

To Study the Echocardiographic Profile of Patients with Atrial Fibrillation in North Indian Population

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ABSTRACT

Background: Atrial fibrillation is the most common sustained arrhythmia in clinical practice. By the turn of century, it will be an increasingly common cause of stroke, thromboembolism and heart failure. **Methods:** The cross-sectional study was conducted in Department of Medicine on 100 subjects diagnosed with Atrial Fibrillation, attending OPD of Medicine and Cardiology as well as in-patients of Rajindra Hospital, GMC Patiala to study the different etiologies Atrial Fibrillation. **Results:** Based on the Echocardiography. RHD(49%) was noted to be the most common cause associated with Atrial fibrillation in the study population, followed by CAD(26%), Hyperthyroidism(1%), Hypertension(7%), COPD(5%), RHD+CAD(3%), RHD+ASD(1%) and DCMP(1%). **Conclusion:** RHD which is noted as the most common cause of Atrial fibrillation in present study is still a preventable disease and by controlling it, disease burden and the financial burden can be reduced.

Keywords: Atrial fibrillation, Rheumatic Heart Disease, Coronary Artery Disease.

INTRODUCTION

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia in clinical practice. Patients are at increased risk for death, heart failure, hospitalization, and thromboembolic events. Controlling the risk factors at early stage can be extremely helpful in planning primary and secondary preventive strategies for AF and its complications. Hypertension and CAD are amongst the common causes of AF in developed countries. We conducted this study to find out the different etiologies of AF in North Indian population.

Aims and Objectives

To study the different etiologies of Atrial Fibrillation.

MATERIALS AND METHODS

The cross-sectional study was conducted in Department of Medicine on 100 subjects diagnosed with Atrial Fibrillation, attending OPD of Medicine and Cardiology as well as in-patients of Rajindra Hospital, GMC Patiala.

Exclusion criteria:

- Acutely sick patients.

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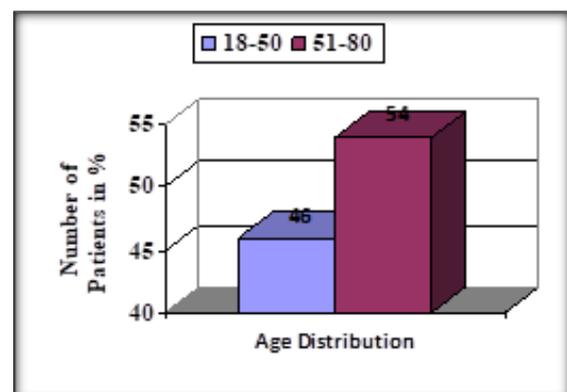
- Patients on dialysis.
- Hemodynamically unstable patients.

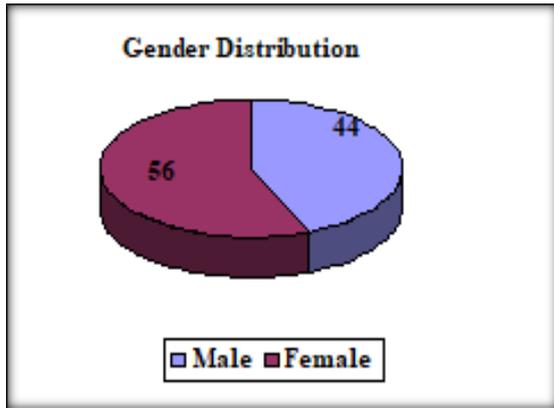
Evaluation of patients was carried out as follows:

In each case, history of past and present illness was carefully inquired into so as to obtain the complete historical background of case followed by general physical examination, which was further followed by investigations like CBC, FBS/RBS, RFT, ECG, CXR, Thyroid function tests and Echocardiography.

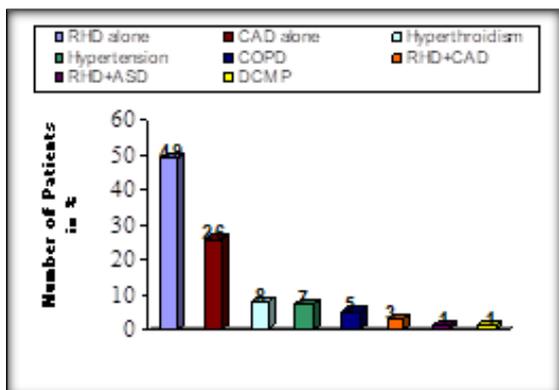
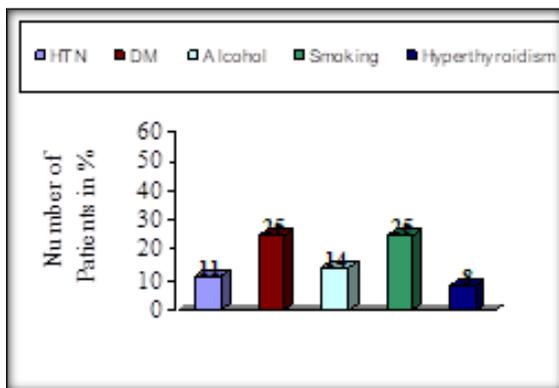
RESULTS

In this study, 46% of the patients were less than or equal to 50 years of age and remaining 54% were above or equal to 51 years of age. Mean age of the study group was 51.4 ± 27.95 years. Patients from 18 to 80 years of age were included in the group. The study comprised of 44% of males and 56% of females.





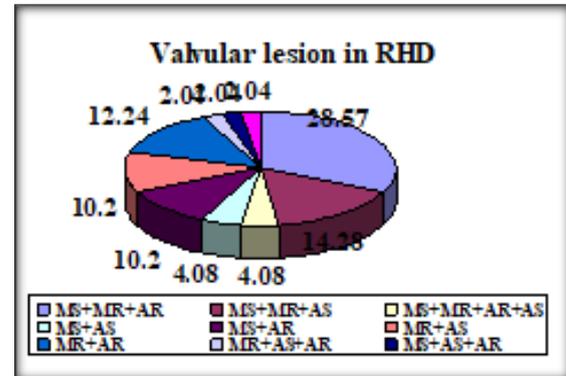
Among the various risk factors and co-morbidities, the presence of Hypertension, Diabetes mellitus, Smoking, Alcohol and Hyperthyroidism were studied. 11 patients in this study were hypertensive (11%), 25 were having diabetes mellitus (25%) and 8 were hyperthyroid (8%). History of significant alcohol consumption was found in 14 patients (14%) and history of smoking was present in 25 patients (25%).



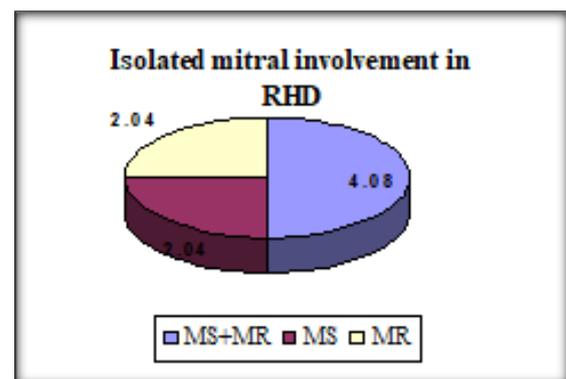
It was noted that Rheumatic Heart Disease (RHD) alone was the most common etiology in the study group. RHD alone was seen in 49 out of 100 patients (49%). Second most common cause among this study was found to be Coronary Artery Disease (CAD), which was found in 26 out of 100 patients (26%) followed by Hyperthyroidism (8%),

Hypertension (7%), COPD (5%), RHD + CAD (3%), RHD + ASD (1%) and DCMP (1%).

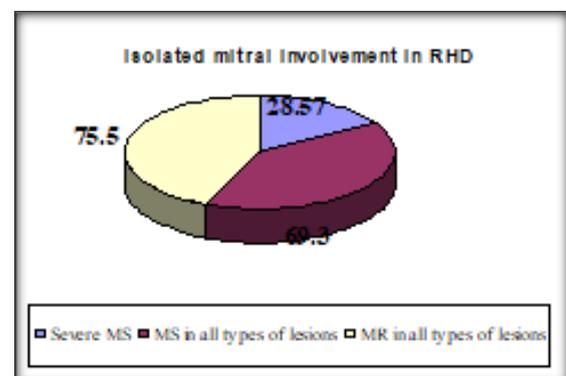
Both, Mitral and Aortic valve involvement was seen in 45 out of 49 patients (91.84%) of RHD patients. Most common lesion noted in this study was MS + MR + AR, which was found in 14 out of 49 patients (28.57%) of RHD .



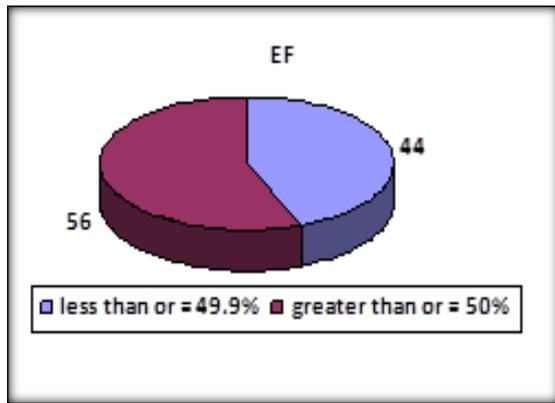
Isolated Mitral involvement was seen in 4 out of 49 patients (8.16%).



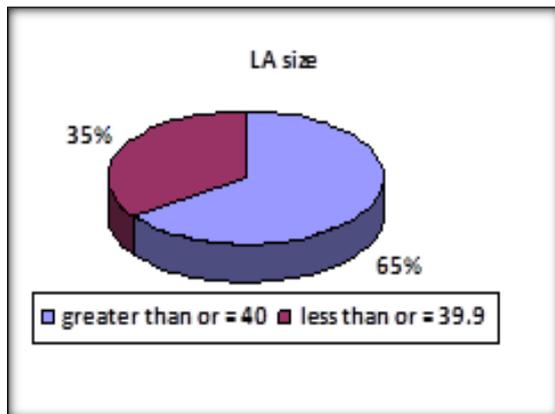
Severe MS with mitral valve area of less than 1cm² was seen in 14 out of 49 RHD patients (28.57%). MS alone or in combination with other valvular lesions was seen in 34 patients (69.3%). MR alone or in combination with other lesions was seen in 38 patients (77.5%).



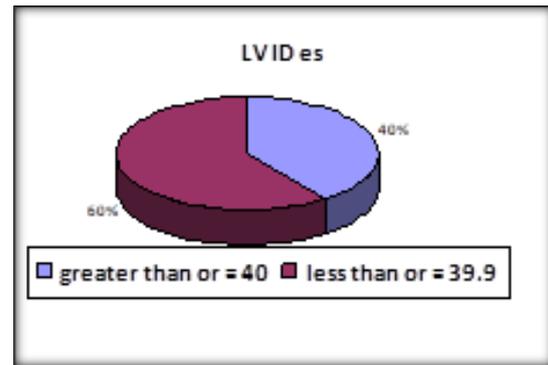
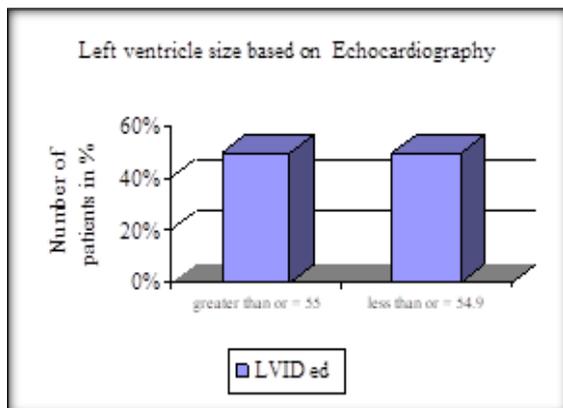
Mean EF was 50.4 ± 26.18%.



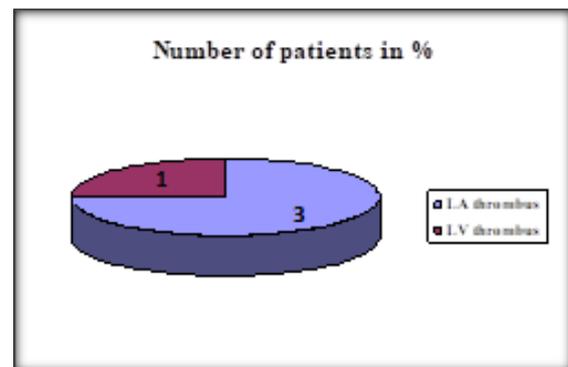
65 out of 100 patients (65%) were noted to have LA size greater than or equal to 40mm, While, remaining 35 out of 100 patients (35%) were noted to have LA size less than or equal to 39.9mm.



Both Left Ventricle Internal Diameter end diastolic (LVID ed) and Left Ventricle Internal Diameter end systolic (LVID es) were calculated in mm using Echocardiography as diagnostic tool in this study. 50% were noted to have LVID ed greater than or equal to 55mm and 50% were noted to have LVID ed less than or equal to 54.9mm. Mean LVID ed was 54.18 ± 16 mm. While in case of LVID es, 40% were noted to have size greater than or equal to 40mm and remaining 60% were noted to have size less than or equal to 39.9mm. Mean LVID es was 38.48 ± 20.11 mm.



3 out of 100 patients (3%) were found to have LA thrombus while only 1 patient (1%) was found to have LV thrombus.



DISCUSSION

In present study, mean age was found to be 51.42 ± 27.95 years, which was comparable to studies conducted by Lugero C et al, Sastry et al, Bhardwaj R et al, Kumar T et al and Gautam et al. There was slight female preponderance which was comparable to studies conducted earlier by Lugero C et al, Sastry et al, Bhardwaj R et al, Kumar T et al and was even comparable with the Framingham study. Hypertension as a risk factor was comparable in present study with other Indian studies, whereas, In the study done by Lip G Y et al, Hypertension was found in 36.9%.

Diabetes as a risk factor was found in 25% of patients in present study which was higher as compared to previous studies, which could be attributable to rise in incidence of Diabetes mellitus globally. Alcohol as a risk factor was studied in present study and was noted to be found in 14% of patients and was higher as compared to Lip G Y et al study. Smoking as a risk factor was found in 25% in present study and was higher as compared to other studies. Hyperthyroidism as a risk factor was found in 8% of patients in present study whereas in Lip G Y et al study it was found in 17% of patients. As compared to Developed countries where HTN and CAD are amongst the common causes, in present study though RHD is declining but it still continues to be the commonest cause for AF, despite education

and better health care facilities available these days. Another intriguing thing noted in the present study is that CAD as the cause of AF is rising, which can be attributed to increasing age due to better medical care these days and also to sedentary lifestyle and fast food.

CONCLUSION

In present study, RHD was found to be the most common cause for Atrial fibrillation, followed by CAD, hyperthyroidism, hypertensive heart disease, COPD and others. Mitral valve involvement was seen in all patients of RHD. Left atrial enlargement was seen in majority of patients, so left atrial enlargement could be a predictor of atrial fibrillation. Patients of left atrial enlargement are more prone to develop left atrial appendage clot.

This is a small study conducted over a stipulated period of time and covered only one subset of Indian population and thus may not reflect the true incidence or prevalence of different etiologies of Atrial fibrillation for entire Indian Population.

Larger studies are thus, needed to be carried out in the future to ascertain the exact etiologies of AF as RHD which is considered as the most common cause of atrial fibrillation in developing nations is still a preventable disease and therefore by controlling it, disease burden and the financial burden can be reduced.

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