Aetiology and Clinical Profile in Patients with Atrial Fibrillation in Tertiary Care Centre in Eastern India

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Abstract

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Introduction

Aim:
To evaluate and co-relate the etiology and clinical profile of patients with acute (first episode), recurrent (two or more episodes), paroxysmal (terminates within 7 days) and chronic (persistent and permanent) atrial fibrillation which is unevaluated.

Materials Methods: In the present study, 50 patients of AF were evaluated based on various parameters such as age, sex, gender, etiology, types of AF. Parameters were co-related to test for significance of association using Chi-square testing method.

Results: The maximum patients in this study belonged to the age group of 60-79 years is 48%. There was a female predominance. Dyspnoea (82%) was the most common presenting complaint, followed by palpitations (76%) and pedal edema (40%). Stroke as a presenting feature was seen in only (11%) cases in present study but it was an important cause of functional limitation. In this study, 5.5% of the cases were asymptomatic. The most common etiology for atrial fibrillation was RHD (50%), followed by ischaemic heart disease with hypertension was found in 5 (10%) cases. Most cases 30 (60%) had left atrial size between 4-5 cm. 11 (22%) cases had left atrial size 37%. RHD was the most important cause for enlarged LA. Significant co-relation was found between dyspnoea with Lone AF; palpitations with HTN and Lone AF; chest pain with IHD and DCM; dizziness with DCM and Lone AF; syncope with DCM and asymptomatic cases with Lone AF. Conclusion: The study concludes that AF is common in elderly with female preponderance. Dyspnoea is commonest complaint followed by palpitations and pedal edema and then stroke. Commonest etiology was supposed to be RHD, IHD and HTN. Persistent type AF is more common.

Atrial fibrillation (AF) is the most common cardiac arrhythmia encountered in clinical practice and requiring treatment. AF predisposes patients to the development of thrombi and a markedly increased risk of thromboembolic stroke leading to functional limitation of such patients. RHD, hypertension, advancing age, diabetes, and congestive heart failure, COPD most often associated with atrial fibrillation. Mortality rate of stroke related to AF is 2-6 times as high as that of stroke unrelated to AF. In patients 65 years or older, opportunistic screening by pulse palpation, followed by an ECG in those with an irregular pulse, is important to detect AF prior to the first stroke. The overall prevalence of AF in general population is estimated to be 0.4% to 1%. The incidence of AF is 0.1% per year in the
population below forty years and this increase to 2% in those over 80 years. Women are significantly more likely than men to have valvular heart disease as a risk factor for atrial fibrillation. Various mechanisms of the same are autonomic remodeling, electrical remodeling, structural remodeling and insulin resistance and recently atrial fibrosis. Modification of risk factors for cardiovascular disease may have the added benefit of diminishing the incidence of atrial fibrillation.4,5

CLASSIFICATION: Atrial fibrillation has been classified by American Heart Association/American college of Cardiology/European Society of cardiology into first detected episode, recurrent (two or more episode), paroxysmal (terminates within 7 days), persistent (persist for more than 7 days) and permanent (sustained for more than 1 year or has failed cardioversion. 6

Methods And Materials:

It's a clinical, prospective, observational study – single centre study conducted in Department of medicine in collaboration with Department of Cardiology, Nil Ratan Sircar Medical College and Hospital ,Kolkata – 700 014. Patients are considered eligible for study inclusion if the ECG shows features of atrial fibrillation. 50 patients aged 18 years or above were included in this study. Detailed history, thorough clinical examination, Laboratory investigations including Complete hemogram, Urine Routine, ECG, Echocardiography, Chest X-ray, Blood urea and Serum creatinine, Thyroid function tests if necessary done. Patients suspected to have atrial fibrillation clinically later proved to have different arrhythmia electrocardiographically were excluded from the study. Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± 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 group.

Aims & Objectives Of The Study:

The objectives of the study are 1) To analyse atrial fibrillation with respect to its etiology, 2) To study various clinical presentation of atrial fibrillation of patients admitted in Nil Ratan Sircar Medical College and Hospital, Kolkata. This study is intended to find out the varied presenting symptoms of AF and also the possible etiological factors both cardiac and non-cardiac with the help of the above mentioned investigations. 2D Echocardiography is specifically utilized in studying Valvular heart diseases associated with AF. Left atrial size, presence of clots in the left atrium.

Observation And Analysis: Study Design:

A prospective clinical study with 50 patients is undertaken to study the etiology and clinical profile in patients with atrial fibrillation. In the present study of atrial fibrillation, the age of the patients varied from 35 to 88 years with a mean age of 57.90±11.18. The youngest patient was 35 years old and oldest patient was 88 years old. The maximum number of cases were seen between 60-79 years old which was 24 cases (48%). The mean age of patients with Rheumatic heart diseases is 52.64±9.967 years. The youngest patient was 35 years old and oldest patient was 78 years old.

In the present study the male to female ratio is almost equal with 24(48%) male and 26(52%) female cases.

In the present study of 50 patients with atrial fibrillation, 41(82%) cases presented with dyspnoea followed by palpitations in 38(76%) cases, 20(40%) cases had history of swelling of limbs. Chest pain and cough was present in 14(28%) cases. Abdominal pain was present in 1(2%) cases. Hemoptysis was seen in 6(12%) cases and 2(4%) cases presented with history of syncopal attacks. we found 9(18%) cases were alcoholic, whereas 20 (40%) cases were smokers. Hypertension was seen in 10(20%) cases and diabetes in 20(40%) cases. All the 50 cases had irregular pulse with a varying rate from 78 to 132 per minute. The majority of cases (28) had pulse rate between 90 to 110 per minute. The mean pulse rate was 105 ±14.27. All patients had pulse deficit more than 10. 25(50%) patients had pulse deficit less than 20. 16(32%) patients had pulse deficit between 21-30. 3(6%) patients had pulse deficit between 31-40 and 6(18%) patients above 40. The mean pulse deficit was 22.42±10.14 with lowest being 10 and highest is 45.
JVP was elevated in 26(52%) cases and was normal in 24(48%) cases. we observed rheumatic heart disease accounted for majority of cases of atrial fibrillation i.e 25(50%), ischaemic heart disease with hypertension was found in 5(10%) cases, only hypertension was seen in 5(10%) cases. Cardiomyopathy and only ischaemic heart disease in 4(8%) cases each. Chronic Obstructive Pulmonary Disease in 3(6%) cases, Atrial Septal Defect in 3(6%) cases and Thyrotoxicosis in 1(2%) case. In 25 cases of RHD presenting with AF, the most common lesion was MS and it was seen in 14(28%) patients, combined MS with MR seen in 6(12%) cases, combined MS with AS in 2(4%) cases, 1(2%) case of MR and 2(4%) cases of AR was seen in the study. In the above study in CHEST X-RAY left atrial enlargement was seen in 9(18%) cases, left ventricular enlargement in 17(34%) cases, left ventricular enlargement with left atrial enlargement in 11(22%) cases, left atrial enlargement with right ventricular enlargement in 7(14%) cases, both right atrial and ventricular enlargement in 3(6%) cases, emphysema with right atrial enlargement in 3(6%) cases and x-ray was normal 1(2%) case. The mean left atrial size of 50 cases of atrial fibrillation is 4.122 ± 0.456 cm. The smallest measuring 3cm and the largest is 5.6cm. Most cases 30(60%) had left atrial size between 4-5cm. 11 (22%) cases had left atrial size 37%. The mean left atrial size of cases of rheumatic etiology is 4.344 ± 0.204 cm and that of other cases of atrial fibrillation is 3.9 ± 0.530 cm we found 23(46%) cases developed congestive cardiac failure. 3(6%) patients had Cor pulmonale as complication. Leg gangrene and infective endocarditis was seen in 1(2%) case each and there were 9 (18%) cases of ischemic stroke. 13(26%) patients had no complications.

Discussion

The mean age of patients with Rheumatic heart diseases is 52.64±9.967 years. The youngest patient was 35 years old and oldest patient was 78 years old. The mean age of AF patients observed in two Indian studies by Sharma et al and Gurpal Singh et al 9 were 40 ± 7 years and 57.33 years respectively. In the Framingham study the prevalence of atrial fibrillation is 0.5% for the group aged 50-59 years and rises to 8.8% in the group aged 80 to 89 years.10 The Indian study by Saroj K Prakash and Sudesh K Chugh 11 which noted that 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, 12 Campbell A et al, 8 Kitchin AH and Milen JS13. 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. In the Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) 18 Study, a total of 4060 patients were enrolled in which the average age of patients with atrial fibrillation was 70 years. Airlie Cameron et al 19 in the CASS(Corony artery surgery study ) analysed 116 patients with atrial fibrillation and coronary artery disease and found AF to be more common in patients older than 60 years. In the present study rheumatic heart disease accounted for majority of cases of atrial fibrillation, i.e., 25 (50%) , ischaemic heart disease with hypertension was found in 5(10%) cases, only hypertension was found in 5 (10%) cases, ischaemic heart disease alone and cardiomyopathy was detected in 4 (8%) of cases each, Atrial septal defect in 3(6%) of cases, Chronic obstructive pulmonary disease in 3(6%) cases, and Thyrotoxicosis in 1(2%) case. Gurpal Singh, PremArora et al 20 in their study at Government Medical College / GND Hospital, Amritsar of Sixty six (31 M, 35 F) consecutive patients having atrial fibrillation, the etiology was found to be due to rheumatic heart disease in 25 (8,17) : dilated cardiomyopathy (DCM) 15 (10,5) : hypertension 9 (2,7) : mitral valve prolapse 6 (4,2); thyrotoxicosis 6 (3,3); ischaemic heart disease (IHD) 2 (1,1); congenital (atrial septal defect) 1; digitalis toxicity 1, where as 1 had lone fibrillation. A similar hospital based study by Saroj K Prakash and Sudesh K Chugh 11 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 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 Levy et al 14 and ALFA study15 had observed that valvular heart
Atrial fibrillation is seen to increase in prevalence with advancing age. An early incidence is seen in India due to a greater contribution of rheumatic etiology to the case load of atrial fibrillation. No significant difference was found with respect to gender. 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 was the most common dominant lesion causing AF. Increasing left atrial size is a risk factor for atrial fibrillation. This increased risk is not confined to rheumatic etiology but extends to other etiologies such as ischemic heart disease, hypertensive heart disease and COPD. Congestive cardiac failure is the most common complication observed followed by cardioembolic stroke.

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