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# Clinical Profile of Atrial Fibrillation

KEYWORDS: Atrial Fibrilation, congestive cardiac failure, rheumatic heart disease, mitral stenosis


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**ABSTRACT** *AF is typically a disease of middle age and elderly, affecting >10% of those are older than 75 years of age. Risk factors include Diabetes Mellitus, Cardiovascular Diseases like CHF, valvular Heart diseases, hypertension, previous MI. Although clinical hyperthyroidism is associated with new-onset AF, the prevalence is low in a population of patients with AF. In developing countries, rheumatic valvular heart disease, IHD, hypertension and congenital heart disease are the most commonly related conditions. The incidence of rheumatic heart disease is decreasing in developed countries while in India it still accounts for 30-45% of all cardiac cases in hospital practice. Rheumatic heart disease is still the most common antecedent disease related to the occurrence of atrial fibrillation in India. Mitral regurgitation is followed by mitral stenosis in the aetiology of atrial fibrillation.*

***RESULTS*** *In the present study the maximum number of cases were between age group 60-79 yrs (20 cases).The most common symptom was dyspnoea. The maximum number of cases of RHD 34 (68%) were associated with AF. The most common valvular lesion associated with atrial fibrillation was mitral stenosis.*

## INTRODUCTION

Atrial fibrillation describes an irregular and often rapid heart rhythm. For many people, atrial fibrillation may cause symptoms but does no harm. Symptoms of atrial fibrillation vary from person to person. A number of people have no symptoms. The most common symptom in people with intermittent atrial fibrillation is palpitations, a sensation of rapid or irregular heartbeat. Many people also describe an irregular fluttering sensation in their chests.

In the developed world, the most common clinical diagnoses associated with permanent atrial fibrillation are hypertension and coronary artery disease. The presence of congestive heart failure markedly increases the risk of atrial fibrillation.

**Types**

- PAROXYSMAL AF- Individual episodes are < 7days and usually <48 hours in duration
- PERSISTENT AF- Recurrent form of AF in which individual episodes are > 7days in duration or require electrical cardio version to terminate
- PERMANENT AF- Long lasting AF , which has failed attempts at cardio version

## AIMS AND OBJECTIVES

1. To assess the presentation, etiology and management of atrial fibrillation
2. To assess the complications related to atrial fibrillation

## METHODOLOGY

The present study is carried out in patients attending Government Medical College from 2012 to 2014. 50 cases of atrial fibrillation were studied in detail with reference to age, sex, clinical features, aetiological factors, electro-cardiographic features, complications and management. The history was taken in detail for all the patients.

**Method of collection of data:**

Subjects for the study were selected according to the following criteria among the patients attending Government Hospital.

**Inclusion criteria:**

- Patients aged more than 18yrs.
- Patients with clinically and electrocardiographically proven atrial fibrillation.

**Exclusion criteria:**

- Patients suspected to have atrial fibrillation clinically later proved to have different arrhythmia electrocardiographically.

**Investigations:**

- The study requires the following investigations:
- Complete hemogram.
- ECG.
- Echocardiography
- Thyroid function tests if necessary.

## OBSERVATIONS AND RESULTS

**Table 1: Age Distribution of Patients Studied**

| Age in years | Number of Patients | % |
|---|---|---|
| 20-39 | 8 | 16.0 |
| 40-59 | 16 | 32.0 |
| 60-79 | 20 | 40 |
| 80 & above | 6 | 12.0 |
| Total | 50 | 100.0 |

The maximum number of cases were between age group 60-79 years (20cases).

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**Table 2: Gender Distribution of Patients Studied**

| Gender | Number of Patients | % |
|---|---|---|
| Male | 24 | 48.0 |
| Female | 26 | 52.0 |
| Total | 50 | 100.0 |

The percentage of male patients presenting with AF was 48% to that of female patients which was 52%.

**Table 3: Presenting Symptoms**

| Presenting symptoms | Number of patients | % |
|---|---|---|
| Dyspnoea | 23 | 46.0 |
| Palpitations | 11 | 22.0 |
| Chest Pain | 7 | 14.0 |
| Pedal Edema | 4 | 8.0 |
| Cough | 2 | 4.0 |
| Hemoptysis | 2 | 4.0 |
| Syncopal attacks | 1 | 2.0 |

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

**VITALS**

**Pulse:**

In this study pulse rate varied from 68/min to 180/min. Between 60-90/min – 12 (24%) cases. Between 90-110/min – 22 (44%) cases. More than 110/min – 16 (32%) cases. The maximum number of cases 22(44%) were between 90 – 110/min.

**Pulse deficit:**

The pulse deficit in this study of atrial fibrillation varied from 12–100/min, maximum being between 10-20/min, 30 cases amounting to 60%.

**Risk Factors of Patients Studied**

Out of 50 patients studied 19 patients had the risk factors, in which 11 (22%) were smokers and 8 (16%) patients were alcoholics.

**Aetiology of Atrial Fibrillation**

**Table 4 : Aetiology**

| Aetiology | Number of patients (n=50) | % |
|---|---|---|
| RHD | 34 | 68.0 |
| IHD+HTN | 7 | 14.0 |
| CARDIOMYO-PATHY | 6 | 12.0 |
| THYRO-TOXICOSIS | 1 | 2.0 |
| COPD | 1 | 2.0 |
| LONE AF | 1 | 2.0 |

There were maximum number of cases of Rheumatic heart disease i.e., 34 (68%) cases was found to be associated with atrial fibrillation. IHD+ HTN was found in 7 (14%) cases, cardiomyopathy in 6 (12%), Thyro-toxicosis, COPD and LONE AF in 1 (2%) case each.

**Various Valvular Lesions in Rheumatic Heart Disease.**

In 34 cases of Rheumatic heart disease presenting with atrial fibrillation, the most common valvular lesion was mitral stenosis in 20(58.8%) cases, 1(2.9%) case of mitral regurgitation, 6(17.6%) cases with both mitral stenosis and mitral regurgitation, 3(6%) cases with mitral stenosis, regurgitation and aortic valve involvement, 3(6%) cases with mitral stenosis, regurgitation and tricuspid valve involvement, 1(2%) case with mitral stenosis, regurgitation and involvement of both tricuspid and aortic valves.

**ECG Changes**

In all 50 cases P waves were absent and fibrillatory (f) waves were present. Fine fibrillatory waves was seen in 36(72%) of cases whereas coarse fibrillatory waves was seen in 14(28%) of cases.

**Complications**

All the 50 patients of atrial fibrillation presented with complications among them were congestive cardiac failure in 33 (66%) cases, cerebrovascular accident alone in 4 (8%) cases, congestive cardiac failure with cerebrovascular accident in 6(12%) cases, shock in 3(6%) of cases, congestive cardiac failure with shock in 1 (2%) case, there were no complications in 3(6%) cases.

**Treatment**

Digoxin + Beta Blockers was the commonest drug combination used and was given in 20(40%) cases, calcium channel blockers alone in 15(30%) cases, and with Beta Blockers in 8(16%) cases. Beta blockers alone were used in 4(8%) cases and combination of Beta blockers, Digoxin and warfarin was used in 3 (6%) cases who were found to be at increased risk of thromboembolic phenomenon.

**DISCUSSION**

This present study was carried out in Government Hospital. 50 cases of atrial fibrillation were studied in detail with regards to history, clinical data of these cases with reference to aetiological factors, complications, electrocardiographic findings and various ways of management.

Recent data suggest that hospital stay for atrial fibrillation are markedly greater than for any other arrhythmia. The single best sources of data are reports from the Framingham study.[2]

**Age:**

In this present study of atrial fibrillation the age range is wide and the age of the patients varied from 25 to 85 years . The maximum number of cases were seen between 60-79 years which was 20 cases (40%).

The mean age of AF patients observed in two Indian studies by Sharma et al[10] and Gurpal Singh et al[11] were 40 ± 7 years and 57.33 years respectively.

In the Framingham study,2 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.

The Indian study by Saroj K Prakash and Sudesh K Chugh[5] which notedthat all cases of atrial fibrillation due to coronary artery disease were above 50 years. This age distribution compares well with the other studies by Rose G Baxter et al,[3] Campbell A et al,[4] Davidson et al.[6] These studies were conducted in the western population, where the major cardiac precursors of atrial fibrillation are hypertensive and coronary artery disease. Unlike in the western population, there is a higher incidence of rheumatic heart disease in the Indian population which affects the various age groups.

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Since rheumatic heart disease accounts for majority of cases of atrial fibrillation in our population, an incidence at an earlier age is expected.

**Sex:**
In the present study the male to female ratio was almost equal with 24(48%) male and 26(52%) female cases. In the two Indian studies by Sharma et al[10] and Gurpal Singh et al the number of females were slightly more than males. The study by Davidson et al[6] who observed the female - male ratio in atrial fibrillation cases due to rheumatic heart disease as 2:3.

In the Framingham study William B Kannel et al,[2] 2325 men and 2826 women were followed biennially over 22 years for the development of atrial fibrillation.

**Cardiovascular Risk Factors:**
The risk factors which could have contributed to the development of atrial fibrillation like smoking, alcohol consumption were specially noted in the present study.

History of smoking was present in 11 (22%) out of total 50 cases of atrial fibrillation. Steward PM and Catterall JR[12] in a case report suggested the relation between consumption of large doses of nicotine chewing gum for a long period and onset of atrial fibrillation in 35 years.

History of alcohol consumption was present in 8(16%) cases out of total 50 cases of atrial fibrillation. An association between alcohol use and atrial fibrillation has long been suspected and the relation between alcohol and binge - drinking to Holiday heart syndrome is well known, Ettinger PO et al.[7]

**Clinical Symptoms:**
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. Chest pain may be due to various causes in atrial fibrillation, it could be due to ischemic heart disease or relative ischemia due to left ventricular hypertrophy or due to the increased ventricular rate, majority were of exertional type due to relative ischaemi. The symptoms observed by Gurupal Singh et al[11] was similar.

**Aetiology of Atrial Fibrillation:**
There were maximum number of cases of Rheumatic heart disease i.e., 34 (68%) cases was found to be associated with atrial fibrillation. IHD+HTN was found in 7(14%) cases, cardiomyopathy in 6(12%), THYROTOXICOSIS , COPD and LONE AF in 1(2%) case each.

A similar hospital based study by Saroj K Prakash and Sudesh K Chugh[5] reported 91.61% of atrial fibrillation to be secondary to chronic rheumatic valvular heart disease, 5.94% due to coronary artery disease and the rest due to miscellaneous causes. Low incidence of thyrotoxicosis and hypertensive heart disease causing atrial fibrillation in the Indian study on female population is noteworthy.

The Framingham study[2] identified rheumatic heart disease and cardiac failure as the most predictive precursor of atrial fibrillation. Hypertensive heart disease was the most common precursor, but the risk ratio for this disorder was not as great as for chronic rheumatic heart disease or cardiac failure. Coronary artery disease was found to be less striking and more inconsistent risk factor for the arrhythmia, except for the paroxysmal form of atrial fibrillation which showed strong relationship with newly developed coronary events.

An extensive retrospective study done by Davidson et al[6] on 704 consecutive cases of atrial fibrillation reported, atherosclerotic cardiovascular disease (55%) including diagnosed cases of myocardial infarction, hypertensive heart disease and coronary artery disease as the most frequent cause associated with this arrhythmia. Chronic rheumatic valvular heart disease (22.8%), chronic obstructive pulmonary disease (2.8%), WPW syndrome (2.6%) and thyrotoxicosis (2.6%) were also found to be associated. There was a relatively large group of idiopathic atrial fibrillation (4.5%).

The incidence of rheumatic fever is decreasing in developed countries, while in India it still accounts for 30-45% of all cardiac cases in hospital practice as reported by Padmavati S.[1]

The Framingham study[2] reported hypertensive heart disease as the most common cardiac precursor for atrial fibrillation, which was noted in 47.5% of males and 51.2% females in their study population. It is suggested that long standing hypertension can cause increase in left atrial pressure and dilatation which in turn can initiate and perpetuate the arrhythmia.

Cardiomyopathy was an important underlying condition to cause atrial fibrillation in 2(4%) cases in this study.

In the present study thyrotoxicosis was observed in one case.

**Treatment:**
Digoxin + Beta Blockers was the commonest drug combination used and was given al in 20(40%) cases, calcium channel blockers alone in 15(30%) cases, and with Beta Blockers in 8(16%) cases. Beta blockers alone were used in 4(8%) cases and combination of Beta blockers, Digoxin and warfarin was used in 3 (6%) cases who were found to be at increased risk of thromboembolic phenomenon.

Aspirin was given in 19(38%) cases to patients with ischemic heart disease, hypertensive heart disease, and ischaemic heart disease with hypertension.

**Mortality:**
In the present study mortality was observed in 4(8%) cases. 3 cases presented with congestive cardiac failure and 1 case presented with congestive cardiac failure and shock.

**SUMMARY AND CONCLUSION**

- Out of 50 cases studied, the majority, 20(40%) cases were between 60-79 years.
- Electrocardiographic findings showed absent P waves and fibrillatory (f) waves in all 50 cases. Coarse fibrillatory waves were seen in 14(28%) and fine fibrillatory waves in 36(72%).
- In the present study atrial fibrillation was more common in elderly comparable with western studies.
- No significant difference was found with respect to gender, the ratio of male : female is 48:52.
- Dyspnoea is the commonest symptom followed by palpitations.
- Rheumatic valvular heart disease is the most common etiology of atrial fibrillation observed in the present study.
- Mitral stenosis is the commonest valvular lesion ob-

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served in patients with rheumatic heart disease in the present study.

- Congestive cardiac failure is the most common complication observed followed by embolic phenomenon.
- Most of the cases responded well to Digoxin + Beta blocker therapy which is used to control the rate and rhythm.

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