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Original research article

Clinical presentations of patients with atrial fibrillation admitted at a tertiary care hospital, Bengaluru

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Abstract

Background: Atrial fibrillation (AF) is the most common and persistent cardiac arrhythmia in clinical practice, with an overall prevalence in the world is estimated to be 0.47%, but there is significant regional variation. Developing countries including India lacks data on atrial fibrillation, hence this study was conducted to study clinical presentation of patients with atrial fibrillation.

Methodology: A descriptive study was conducted to assess clinical presentation of patients with atrial fibrillation admitted in all the in-patient departments of tertiary care hospital for a period of 1 year. A pretested, semi structured questionnaire was used to interview study subjects.

In this study, the minimum age of the study population with atrial fibrillation was 22 years and the maximum age was 85 years. The male to female ratio was almost equal with a slight male predominance of 33 cases (55%). The most common symptom was shortness of breath i.e. in 39(65%) patients. The prevalence of atrial fibrillation increases with age. There was no significant difference in clinical presentation between males and females. Clinical presentation such as breathlessness, orthopnoea and pedal oedema was more frequently seen in study subjects below 60 years than individuals who are 60 years and above.

Keywords: Atrial fibrillation, clinical presentation, arrythmia

Introduction

Atrial fibrillation (AF) is the most common and persistent cardiac arrhythmia in clinical practice, with an overall prevalence in the world is estimated to be 0.47%, but there is significant regional variation [1]. However, there is lack of data on prevalence and clinical presentation of atrial fibrillation in developing countries including India [2]. The prevalence of Atrial fibrillation is highly age dependent; occurring in less than 1% of the population aged under 50 and about 10% of those above 80 [3]. Furthermore, it is present in 3%-6% of acute medical admissions [4]. Hence this study was undertaken to assess various clinical presentations of patients with Atrial Fibrillation admitted at a Tertiary care Hospital.

Materials & Methods

Descriptive study was conducted in Tertiary care Hospital, Bangalore after taking ethical clearance from the institution and informed consent were taken from study subjects. Pre-tested semi structured questionnaire was administered. Study subjects were selected from in-patients of all departments of the hospital as per the inclusion criteria. The study duration was for a of period of 1 year from June 2015 to May 2016.

Sample Size: The prevalence of Atrial Fibrillation in population was 2.3-3.4%. according to study conducted by Ball J, Carrington MJ, Wood KA, Stewart S [(5)], sample size is calculated using the formula-

$$n = \frac{Z^2_{(1-\alpha/2)} \times P(1-P)}{d^2}$$

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P = (prevalence of AF) = 0.034.
d = (absolute precession) = 0.05=5%.
Z^2 (1-α×½) = (standard normal value with 5% level of significance) =1.96.
Assuming 90% power, 5% level of significance & 5% absolute precession the required sample size was 56, which was approximately to 60.

Inclusion Criteria:
a) Study subjects aged above 18 years
b) All patients admitted with atrial fibrillation confirmed with 12 lead ECG and Echocardiogram and willing to participate in the study

Exclusion Criteria: Patients who are not able to verbalize symptoms.

Statistical Tests
All the data collected was compiled and entered into a Microsoft Excel worksheet. The data was analysed using SPSS (statistical package for social sciences) software v.21.0. Descriptive statistics was used as required. Chi-square test and Fisher exact test were applied to assess association between clinical presentation, age group and sex of study subjects and P value is calculated.

Results
In this study, the minimum age of the study population was 22years and the maximum age was 85years. The median age of the study population was 59[41.0-66.8] years. The youngest patient was 22 years old and oldest patient was 85 years old. Approximately 30(50%) of cases were observed in people aged 60 years and above. The ratio of cases of males to females was almost equal, with a slight predominance of males, that is 33 cases (55%) in males and 27 cases (45%) in females, but after the age of 60years, male patients were more prone to atrial fibrillation than female patients, but there was no significant difference in the age distribution between men and women. Most common symptoms of presentation were breathlessness in 39(65%), followed by chest pain in 31(48.0%) of the patients, palpitations in 15(25%) of the patients. None of the patients presented with cough or haemoptysis. There was no significant difference between males and females in terms of clinical presentation. Breathlessness, Orthopnea and Pedal edema were more common clinical presentation of atrial fibrillation in study subjects below 60years compared to those who were aged 60years and above.

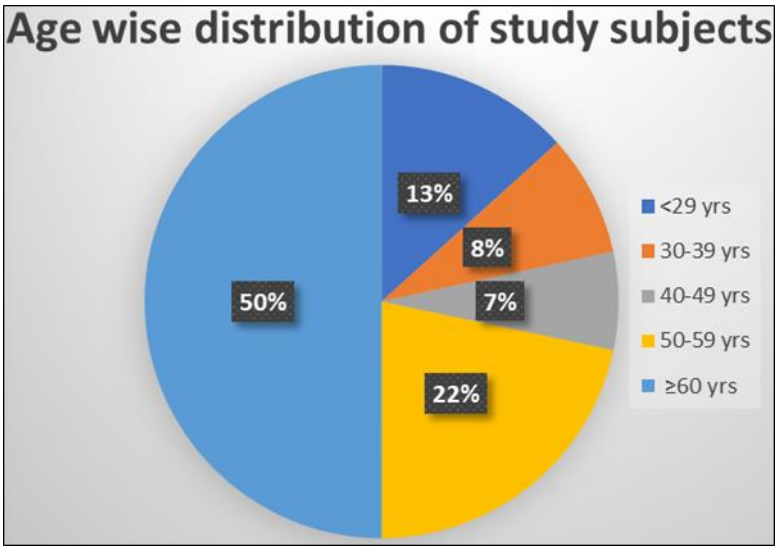

Fig 1: Age-wise distribution of the study participants

In this study, the minimum age of the study population was 22years and the maximum age was 85years. The median age of the study population was 59[41.0-66.8] years. The youngest patient was 22 years old and oldest patient was 85 years old. Approximately 30(50%) of cases were observed in patients aged more than 60 years.

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 08, 2024

Table 1: Sex-wise distribution of the study population

Table showing the sex wise distribution of the study population			
Age group	**Sex**		
	Male (%)	**Female (%)**	
18-39	7(21.2)	6(22.2)	**P value* 0.689**
40-59	8(24.2)	9(33.3)	
>60	18(54.5)	12(44.4)	
Total	33(100.0)	27(100.0)	
* Chi-square test			

The ratio of men to women was almost equal, with a slight predominance of men at 33 (55%) and women i.e. 27 (45%). Looking at the age and gender distribution, after the age of 60, male patients were prone to atrial fibrillation than female patients, but there was no significant difference in the age distribution between men and women.

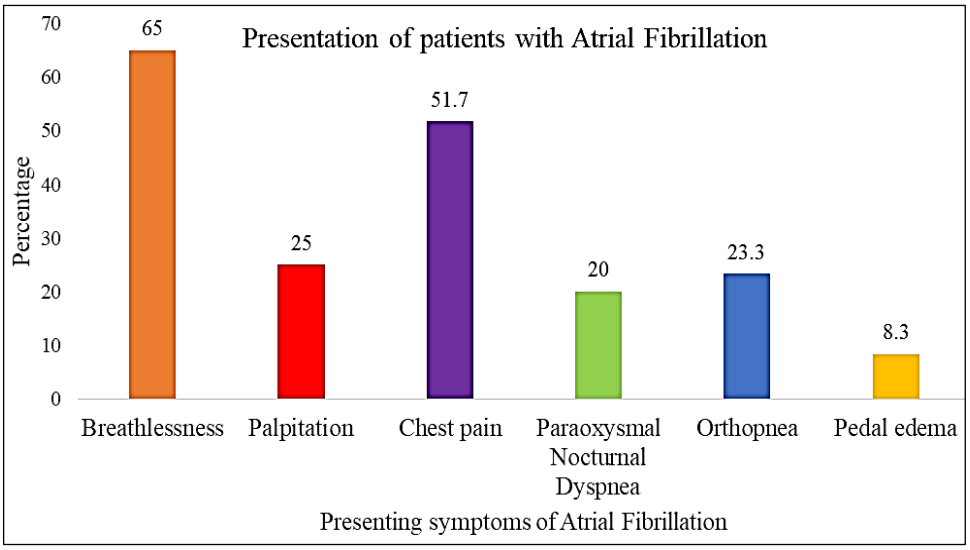

Fig 2: Bar diagram depicting Clinical presentation of the patients admitted with atrial fibrillation

The bar graph above depicts, the most common symptom was shortness of breath in 39 patients (65%), chest pain in 31 patients (48.0%), and palpitations in 15 patients (25%). None of the patients had cough or haemoptysis.

Table 2: Sex wise distribution of presenting symptom

Table showing the sex-wise distribution of presenting symptoms in the study population				
Symptom	**Sex**		**Total (%)**	**P value$**
	Male n (%)	**Female n (%)**		
Breathlessness	20(51.3)	19(48.7)	39(100)	0.430
Chest Pain	17(54.8)	14(45.2)	31(100)	0.979
Palpitation	8(53.3)	7(46.7)	15(100)	0.881
Orthopnoea	7(50.0)	7(50.0)	14(100)	0.668
Pedal oedema	5(41.7)	7(58.3)	12(100)	0.299
Paroxysmal Nocturnal dyspnoea	6(50.0)	6(50.0)	12(100)	0.697
$ indicates values of Chi-square test				

1. Breathlessness or Dyspnoea

The most common symptom that was seen among the study participants was dyspnoea 39(65.0%) and no statistically significant difference between males and females.

2. Chest Pain

The most common presenting symptom in the study participants after dyspnoea was chest pain 31(51.7%) and no statistically significant difference was seen between males and females.

Of the 31(51.7%) that presented with chest pain 20(33.3%) presented with only retrosternal pain, 10(16.7%) presented retrosternal pain with radiation to left shoulder, and 1(1.7%) presented with retrosternal pain with radiation to the left jaw. The female study participants more often 12(44.4%) presented only with retrosternal pain when compared to males who presented more commonly with radiation of retrosternal pain to the left shoulder 9(27.3%).

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 08, 2024

3. Palpitation
Palpitation was present in 15 (25.0%) of the patients and no statistically significant difference was observed between of males and females presenting with this complaint.

4. Orthopnea
Orthopnea was observed in 14(23.3%) of the patients and no statistically significant difference was observed between males and females presenting with this complaint.

5. Pedal edema
Pedal edema was observed in 12(20.0%) of the patients and no statistically significant difference was observed between males and females presenting with this complaint.

6. Paroxysmal Nocturnal Dyspnea (PND)
Paroxysmal Nocturnal dyspnea was observed in 12(20.0%) of the patients and no statistically significant difference was observed between males and females presenting with this complaint.

Table 3: Age-wise distribution of presenting symptom

Presenting symptom	Age 60 yrs and above	Age below 60	Total (%)	P Value*
Breathlessness	9	30	39(100)	0.00001
Chest Pain	12	19	31(100)	0.1205
Palpitation	6	9	15(100)	0.552
Orthopnoea	2	12	14(100)	0.0048
Pedal oedema	1	11	12(100)	0.0025
Paroxysmal Nocturnal dyspnoea	2	10	12(100)	0.0211

*Indicates values of Fisher exact test

Study subjects below 60 years of age more frequently presented with breathlessness 30(81.1%) whereas only 9(39.1%) of individuals aged than 60 years and above complained of dyspnoea. And this difference was found to be statistically significant
When the age group was compared in individuals with age more than 60 years and below 60 years, chest pain was more common among individuals aged below 60 years compared to individuals 60 years and above which is 19 (61.2%) and 12(38.7%) cases respectively and the difference was not statistically significant.
Among individuals who presented with palpitation, it was more common among individuals aged less than 60years which is 9(45.0%) than 60 years and above which is 6 (15.0%) cases which was not statistically significant.
Orthopnoea was seen more commonly among individuals aged less than 60 years of age 12(32.4%) when compared to only 2(8.7%) of individuals aged 60 years and above who complained of orthopnea and these differences were found to differ statistically.
Pedal edema was seen more commonly among individuals aged less than 60 years of age 11(29.7%) when compared to only 1(4.3%) of aged 60 years and above who complained of orthopnea. and these differences was statistically significant.
Paroxysmal nocturnal dyspnea was seen more commonly among individuals aged less than 60 years of age 10(27.0%) when compared to only 2(8.7%) of individuals aged 60 years and above who complained of Paroxysmal nocturnal dyspnea and this difference was statistically significant.

Discussion

Age

In the present study, the minimum age of the study population was 22 and the maximum age was 85 years. The median age of the study population was 59[41.0-66.8] years. The youngest patient was 22 years old and oldest patient was 85 years old. About 30(50%) of cases were seen were aged more than 60 years. This finding of our study is comparable with other similar studies as below.
In the Framingham study [6], 2325 men and 2826 women, 30 to 62 years old at entry were followed twice a year over 22 years for the development of chronic atrial fibrillation in relation to antecedent cardiovascular disease and risk factors. Overall there was a 2.0 percent chance that the disorder would develop in two decades. In our study as well there was an increasing incidence of AF as age progressed. The mean age of prevalence of atrial fibrillation in the study done by Gadwalkar *et al*. [9], was 54.84 ± 17.49 years. The maximum number of cases was seen between 60 and 79, years which was 15 cases (30%). An increase with the advancing age is observed in our study which is comparable with the study mentioned.
Makwana A *et al*. [7] study concluded that Out of 50 cases studied, the majority, 20(40%) cases were between 60-79 years which is comparable with our study.

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 08, 2024

Sex

In the Framingham study William B Kannel *et al*., [6] 2325 men and 2826 women were followed biennially over 22 years for the development of atrial fibrillation. The incidence of atrial fibrillation did not differ significantly between sexes similar to our study. In the study done by Trivedi *et al*. [18], the male to female ratio was almost equal with 24(48%) male and 26(52%) female cases almost equal to our study. Slight female preponderance can be secondary to the fact that more RHD cases can be seen in government setups and RHD is more commonly seen in females. Dushyant *et al*. [8] study concluded that according to sex, incidence of atrial fibrillation was higher amongst Female (58%) than in Male (42%) as compared to western countries, where AF is more common in male. The Male: Female ratio being 1:1.38.

Though Rheumatic Heart Disease is more common cause of AF in developing countries and since females are more prone for it, there can be a slight female preponderance. But since ours is a corporate tertiary care hospital, cases were equally distributed between Rheumatic Heart Disease and other causes of Atrial Fibrillation, hence slight male preponderance was observed.

Presenting Symptoms

In the presenting complaints, most common symptoms of presentation were breathlessness 34(56.7%), followed by chest pain in 30(50.0%) patients, palpitations in 21(35%) patients. None of the patients presented with cough or haemoptysis.

The most common symptom that was seen among the study participants was dyspnoea 39(65.0%) and no statistically significant difference in the proportion of breathlessness was seen between males and females. However, when the age groups were compared, 30(81.1%) patients aged less than 60 years presented with breathlessness whereas only 9(39.1%) of individuals aged more than 60 years complained of dyspnoea. And this difference was found to be highly significant.

The symptoms observed were similar to that seen in Trivedi *et al*. [7]. The common symptoms were Dyspnoea in 23 (46%) cases, palpitations in 11 (22%) cases, chest pain in 7(14%) cases, pedal edema in 4(8%) cases, cough in 2(4%) cases, hemoptysis in 2(4%) cases and syncopal attack in 1(2%) case.

To conclude that both dyspnea and chest pain are very common in Atrial fibrillation patients though dyspnea was more common in our study.

Conclusion

Atrial fibrillation is seen to increase in prevalence with advancing age. No significant difference was found with respect to gender, the ratio of male: female is 55:45. Dyspnea was the commonest symptom observed. Healthy lifestyle modification should be adapted and careful observation towards signs and symptoms may help in prevention and treatment.

Recommendation

1. A detailed history and thorough clinical examination should be carried out to all patients entering either the OPD or emergency to identify possible clinical signs of Atrial Fibrillation which helps in early identification of disease.
2. In doubtful cases urgent 12 lead ECG and ECHO should be carried out to diagnose the condition early so that optimum and prompt treatment can be given to the patient and helps in preventing morbidity and mortality.
3. Regular follow up of patients with AF is a must to identify possible complications so that it can be addressed early.
4. Patient education regarding the condition and information regarding warning signs which should alert them to come immediately to emergency should be done.

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