non-valvular atrial fibrillation. J Am Heart Assoc. 2015;4:e001486.
5. Krijthe BP, Kunst A, Benjamin EJ, et al. Projections on the number of individuals with atrial fibrillation in the European Union, from 2000 to 2060. Eur Heart J. 2013;34: 2746–51.

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

6. Chao TF, Liu CJ, Chen SJ, et al. CHADS2 score and risk of new-onset atrial fibrillation: a nationwide cohort study in Taiwan. Int J Cardiol. 2013;168:1360–3.
7. Schnabel RB, Yin X, Gona P, et al. 50 year trends in atrial fibrillation prevalence, incidence, risk factors, and mortality in the Framingham Heart Study: a cohort study. Lancet. 2015;386:154–62.
8. Wolf PA, Abbott RD, Kannel WB. Atrial fibrillation as an independent risk factor for stroke: the Framingham Study. Stroke. 1991;22: 983–8.
9. Krahn AD, Manfreda J, Tate RB, et al. The natural history of atrial fibrillation: incidence, risk factors, and prognosis in the Manitoba Follow-Up Study. Am J Med. 1995;98:476–84.
10. de Bruijn RF, Heeringa J, Wolters FJ, et al. Association between atrial fibrillation and dementia in the general population. JAMA Neurol. 2015;72:1288–94.
11. Miyasaka Y, Barnes ME, Petersen RC, et al. Risk of dementia in stroke-free patients diagnosed with atrial fibrillation: data from a community-based cohort. Eur Heart J. 2007;28:1962–7.
12. Soliman EZ, Safford MM, Muntner P, et al. Atrial fibrillation and the risk of myocardial infarction. JAMA Intern Med. 2014;174:107–14.
13. Soliman EZ, Lopez F, O'Neal WT, et al. Atrial fibrillation and risk of ST-segment-elevation versus non-ST-segment-elevation myocardial infarction: The Atherosclerosis Risk in Communities (ARIC) Study. Circulation. 2015;131:1843–50.PubMed Central PMCID: PMCPMC4447576.
14. Benjamin EJ, Wolf PA, D'Agostino RB, et al. Impact of atrial fibrillation on the risk of death: the Framingham Heart Study. Circulation. 1998;98:946–52.
15. Nieuwlaat R, Capucci A, Camm AJ, et al. Atrial fibrillation management: a prospective survey in ESC member countries: the Euro Heart Survey on Atrial Fibrillation. Eur Heart J. 2005;26:2422–34.
16. Dorian P, Jung W, Newman D, et al. The impairment of health-related quality of life in patients with intermittent atrial fibrillation: implications for the assessment of investigational therapy. J Am Coll Cardiol. 2000;36:1303–9.
17. Steinberg BA, Kim S, Fonarow GC, et al. Drivers of hospitalization for patients with atrial fibrillation: Results from the Outcomes Registry for Better Informed Treatment of Atrial Fibrillation (ORBIT-AF). Am Heart J. 2014;167:735–42 e2.
18. Healey JS, Oldgren J, Ezekowitz M, et al. Occurrence of death and stroke in patients in 47 countries 1 year after presenting with atrial fibrillation: a cohort study. Lancet. 2016;388:1161–9.
19. Stewart S, Murphy NF, Walker A, et al. Cost of an emerging epidemic: an economic analysis of atrial fibrillation in the UK. Heart. 2004;90:286–92.
20. Kim MH, Johnston SS, Chu BC, et al. Estimation of total incremental health care costs in patients with atrial fibrillation in the United States. Circ Cardiovasc Qual Outcomes. 2011;4:313–20.

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

21. Wolowacz SE, Samuel M, Brennan VK, et al. The cost of illness of atrial fibrillation: a systematic review of the recent literature. Europace. 2011;13:1375–85.
22. Vidya N, Gupta AK, Mahmood Syed E, Malini K, Patiyal RK. Etiological profile and clinical presentation of patients with atrial fibrillation from a rural area of Bihar. Natl J Med Res. 2012;2(2):124-7.
23. Mohan G, Kaur S, Kaur R, Aggarwal A. The study of clinical and echocardiographic assessment of patients with atrial fibrillation. Int J Adv Med 2017;6:1041-5
24. Farman MT, Sial JA, Khan N, Rahu QA, Tasneem H, Ishaq M. Severe mitral stenosis with atrial fibrillation--a harbinger of thromboembolism. J Pak Med Assoc. 2010 Jun;60(6):439-43. PMID: 20527639.
25. Boonyasirinant T, Phankinthongkum R, Komoltri C. Clinical and echocardiographic parameters and score for the left atrial thrombus formation prediction in the patients with mitral stenosis. J Med Assoc Thai. 2007 Nov;90 Suppl 2:9-18. PMID: 19230420.
26. Shakya S, Gajurel RM, Poudel CM, Shrestha H, Devkota S, Thapa S. Echocardiographic Findings in Patients with Atrial Fibrillation in a Tertiary Care Center of Nepal: A Descriptive Cross-sectional Study. JNMA J Nepal Med Assoc. 2021 Jan 31;59(233):46-50. doi: 10.31729/jnma.5408. PMID: 34508458; PMCID: PMC7893398.
27. Benjamin EJ, Levy D, Vaziri SM, D'agostino RB, Belanger AJ, Wolf PA. Independent risk factors for atrial fibrillation in a population-based cohort: the Framingham Heart Study. Jama. 1994;271(11):840-4.
28. Kannel WB, Abbott RD, Savage DD, McNamara PM. Epidemiologic features of chronic atrial fibrillation: the Framingham study. New Engl J Med. 1982;306(17):1018-22
29. Tischler MD, Lee TH, McAndrew KA, Sax PE, Sutton MS, Lee RT. Clinical, echocardiographic and Doppler correlates of clinical instability with onset of atrial fibrillation. Am J Cardiol. 1990;66(7):721-4.
30. Flaker GC, Fletcher KA, Rothbart RM, Halperin JL, Hart RG. Clinical and echocardiographic features of intermittent atrial fibrillation that predict recurrent atrial fibrillation. Am J cardiol. 1995;76(5):355-8.
31. Mozaffarian D, Benjamin EJ, Go AS, Arnett DK, Blaha MJ, Cushman M, et al. Executive summary: heart disease and stroke statistics-2016 update: a report from the American Heart Association. Circulation. 2016;133(4):447-54.