*IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*
*e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 21, Issue 8 Ser.9 (August. 2022), PP 11-15*
*www.iosrjournals.org*

# Clinical Presentation of Atrial Fibrillation in A Tertiary Care Hospital – A Heuristic Evaluation

Dr.N.Nusrath[1], Dr.Khader Faheem[2]
[1]*Asst. Professor, Dept. of General Medicine, S.V.Medical College, Tirupati, Andhra Pradesh, India*
[2]*Asst. Professor, Department of Pathology, S.V.Medical College,Tirupati, Andhra Pradesh, India*
*Corresponding Author: Dr.KhaderFaheem*

***ABSTRACT***
***Introduction:****Atrial Fibrillation is one of the commonest cardiac arrhythmias which a student come across during the course of studies in medical wards and a physician come across during his medical practice.It is found in association with various types of diseases, cardiac as well as non-cardiac and sometimes is seen to occur as a lone phenomenon. This arrhythmia which initiates or aggravates cardiac decompensation, is itself perpetuated by cardiac decompensation. Number of drugs is still at experimental stage and is due for release in to the market, after ensuring their safety. So, the future era physicians and cardiologists will have more range to choose and use accurate and safer drugs for the existing problem.*
***Materials & Methods:*** *A prospective study has been performed over patients diagnosed with Atrial fibrillation in the year of 2021. Relevant history was taken along with proper and accurate clinical examination. All the patients were diagnosed with the help of echocardiogram (ECG) and 2D Echocardiography with M-Mode and Two-dimensional real time images.*
***Results:*** *A total of 75 patients were diagnosed with Atrial fibrillation. 36 48%) were males and 39 (52%) were females. Rheumatic heart disease was etiologically related in 37 (49.33%). Smoking was found out to be the commonest risk factor- 34 (45.33%). The most common complaint recorded was breathlessness – 75 (100%). Enlarged left atrial measurement was observed in 2D echo in 34 (45.33%) of the individuals.*
***Conclusion:****Atrial fibrillation is the common arrhythmia in medical wards. Rheumatic heart disease, with Mitral Stenosis, being the common etiology; diagnosis of Atrial fibrillation is established by Electrocardiography; etiology and associated cardiovascular lesions (anatomical and physiological) along with Atrial fibrillation is well studied, by 2D-Echocardiography.*

*Key words: Atrial fibrillation, Electrocardiogram, Echocardiography, Rheumatic heart disease*

---

Date of Submission: 14-08-2022 Date of Acceptance: 27-08-2022

---

## I. Introduction

Atrial Fibrillation is one of the commonest cardiac arrhythmias which a student come across during the course of studies in medical wards and a physician come across during his medical practice. Atrial Fibrillation was previously called "PULSUS IRREGULARIS PERPETUOSUS" by Hering[1], Delirium Cordis and Absolute Arrhythmia by various authors. The earliest description of Atrial Fibrillation is in the "*The Yellow Emperor's Classic of Internal Medicine"* (Huang Ti NeiChing Su Wen- The legendary emperor physician is believed to have ruled China between 1696-2598, BC).[2]

"*When the pulse is irregular and tremulous and the beats occur at intervals, then the impulse of life fades; when the pulse is slender (smaller than feeble, but still perceptible, thin like a silk thread), then the impulse of life is small*."

William Harvey[3,4] in 1628 was probably the first to describe "fibrillation of the auricles in animals".

It is found in association with various types of diseases, cardiac as well as non-cardiac and sometimes is seen to occur as a lone phenomenon. This arrhythmia which initiates or aggravates cardiac decompensation, is itself perpetuated by cardiac decompensation. It is responsible for many complications both cardiac and extra cardiac like heart failure, embolic phenomenon, pulmonary edema etc., Atrial fibrillation is not only seen in medical wards, but is also seen in surgical wards, where a cardiac surgeon is confronted with it, as a post-operative complication. The advent of newer anti-arrhythmic drugs and greater understanding of their mechanisms of action and side effects have revolutionized the modalities of treatment of Atrial fibrillation. New and more effective drugs meant easier and more effective way of treating persistent or resistant Atrial fibrillation, not amenable to usual antiarrhythmic drugs. Number of drugs is still at experimental stage and is

due for release in to the market, after ensuring their safety. So, the future era physicians and cardiologists will have more range to choose and use accurate and safer drugs for the existing problem.

The common occurrence of the arrhythmia, its controversial etiology and mechanism, the complications and problems regarding effective control of fibrillation have attracted the attention of many scientists and scholars. This has induced further study to resolve the problems in various fronts in Atrial Fibrillation.

**AIMS & OBJECTIVES**

1. To study the cases of Atrial fibrillation on the basis of age, sex, etiology and risk factors and derive the common aspects.
2. To study the clinical perspective of atrial fibrillation and analyze the clinical behavior of atrial fibrillation.
3. To derive the diagnosis of atrial fibrillation with the help of readily available investigations.

## II. Materials And Methods

The present study reports 75 patients of Atrial fibrillation, who attended a tertiary care hospital in one year i.e., in 2021 (January to December). In all cases, a thorough case history was taken from each of the patients or their near relatives. All the patients were subjected to detailed physical examination with a stress on cardiovascular system in particular. All the patients were evaluated by radiological examination, electrocardiogram and echo-cardiography and investigations including – Hemoglobin estimation, Red blood cell counts, White blood cell – total count and differential count, Erythrocyte sedimentation rate, Urine for albumin and sugar deposits, Blood urea, Blood sugar, Serum cholesterol, Thyroid profile, Serum Electrolytes (Na+, K+), Serum Calcium and other investigations. Day to day follow up was maintained, which included complete physical examination and electro-cardiogram recordings and the progress was noted.

X-ray chest PA view was done for all 75 patients, with atrial fibrillation and was evaluated for cardio-thoracic ratio (CTR configuration), pulmonary venous and arterial hypertension, chamber enlargement and other findings like pulmonary congestion and pleural effusion.

Standard 12-lead ECG's were taken and were analyzed for Rate, Rhythm, QRS axis, P wave abnormalities, P-R interval, QRS duration, corrected QT interval, T waves, ST-T segment changes, Pathological 'Q' waves, chamber hypertrophy, arrhythmias and conduction disturbances.

Echocardiography was done for all 75 patients with atrial fibrillation using General electric, ultrasound scan head (BDD); a hand held instrument that produces real time images of heart was used. The scan head provides proper inputs and outputs for M-mode and Two-dimensional real time images of heart were used for evaluation.

For all cases attention was given to chamber enlargements especially left atrial size, valvular motion pattern, thickening or calcifications of valves. The valvular aperture is calculated. Also noted were mural thrombi, wall motion abnormalities, atrial and ventricular septal defects and pericardial effusion.

## III. Results

Among 75 patients 36 (48%) were males and 39 (52%) were females; their age ranged from 22 years to 80 years. With majority of them being from 41-50 years, 26 (34%). [Table No. – 1.1 & 1.2]

Etiologically, among 75 patients with atrial fibrillation, 37 (49.33%) patients had Rheumatic heart disease; 14 (18.66%) patients had Dilated cardiomyopathy; 6 (8%) had Coronary artery disease; in 5 (6.66%) patients no etiology was made out, thus categorizing as Lone atrial fibrillation; 4 (5.66%) had Chronic obstructive pulmonary disease; 4 (5.66%) patients had Corpulmonale; 5 (6.66%) patients were categorized as Others with etiological factors like Meningitis, Supraventricular tachycardia, cerebrovascular accidents etc., In present study, we have come across some risk factors as depicted in [Table No. –1.3]. Their main complaints were breathlessness, palpitations, cough with expectoration and chest pain. Breathlessness was recorded by all 75 (100%) patients of whom 14 (18.6%) had orthopnoeaand 14 (18.6%) had paroxysmal nocturnal dyspnea. Palpitations was seen in all 75 (100%) patients; cough with expectoration by 23 (30.6%) patients, chest pain by 17 (22.6%) patients; Edema of the feet is seen in 5 (6.6%) patients; Hemoptysis is seen in 5 (6.6%) patients; Ascites in 2 (2.66%) patients; Headache in 2 (2.66%) patients; Hemiparesis in 2 (2.66%) patients; facial palsy in 2 (2.66%) patients; fever with arthralgia is seen in 1 (1.33%); loss of consciousness in 1 (1.33%).

Clinically on Inspection among 75 patients, Apex beat was visible in 45 (60%) patients; and was not visible in 30 (40%). Epigastric pulsations were visible in 12 (16%) and were not visible in 63 (84%).

On palpation, apical impulse was normally placed in 56 (74.66%) patients; displaced in 19 (25.33%) patients. Para sternal heave was felt in 7 (9.33%) patients; Palpable S1 in 7 (9.33%), Palpable P2 in 4 (5.33%), Thrill in 4 (5.33%) patients.

On Auscultation among 75 patients, in Mitral area, Mid-diastolic murmur was recorded in 34 (45.33%) and Pan systolic murmur in 6 (8%) patients. In Aortic area, Ejection systolic murmur was recorded in 3 (4%). In Pulmonary area, Loud P2 was recorded in 10 (13.33%) patients.

Among 75 patients with Atrial fibrillation; Electrocardiogram showed- Right axis deviation in 14 (18.66%); Right ventricular hypertrophy in 13 (17.33%) patients; Poor 'R' wave progression in 8 (10.66%); Ventricular ectopic in 3 (4%) patients; 'ST' segment depression in 1 (1.33%) patient.

2D- Echo cardiography was done in all 75 patients; Enlarged Left atrial measurement was observed in 34 (45.33%); Narrowed mitral valve area in 33 (44%) patients; Left ventricular hypertrophy is seen in 14 (18.66%); Pulmonary arterial hypertension in 7 (9.33%); Right ventricular hypertrophy in 7 (9.33%) patients; clot in left atrium was observed in 3 (4%) patients, Pericardial effusion in 2 (2.66%) patients.

In the present study the various suitable statistical tools such as Z- test (Standard Normal Probability test) for significant difference between two sample proportions; $\chi^2$ test of good ness of fit; and $\chi^2$ test for independence of two attributes have been applied to analyze the empirical data on atrial fibrillation cases according to age groups, etiology, risk factors, clinical presentation and investigation procedures.

## IV. Discussion

The present study "CLINICAL STUDY OF ATRIAL FIBRILLATION" is done with special emphasis on etiology, clinical features and investigations of atrial fibrillation.

In our study, among 75 patients with atrial fibrillation, majority of patients are in the $5^{th}$ decade, 26 patients (34.66 %), next common age group being $6^{th}$ decade, 14 patients (18.66%). The youngest patient in our study we have come across is 22 years; the oldest patient being 80 years old. The Mean age in our study is 52.04; Median is 50; Mode is 45; Range of observation varied from 22 to 80 years (Range-58). A comparative analysis with other studies with respect to age is tabulated in Table: 2.1.

In our study among 75 patients with atrial fibrillation, 36 (48%) are males, 39 (52%) are females. $\chi^2_{cal} = 1.0113$; $p > 0.05$. Accepting Null Hypothesis at 5% level of significance, there is no significant association between age and sex with respect to Atrial fibrillation cases. With respect to other studies performed, the details are depicted in Table: 2.2.

Our study regarding smoking as a risk factor is close to study performed by Thomas J. Wang et al.,[8] and others. Hypertension is a disease of old age in our set up. As, the reported cases in our study are more in $5^{th}$ decade, the correlation with above study is not accurate. Details of risk factors in comparison with other studies are tabulated in Table: 2.3.

In all the cases, in our study, the diagnosis was established as atrial fibrillation by the characteristic features of ECG. The same parameters was used in the following studies, in the determination of atrial fibrillation by Sudlow et al.,[13] (1998) in 1200 patients, Somerville et al.,[14] (2000) in 86 patients, Morgan and Mant[15] (2002) in 1099 patients.

2D-Echocardiography studies were performed in all patients to evaluate for assisted and additional cardiovascular system related diseases, which helped us to detect the anatomical and physiological parameters, like Left atrial size, Left ventricular size, Mitral valve area, Ejection fraction, Pulmonary artery dilation, Thrombus in atrium and Pericardial effusion.

In present study, among 75 patients, 34 (45.33%) patients are diagnosed as Rheumatic Heart disease with Mitral stenosis as major variant, and 2 (2.66%) patients are having Pericardial effusion.

$\chi^2_{cal} = 78.6711$; $p < 0.01$. Rejecting Null Hypothesis at 1% level of significance.

There is significant difference among 2D ECHO features with respect to proportions of Atrial fibrillation cases. In a study done by Pendse et al., [60] (1985) 46% of the patients had Mitral stenosis and 4% had Pericardial effusion. The present study correlated with the above study. As depicted in Table: 2.4.

## V. Conclusion

1. Atrial fibrillation is the common arrhythmia in medical wards.
2. Rheumatic heart disease, with Mitral Stenosis, is the common etiology of Atrial fibrillation in our institute. Whereas, in other parts of the western world, as per the literature, coronary artery disease is more commonly seen, as an etiology of atrial fibrillation.
3. The commonest risk factor, - Smoking.
4. The commonest presenting complaints - Breathlessness and Palpitations.

5. The diagnosis of Atrial fibrillation is established by Electrocardiography, The etiology and associated cardiovascular lesions (anatomical and physiological) along with Atrial fibrillation is well studied, by 2D-Echocardiography.
6. Digoxin is the drug found best to control rhythm as well as heart failure in the present study. It is well tolerated by majority of patients and no features, regarding digitalis toxicity. Better prognosis is observed in atrial fibrillation cases and the cases where congestive heart failure is the accompaniment.
7. Even though, a good advancement is made in the aspects of management of Atrial fibrillation, still the mystery of recurrence and accurate control over the phenomenon of fibrillation – is still under trail and is a challenge for the future era.

**DISTRIBUTION OF ATRIAL FIBRILLATION CASES ACCORDING TO AGE & SEX (Table no. – 1.1)**

| SL.NO | AGE (IN YEARS) | MALE | FEMALE | TOTAL |
|---|---|---|---|---|
| 1. | 0-10 | 0 | 0 | **0** |
| 2. | 11-20 | 0 | 0 | **0** |
| 3. | 21-30 | 0 | 3 | **3** |
| 4. | 31-40 | 6 | 7 | **13** |
| 5. | 41-50 | 12 | 14 | **26 (34%)** |
| 6. | 51-60 | 5 | 9 | **14** |
| 7. | 61-70 | 7 | 5 | **12** |
| 8. | 71-80 | 6 | 1 | **7** |
| | **TOTAL** | **36(48%)** | **39 (52%)** | **75** |

**DISTRIBUTION OF ATRIAL FIBRILLATION CASES ACCORDING TO AGE & SEX (Table no. – 1.2)**

| SL.NO | AGE (IN YEARS) | MALE | FEMALE | TOTAL |
|---|---|---|---|---|
| 1. | <50 YEARS | 18 (24%) | 24 (32%) | **42 (56%)** |
| 2. | >50 YEARS | 18 (24%) | 15 (20%) | **33 (44%)** |
| 3. | **TOTAL** | **36 (48%)** | **39 (52%)** | **75** |

**DISTRIBUTION OF ATRIAL FIBRILLATION CASES BASED ON AGE AND RISK FACTORS (Table No. – 1.3)**

| SL.NO | RISK FACTOR | AGE (in years) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 | TOTAL |
| **1.** | **SMOKING** | 0 | 5 | 12 | 5 | 7 | 5 | **34 (45.33%)** |
| **2.** | **ALCOHOL** | 0 | 2 | 2 | 2 | 3 | 2 | **11 (14.66%)** |
| **3.** | **HYPERTENSION** | 0 | 0 | 1 | 3 | 2 | 4 | **10 (13.33%)** |
| **4.** | **DIABETES MELLITUS** | 0 | 0 | 0 | 0 | 1 | 1 | **2 (2.66%)** |

**COMPARITIVE STUDIES RELATED TO AGE (Table No. - 2.1)**

| SL.NO. | STUDY | Sample size (n) | Common age of presentation (%) | Range | Mean Age |
|---|---|---|---|---|---|
| 1. | **Present study** | 75 | 5th decade (34.66%) | 58 (22-80) | 52.04 |
| 2. | **Pendse etal.,[5] (1985)** | 50 | 6th decade | - | - |
| 3. | **Ehud Davidson et al.,[6] (1989)** | 32 | 5th decade | 25 (30-55) | 46.8 |
| 4. | **Benjamin et al.,[7] (1998)** | - | - | - | 75.1 |
| 5. | **Thomas J. Wang et al., [8] (2003)** | - | - | - | 74 |
| 6. | **Eduardo Vazquez Ruiz et al.,[9] (2003)** | 300 | - | - | 73.2 |

**COMPARITIVE STUDIES RELATED TO SEX (Table NO. - 2.2)**

| SL.NO | STUDY | MALES (%) | FEMALES (%) |
|---|---|---|---|
| 1. | **Present study** | 48 | 52 |
| 2. | **Ehud Davidson et al.,[6] (1989)** | 59 | 41 |
| 3. | **Rotterdam study (2000) Herringa J. et al.,[10]** | 45.30 | 54.69 |
| 4. | **Eduardo Vazquez Ruiz et al.,[9] (2003)** | 49.3 | 50.7 |

**COMPARITIVE STUDIES RELATED TO RISK FACTORS (Table No – 2.3)**

| SL.NO. | STUDY | SMOKING | ALCOHOL | HYPERTENSION | DIABETES MELLITUS |
|---|---|---|---|---|---|
| 1. | **Present study** | 45.33 | 14.66 | 13.33 | 2.66 |
| 2. | **Lok et al.,[11] (1994)** | - | 33 | - | - |
| 3. | **Thomas J. Wang et al.,[8](2003)** | 27 | - | 41 | 12 |
| 4. | **Eduardo Vazquez Ruiz et al.,[9] (2003)** | - | - | 47.8 | 29 |
| 5. | **M. Golmohammadi et al.,[12](2010)** | - | - | 76 | 24 |

## REFERENCES


[1]. Cushney. A; quoted in Fye, WB: Disorders of heart beat: A historical overview from antiquity to the mid-20th century Am J Cardiol 1993; 72; 1055-1070

[2]. Gregory Y.H Lip, D Gareth Beevers; ABC of Atrial Fibrillation; BMJ: Vol 311, 1361-1363, 1995.

[3]. Charles Auffray; Denis Noble; Int J. Mol. Sci; 2009, 10, 1658-1669.

[4]. Harvey W. Exercitatioanatomica de motucordisetSanguinisinanimalibus. Movement of the heart and blood in animals; translated by KJ Franklin. Oxford: Blackwell, 1957.

[5]. R.R. Pendse, S.M. Fuse, B.S. Choube. Clinical study of Atrial fibrillation. Journal of Association of Physicians of India; Vol-33; Jan 1985; 19.

[6]. E Davidson, Z Rotenberg, I Weinberger, J Fuchs and J Agmon: Diagnosis and characteristics of lone atrial fibrillation. *Chest* 1989; 95; 1048-1050.

[7]. Emelia J. Benjamin, Philip A. Wolf, Ralph B. D'Agostino, HalitSilbershatz, William B. Kannel and Daniel Levy: Impact of Atrial Fibrillation on the Risk of Death : The Framingham Heart Study, *Circulation* 1998, 98:946-952.

[8]. Thomas J. Wang, MD; Martin G. Larson, ScD; Daniel Levy, MD; Ramachandran S. Vasan, MD et al.,Temporal Relations of Atrial Fibrillation and Congestive Heart Failure and Their Joint Influence on Mortality: The Framingham Heart Study: *Circulation*. 2003; 107:2920-2925.

[9]. Eduardo Vázquez Ruiz de Castroviejo, Antonia MárquezGarcía et al., Patterns of Clinical Presentation of Atrial Fibrillation in Hospitalized Patients: Rev EspCardiol 2003; 56(12): 1187-94.

[10]. Heeringa J, van der Kuip DA, Hofman A, Kors JA, van Herpen G, StrickerBHCh, Stijnen T, Lip GYH, Witteman JCM. Prevalence, incidence and lifetime risk of atrial fibrillation: the Rotterdam Study. Eur Heart J. 2006 Apr; 27(8):949-53.

[11]. Ngai-Sanglok and Chu-Pak Lau: Atrial Fibrillation: Knowns and Unknowns: J HK Coll; Cardiol; Vol 2; 1994; 32-46.

[12]. M Golmohammadi, G EsmaeeliJavid, H Farajzadeh:Incidence and Risk Factors for Atrial Fibrillation after First Coronary Artery Bypass Grafting in Urumiyeh Imam Khomeini Hospital from 2006 to 2008; Iranian Cardiovascular Research Journal Vol.4, No.2 , 2010, 86-90.

[13]. Sudlow M, Rodgers H, Kenny RA, Thomson R. Identification of patients with atrial fibrillation in general practice: a study of screening methods. BMJ 1998; 317: 327-8.

[14]. Somerville S, Somerville J, Croft P, Lewis M. Atrial fibrillation: a comparison of methods to identify cases in general practice. *Br J Gen Pract*2000; 50: 727-729.

[15]. Morgan S, Mant D. Randomized trial of two approaches to screening for atrial fibrillation in UK general practice. British Journal of General Practice 2002; 52:373-80


Dr.N.Nusrath, et.al. "Clinical Presentation of Atrial Fibrillation in A Tertiary Care Hospital – A Heuristic Evaluation." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(08), 2022, pp. 11-15