

Cardiology

KEYWORDS: Rheumatic heart disease, atrial arrhythmias, embolism, complications of IHD

CLINICAL PROFILE OF PATIENTS ADMITTED WITH ATRIAL FIBRILLATION IN TERTIARY CARE CENTRE



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**ABSTRACT**

William Harvey (1628-1700) observed ineffective "palpitations" (undulations) of the atria just before death in animals. He established the origin of heart beat in right atrium and that the beating heart created the pulse. The aim of this study is to analyze atrial fibrillation with regard to its etiology and complications. The present study is a prospective study carried out in patients attending a tertiary care hospital. 100 cases of atrial fibrillation were studied in detail. Descriptive statistical analysis has been carried out in the present study. The age range for cases was 20 to 85 years. There were maximum number of cases of rheumatic heart disease, Digoxin was the commonest drug used. In the present study, rheumatic heart disease accounted for majority of cases of atrial fibrillation, i.e., 48(48%), IHD with HTN was found in 14(14%) cases, IHD was found in 08(8%) cases, only hypertension was found in 8(8%) cases.

INTRODUCTION

William Harvey (1628-1700) observed ineffective "palpitations" (undulations) of the atria just before death in animals. He established the origin of heart beat in right atrium and that the beating heart created the pulse. He observed that sometimes the heart beat was too weak to reach the radial artery. Harvey must thus be credited with the first direct observation of fibrillating atrium. Atrial fibrillation is a commonly occurring arrhythmia of the heart on which a lot of studies have been conducted by various workers for the past many centuries.² It is the most common sustained cardiac arrhythmia in clinical practice and increasing in prevalence.³ Atrial fibrillation is defined as a cardiac dysarrhythmia in which effective contraction of atrial musculature is abolished with the bombardment of A.V. node with very rapid irregular stimuli, most of which being blocked at the A.V. node leading to irregular ventricular rhythm. This can occur either in normal heart or in any diseased heart. It is of more importance in a diseased heart.

AIMS AND OBJECTIVES

The aim of this study is to analyze atrial fibrillation with regard to its etiology and complications.

MATERIALS&METHODS

The present study is a prospective study carried out in patients attending a tertiary care hospital. 100 cases of atrial fibrillation were studied in detail with reference to age, sex, clinical features, etiological factors, electrocardiographic features, complications and management. Other investigations like chest radiograph, echocardiography were also performed. The history was taken in detail for all the patients.

Statistical Methods: Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are

presented on Mean \pm SD (Min-Max) and results on categorical measurements are presented in Number (%).

Significance is assessed at 5 % level of significance. Student t test (two tailed, independent) has been used to find the significance of study parameters on continuous scale between two groups (Inter group analysis). Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups.

OBSERVATIONS & RESULTS

The age range for cases was 20 to 85 years. The maximum number of cases were equally found in the age group of 41-50 and 51-60 years (20 cases) followed by age group of 71-80 years (16 cases).

The common symptoms were Dyspnea in 82 (82%) cases, palpitations in 76(76%) cases, pedal edema in 62(62%) cases, cough in 42(42%) cases, chest pain in 38(38%) cases.

There were maximum number of cases of rheumatic heart disease i.e., 48(48%) cases were found to be associated with atrial fibrillation. IHD+HTN was found in 14(14%) cases, only hypertension was found in 8(8%) cases, ischemic heart disease alone was detected in 8(8%) of cases, ASD in 6(6%) of cases, cardiomyopathy in 4(4%) cases, COPD in 4(4%) cases, surgical stress in 2(2%) cases. Aluminum phosphide poisoning was found to cause atrial fibrillation in 6(6%) cases.

Digoxin was the commonest drug used and was given alone in 70(70%) cases, in combination with warfarin in 22(22%) cases, magnesium sulphate was given in 6(6%) cases those who presented with etiology of aluminum phosphide poisoning, amiodarone was given in 2(2%) cases.

DISCUSSION

This present study entitled Study of etiology and Complications of Atrial Fibrillation was carried out in a tertiary care hospital. 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 41-60 years which were 40 cases (40%).

The mean age of AF patients observed in two Indian studies by Sharma et al⁴ and Guralp Singh et al⁸³ were 40 \pm 7 years and 57.33 years respectively.

In the present study, rheumatic heart disease accounted for majority of cases of atrial fibrillation, i.e., 48(48%), IHD with HTN was found in 14(14%) cases, only IHD was found in 08(8%) cases, only hypertension was found in 8(8%) cases, ASD in 6(6%) of cases, cardiomyopathy in 4(4%) cases, COPD in 4(4%) cases, surgical stress in 2(2%) cases. Aluminum phosphide poisoning was found to cause atrial fibrillation in 6(6%) cases.

Data of precursors of atrial fibrillation available from the medical literature varied widely depending on the sample population

selected for the study. A similar hospital based study by Saroj K Prakash and Sudesh K Chugh⁵ 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 study⁶ 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 al⁷ 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. Rare causes of atrial fibrillation included cardiomyopathy (0.9%), mitral valve prolapse (0.9%), sick sinus syndrome (0.7%) myocarditis (0.6%), pulmonary embolism (0.3%) and atrial septal defect (0.3%).

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.⁸ Levy S⁹ and ALFA study¹⁰ had observed that valvular heart disease was present in about 20-23% of AF patients. This fact is further substantiated by the observation in the present study.

The Framingham study 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. The incidence of hypertension was 38% in the ALFA study.¹⁰ 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.

In the present study chronic obstructive pulmonary disease accounted for 4(4%) cases. Study done by Davidson et al⁷ reported 2.8% cases with chronic obstructive pulmonary disease.

Cardiomyopathy was an important underlying condition to cause atrial fibrillation in 4(4%) cases in this study. In ALFA study⁸ 17.5% of the patients presented with atrial fibrillation.

In the present study atrial septal defect was observed in 6(6%) cases, it was

the only congenital heart disease observed as etiology in this study. Atrial septal defect is the most common congenital heart disease to cause AF in adults according to Levy S.⁹ which is comparable to the present study.

In the present study surgical stress was detected to cause atrial fibrillation in 2(2%) case. It was also observed 25% of cases in the study by William B Kannel et al⁶ and 4.6% of cases in the study by Davidson et al⁷ were attributed to lone atrial fibrillation. This wide variation between studies arise out of the different sample population selected for the study. In the present study, no case of lone atrial fibrillation was observed.

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