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General Medicine

A STUDY OF ETIOLOGY, CLINICAL PROFILE AND COMPLICATIONS OF PATIENTS WITH ATRIAL FIBRILLATION

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ABSTRACT

BACKGROUND: Atrial fibrillation (AF) is the most common cardiac arrhythmia, occurring in 1–2% of the general population. AF confers a 5-fold risk of stroke. Much earlier detection of the arrhythmia might allow the timely introduction of therapies to protect the patient, not only from the consequences of the arrhythmia, but also from progression of AF from an easily treated condition to an utterly refractory problem.

AIM OF STUDY: Analysis of etiological features, clinical features and Complications of atrial fibrillation.

METHODOLOGY: 100 cases of atrial fibrillation both male and female were included in the study. The diagnosis was made on clinical grounds and then confirmed by ECG and Echo cardiogram.

RESULTS: In this study of atrial fibrillation, the occurrence of AF is maximum in age group 61 and above. Out of 100 cases 43 cases were male, 57 cases were female, and 60 cases were rheumatic heart disease.

CONCLUSION: In this study common aetiology of AF was RHD 60% followed by Hypertensive heart disease and Ischemic heart disease each carries 10%. The most common symptomatic presentations were dyspnea and palpitation followed by chest pain and dizziness. The commonest complication noted was heart failure.

KEYWORDS : AF → Atrial fibrillation, RHD→ Rheumatic heart disease, CVA → Cerebro vascular accident, ECG → Electocardiogram, 2D-ECHO→ Echo cardiogram.

Introduction

Atrial fibrillation (AF) is the most common cardiac arrhythmia, occurring in 1–2% of the general population, and its prevalence is estimated to at least double in the next 50 years as the population ages[1].

Prevalence increases with age, and more than 95% of AF patients are older than 60 years of age. AF is slightly more common in men than women and more common in whites than blacks [2].

Risk factors for developing AF in addition to age include hypertension, diabetes mellitus, cardiac disease, and sleep apnea[2].

AF confers a 5-fold risk of stroke. Ischaemic strokes in association with AF are often fatal, and those patients who survive are left more disabled by their stroke and more likely to suffer a recurrence than patients with other causes of stroke. In consequence, the risk of death from AF-related stroke is doubled and the cost of care is increased 1.5 fold[1].

In the majority of patients there appears to be an inexorable progression of AF to persistent or permanent forms, associated with further development of the disease that may underlie the arrhythmia.

The problem of early recognition of AF is greatly aggravated by the often 'silent' nature of the rhythm disturbance. In about one-third of patients with this arrhythmia, the patient is not aware of so-called asymptomatic AF[1].

Much earlier detection of the arrhythmia might allow the timely introduction of therapies to protect the patient, not only from the consequences of the arrhythmia, but also from progression of AF from an easily treated condition to an utterly refractory problem Ablation techniques, usually done percutaneously using a catheter, have proved successful in the treatment of AF and these along with newer drugs help to improve outcomes in AF.

AIMS and OBJECTIVES OF THE STUDY

1) Analysis of etiological features of atrial fibrillation.
2) Analysis of clinical features of atrial fibrillation.
3) Analysis of Complications of atrial fibrillation

MATERIALS AND METHODS

This study was conducted in OSMANIA GENERAL HOSPITAL, Hyderabad. This study was conducted during the period from November 2017 to November 2018, 100 cases of atrial fibrillation were included in the study. No patient had been counted twice if he or she got admitted again after discharge during this period.

INCLUSION CRITERIA

Both male and female patients were included in this study. Samples were collected from medical OP, medical ward, ICCU, cardiology OP.

EXCLUSION CRITERIA

Pediatric patients were not included in this study.

THE DIAGNOSIS OF AF

The diagnosis was made on clinical grounds and then confirmed by ECG and Echo cardiogram.

CLINICAL FEATURES

The following symptoms were enquired from all the patients. Those include dyspnoea, palpitation, chest pain, fatigue, dizziness, neurological deficit, oliguria. The presence of following signs was made out. That includes pedal edema, puffiness of face, cyanosis, anemia, signs of hyperthyroidism. Heart rate, pulse rate, pulse deficit, blood pressure monitoring, JVP-absent "a" wave, cardio vascular system examination were documented in all the patients.

ECG RECORDING

The ECG features of AF were noted, it includes

- Absent P wave
- Replaced by irregular fibrillatory F waves, in the setting of irregular R-R intervals.
- Look for LVH, pre-excitation, bundle branch blocks, acute or Previous myocardial infarction

ECHO CARDIOGRAPHY:

- M-mode, 2D echo was done in all the patients.
- The rhythm of heart was noted.
- The presence of valve thickening and calcification and regurgitation were noted.
- Size of valve orifice and chambers of heart were assessed.
- Presence of clot in the atrium and atrium appendages was identified.
- Vegetations were searched.
- Ejection fraction of ventricle was measured.

FEATURES ACCORDING TO SUSPECTED ETIOLOGY

1. RHEUMATIC HEART DISEASE

- Features of rheumatic fever (as per Jones criteria)
- Features of heart failure (as per Framingham criteria)
- The presence of valvular heart disease

- Features of infective endocarditis
- Serum ASO titre, ESR, CRP

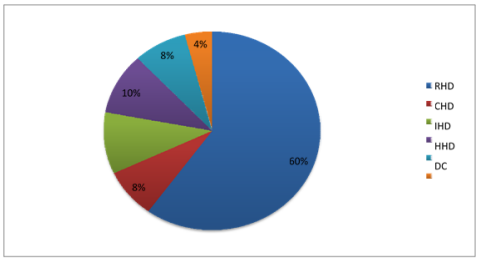
2. CORONARY ARTERY DISEASE
- History
- Auscultation for S3,S4 (Which may denotes compliance of ventricle)
- ECG

3. HYPERTENSIVE HEART DISEASE:
- BP monitoring
- Fundus examination
- Urine analysis
- Blood urea and creatinine level
- If necessary other investigation to find out whether hypertension is primary or secondary

4. CHRONIC OBSTRUCTIVE AIRWAY DISEASE:
- History related to chronic lung disease
- Chest wall deformities
- Cardiac auscultation to find out pulmonary hypertension, pulmonary regurgitation, tricuspid regurgitation
- ECG – P- pulmonale, RVH, RBBB, X ray- old PT, fibrosis, emphysematous chest, Bronchiectasis.

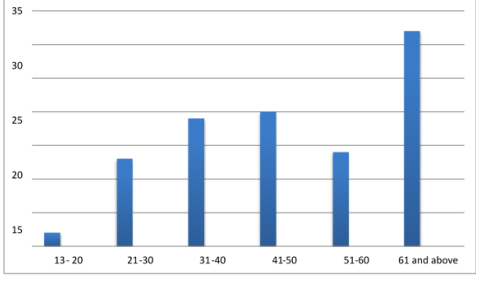
DATA ANALYSIS AETIOLOGY

CAUSES	NO. OF CASES	PERCENTAGE
RHEUMATIC HEART DISEASE	60	60
CONGENITAL HEART DISEASE	8	8
ISCHEMIC HEART DISEASE	10	10
HYPERTENSIVE HEART DISEASE	10	10
DILATED CARDIOMYOPATHY	8	8
CORPULMONALE	4	4



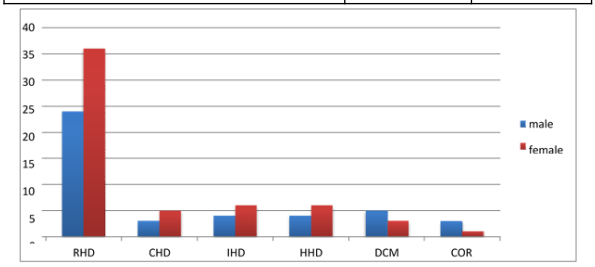
AGE DISTRIBUTION

AGE IN YEARS	NO. OF CASES	PERCENTAGE
13 – 20	2	2
21 – 30	13	13
31 – 40	19	19
41 – 50	20	20
51- 60	14	14
61 and above	32	32



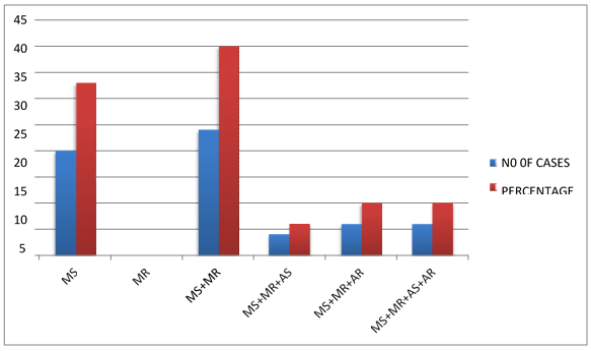
GENDER DISTRIBUTION

CAUSES	MALE	FEMALE
RHEUMATIC HEART DISEASE	24	36
CONGENITAL HEART DISAESE	3	5
ISCHEMIC HEART DISASE	4	6
HYPERTENSIVE HEART DISEASE	4	6
DILATED CARDIOMYOPATHY	5	3
CORPULMONALE	3	1
TOTAL	43	57



TYPE OF VALVULAR LESION IN RHEUMATIC HEART DISEASE

TYPE OF VALVULAR LESION	NO. OF CASES	PERCENTAGE
MITRAL STENOSIS (MS)	20	33
MITRAL REGURTITATION(MR)	0	0
MS+MR	24	40
MS+MR+AS	4	6
MS+MR+AR	6	10
MS+MR+AS+AR	6	10

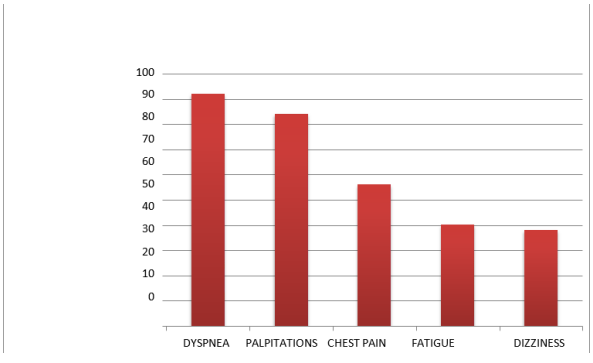


PREVIOUS HISTORY OF RHEUMATIC FEVER

NO. OF CASES OF RHD	H/O OF RHEUMATIC FEVER	PERCENTAGE
60	23	38

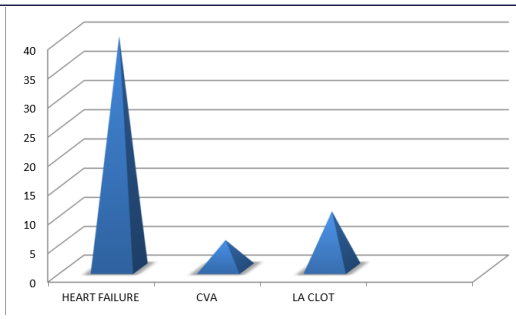
SYMPTOMS ANALYSIS

SYMPTOMS	NO. OF CASES	PERCENTAGE
DYSPNEA	92	92
PALPITATIONS	84	84
CHEST PAIN	56	56
FATIGUE	40	40
DIZZINESS	38	38



COMPLICATIONS

COMPLICATIONS	NO. OF CASES	PERCENTAGE
HEART FAILURE	40	40
CVA	5	5
LA CLOT	10	10



DISCUSSION

An attempt has been made to study 100 cases of AF regarding aetiology, clinical manifestations, and complications**.**

AGE INCIDENCE:

In this study of atrial fibrillation, the occurrence of AF is maximum in age group 61 and above. The incidence is about 32%. The next commonly affected age group is 41-50. The incidence is about 20%.

According to American Heart Association guidelines [3] on management of AF 2014 approximately 1% of patients with AF are <60 years of age, whereas up to 12% of patients with AF are 75 to 84 years of age.

GENDER INCIDENCE:

Out of 100 cases 43 cases were male, 57 cases were female, incidence in males is 43% and incidence in females is 57%.

The incidence of familial form of AF is unknown recent studies from department of health and human service- USA government suggest that up to 30% of all people with AF may have history of similar condition in their family.

According to Kannel.WB, Abbot R.D, savage, Mc. Namara PM, epidemiologic features of chronic AF, The Framingham study[4] N.Eng. J. Med 1982; 306; 1088-1122.The prevalence of AF increases with age, and slightly more common in men than in women.

The incidence of development of AF over 22yrs in Framingham study[4] was 2.2% in man and 1.7% in women.

AETIOLOGICAL ANALYSIS

In the etiological analysis among 100 cases of AF, the most common aetiology was rheumatic heart disease, followed by Hypertensive heart disease, ischemic heart disease, congenital heart disease, DCM, corpulmonale.

RHEUMATIC HEART DISEASE

Out of 100 cases 60 cases were rheumatic heart disease. Incidence of RHD – 60% R.Arora, G. Subramanian, M.Khalilullah and M.P Gupta from India reported the high incidence of RHD in India.

In western countries, coronary heart disease and hypertensive heart disease is common cause of AF than RHD.

A study was conducted in Govt medical college Amrister[5] Jan 2007; 66 cases of AF analysed; they reported that RHD was the most common cause.

In this study of 100 cases of AF 60 cases were of rheumatic aetiology. In this group of 60 cases 38% of cases were presented with previous history of rheumatic fever. This study correlates well with many Indian studies. So the incidence of Rheumatic fever is still common in India.

In these 60 cases of RHD most of the cases were in age group between 31-50 years. Most commonly presented with valvular MS + MR, followed by Isolated MS.

According to Wolf PA, Benjamin EJ, Belanger AJ, et al[6], in their study of 2500 cases of rheumatic heart disease 384 cases had atrial fibrillation. Among the AF cases the valvular lesion incident was MS 38%, MS + MR 30%.

The present study shows combination of MS + MR was the most common lesion.

HYPERTENSIVE HEART DISEASE

In this study, the hypertensive heart disease with AF was detected in 10 cases and incidence was 10%.

According to Framingham study[4], hypertension accounted for about half of cases.

ISCHEMIC HEART DISEASE

In this study old myocardial infarction was found in 10 cases. The incidence was 10 %.

According to ColillaS,CrowA,PetkunW, SingerDE, Simon,LiuX.[7] AF may complicate Acute MI in 10-15% of cases. But in this study evidence of old MI was found in 10% of cases.

According to Author:Jeffry lazar, MD, Krama RJ, Zelderson, hamby RJ [8] of 1176 patients with coronary artery disease 10% had AF. This correlates well with the present study.

CONGENITAL HEART DISEASE

In this study out of 100 cases of AF 8 cases were ASD, incidence was about 8%. These cases were in age group above 40 yrs.

DILATED CARDIOMYOPATHY

In this study of 100 cases of AF, DCM found in 8 patients. Incidence was about 8 %. Clinically, echocardiographically and ECG wise they had cardiomegaly without valvular lesion and ischemia.

According to Gurpalsingh, Premarora study [9] of 66 patients of AF, they found 15 cases of DCM the incidence were 10.5%.

CORPULMONALE

Out of 100 cases of AF 4 cases had features of COPD, incidence is about 4%.

SYMPTOM ANALYSIS

In symptom analysis dyspnea 92% and palpitation 84% were the most frequent symptoms found in almost all the patients, chest pain is the next frequent symptom found in 56% of cases, syncope was found in 38% of cases. The most frequent symptomatic presentation in this study is dyspnea and palpitation. This study correlates well with common symptomatic presentation of AF.

COMPLICATIONS

In this analysis of atrial fibrillation cases, the most common complication documented is heart failure, the percentage is 40%. LA clot is found in 10% cases. Cerebrovascular accident is found in 5% of cases.

According to Lip GY, Nieuwlaat R, Pisters R, Lane DA, Crijns HJ [10] congestive cardiac failure was percent in 64 % of cases with atrial fibrillation, cerebral embolism in 85% of cases and peripheral embolism in 15% cases.

CONCLUSION

- The occurrence of atrial fibrillation was more common above the age of 61 years.
- AF was more common in females – 57%
- The incidence of AF in men increases with age.
- In this study of 100 cases the common aetiology of AF was RHD 60% followed by Hypertensive heart disease and Ischemic heart disease each carries 10%. , congenital heart disease (ASD) 8%, Dilated cardiomyopathy 8%; corpulmonale 4%
- In this study of 60 cases of rheumatic heart disease with atrial fibrillation; the mitral valve was involved in almost all the patients. The commonest clinical presentation was MS + MR – 40 %. Followed by isolated MS – 33 %.
- The congenital heart disease (ASD) with AF was found in 8% of cases.
- The most common symptomatic presentations were dyspnea and palpitation followed by chest pain and dizziness.
- The previous history of rheumatic fever was found in 38 % of cases.
- The commonest complication noted in AF cases was heart failure – 40%, CVA with embolic stroke was found in 5% of cases, left atrial clot was demonstrated by echo cardio graphically in 10% of cases.

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