Journal of Research in Medical and Dental Science
2022, Volume 10, Issue 3, Page No: 156-161

Available Online at: www.jrmds.in
eISSN No. 2347-2367: pISSN No. 2347-2545

Study on Clinical Profile of Patients with Atrial Fibrillation at a Tertiary Care Hospital in Mandya

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ABSTRACT

Introduction: Atrial fibrillation is the most common arrthymia and accounts for 1/3 of hospital admissions for cardiac rhythm disturbance. Recent epidemiological data have reaffirmed the fact that AF is a global epidemic and has adverse effect on long term morbidity and mortality.

Aims: To determine clinical profile of patients admitted with AF and to determine etiology of atrial fibrillation. To determine the mortality and morbidity of patients admitted with atrial fibrillation.

Materials and Methods: A prospective observational study was carried out in 100 cases of atrial fibrillation admitted at Mandya institute of medical sciences during a time period of 12 months from January 2019 to January 2020. A detailed history and clinical examination were done according to prepared proforma. All the required investigation was collected and analysed.

Results: Out of 100 cases 63 were female and male 37. Mean age was 54.98 years, most of the patients were in the age group 41-60 year (45%). Dyspnoea was the most common presentation in 71 %, followed by palpitation in 66%. Most common cause of AF was RHD 49% in our study followed by CAD in 20% and hypertension in 15%. Commonest valvular pathology in our study was mitral regurgitation (MR) in 51%. Most common valvular lesion in RHD was mitral stenosis (MS) 93.8%. Complications in the study were congestive cardiac failure in 68% and stroke in 9 %. Mortality in our study was 2%.

Conclusions: In our study females were more than males. Majority of patients belonged to 41-60 years age group. Majority of the case were due to RHD, followed by coronary artery disease and hypertension.

Key words: Atrial fibrillation, Rheumatic heart disease, Hypertension, Coronary artery disease, Mitral stenosis, Mitral regurgitation, Congestive heart failure

HOW TO CITE THIS ARTICLE: Geo Bastian Kottoor, Lokesh NK, Prakash GM, Study on Clinical Profile of Patients with Atrial Fibrillation at a Tertiary Care Hospital in Mandya, J Res Med Dent Sci, 2022, 10 (3):156-161.

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Received: 24-Feb-2022, Manuscript No. JRMDS-22-55460**;**
Editor assigned: 25-Feb-2022, Pre QC No. JRMDS-22-55460 (PQ);
Reviewed: 08-Mar-2022, QC No. JRMDS-22-55460;
Published: 15-Mar-2022

INTRODUCTION

Atrial fibrillation is an atrial tachyarrhythmia characterized by disorganized, rapid and irregular atrial activation with loss of atrial contraction and with an irregular ventricular rate that is determined by AV conduction. Atrial fibrillation is the most common sustained cardiac arrhythmia in clinical practice and is increasing in prevalence. The most common symptom in people with intermittent atrial fibrillation is palpitations, a sensation of rapid or irregular heartbeat. This may make some people very anxious. The clinical presentation of AF spans the entire spectrum from asymptomatic AF with rapid ventricular response to cardiogenic shock or devastating cerebrovascular accident (CVA) [1].

Established risk factors for atrial fibrillation include age, male sex, and hypertension, valve disease, left ventricular dysfunction, obesity and alcohol consumption. In developed nations, the most common clinical diagnosis associated with permanent atrial fibrillation are hypertension and coronary artery disease [2].

Types

PAROXYSMAL AF- Individual episodes are < 7days and usually <48 hours in duration [1].

PERSISTENT AF- Recurrent form of AF in which individual episodes are > 7days in duration or require electrical cardio version to terminate1.

LONG-STANDING PERSISTENT AF- AF persists for longer than 1year [1].

PERMANENT AF- Long lasting AF, which has failed attempts at cardio version [1].

LONE ATRIAL FIBRILLATION- AF that occurs in patients younger than 60 years who do not have hypertension or any evidence of structural heart disease [1].

MATERIALS AND METHODS

Hospital based cross sectional observational study was carried out in the department of medicine at Mandya institute of medical sciences,Mandya. Study period was from May 2021 to July 2021. Institutional Ethics Committee permission was obtained.

Detailed history was taken from patient and clinical examination was done according to prepared proforma. Data was collected from patient's inpatient record including all investigations. The data was analyzed by using appropriate statistical tests. Informed written consent was taken from the study subjects after explaining to them the plan and intention of the study in the language best known to them.

Diagnosis of atrial fibrillation from ECG [1]

Irregularly irregular rhythm.

Absent P waves.

Variable ventricular rate.

QRS complexes usually <120 ms unless pre-existing bundle branch block, accessory pathway, or rate related aberrant conduction.

Inclusion criteria

Patients aged more than 18yrs with atrial fibrillation and who gives informed consent.

Exclusion criteria

All the data collected was entered in an excel sheet and the data was statistically analyzed using SPSS. Descriptive studies like percentage, proportion, central tendency and variation was used.

RESULTS

In our study 100 patients with AF were included, the mean age of our study population was 54.98 ± 14.4 years, and for RHD was 46.85 years and for Non RHD was 62.78 years. Female were more in number, 63 females and 37 males. Rheumatic heart disease (RHD) was 49 and non RHD etiologies were 51. Maximum numbers of patients were in 41-60 years of age (45 %) and Mean age of males were 58.59 ± 14/12 yrs. Mean age for females were 52.58 ± 14.43 years (Table 1).

Most common symptom was shortness of breath -71% followed by palpitation 66%, Chest pain accounted for 39% of the presentations. 32 % of patients had pedal edema, 14 % of patients presented with easy fatigability, Limb weakness were the presentation for 9% of cases and only 3% of cases had syncope as the presenting symptom (Table 2).

Most common risk factor was found to be RHD with 49%, followed by hypertension in 32%, diabetes mellitus in 27% and coronary artery disease in 20% of cases. COPD was a risk factor in 4 %, dilated cardiomyopathy in 5% and thyroid disorder- hyperthyroidism and hypothyroidism with 3% each (Table 3).

The most common cause was Rheumatic heart disease which accounted for 49 % of cases with AF. Second most common was coronary artery disease with 20%. Hypertension accounted for 15%, COPD and hyperthyroidism with 3% each, dilated cardiomyopathy caused AF in 6 % of cases, asthma in 2%, atrial septal defect in 1% (Table 4).

Pulse rate was more than 100 per minute in 81.6 % of RHD patients. In present study majority (51%) of the patients had BP in the normal range. 6% patients were in hypertensive crisis and 2% had hypotension. 71% of cases had feature of heart failure on clinical examination. Majority of cases(66%) had normal ejection fraction of >55 %. 21 % cases had abnormal EF, 10 % had moderately abnormal EF and severely abnormal EF was present in 3%. Majority of patients had abnormal Left Atrium (LA) size. 22% patients had normal size LA. 39% of cases had abnormal size LA, followed by moderately abnormal 29% and severely abnormal in 10%.

Most common valvular lesion was Mitral regurgitation (51%) followed by Mitral stenosis (46%). Isolated MS was present in 24%,

Isolated MR Was present in 15%. Tricuspid regurgitation (TR) was present in 20%. Aortic stenosis and Aortic regurgitation in 4% and 5% respectively. Most common structural change in 2D-echocardiography study was left atrial enlargement (LAE) in 61 % cases. Other changes were LVH in 32%of cases, Right atrial enlargement in 20% (Table 5).

Among RHD most commonest pathology was MS seen in 46 (93.8%), isolated MS was present in 24 (48.9%), 18 (36.7%) had mixed mitral stenotic and regurgitation lesion. Both mitral and aortic lesion were seen in 4 cases (8%). 4% of RHD case had MR. Most common complication was congestive cardiac failure in 68 patients, followed by Transient ischemic attack in 9 patients.

Table 1: Baseline characteristics.

Sl.no	Clinical profile	100
1	Mean age in years	54.98 YRS RHD- 46.85YRS NON RHD- 62.78YRS
2	Males	37(37%)
3	Females	63(63%)
4	Systemic hypertension	32(32%)
5	Type 2 Diabetes Mellites	27(27%)
6	RHD	49(49%)
7	CAD	20(20%)
8	COPD	4(4%)
9	Hyperthyroidism	3(%)
10	Congenital heart disease	1-ASD(1%)
11	Cardiomyopathy	5-(DCM)(5%)

Table 2: Distribution of symptoms.

Sl no	Symptoms	Prevalence
1	Palpitation	66%
2	Chest pain	39%
3	Shortness of breath	71%
4	Syncope	3%
5	Easy fatigability	14%
6	Weakness of limb	9%
7	Pedal edema	32%

Table 3: Risk factors.

Risk factors	No of patients (n=100)	Percentage
RHD	49	49
HTN	32	32
DM	27	27
COPD	4	4
THYROID DISODER	6	6
DCM	5	5

Table 4: Etiology of AF.

Sl. No	Etiology	Percentage
1	Rheumatic heart disease	49
2	Systemic hypertension	15
3	Coronary artery disease	20
5	Chronic obstructive pulmonary disease	3
6	Hyperthyroidism	3
7	Dilated cardiomyopathy	6
8	Asthma	2
9	Congenital heart disease- ASD	1
10	Valvular heart disease (degenerative disease)	1

Table 5: 2D echo valvular abnormality.

Sl. No	Valvular abnormality	Percent
1	MS (>1.5cm2)	40
2	Severe MS (<1.5cm2)	6
3	Isolated MS	24
4	MR	51
5	Isolated MR	15
6	AS	4
7	AR	5
8	TR	20

DISCUSSION

Atrial fibrillation is the most common arrthymia seen in clinical practice accounting for 1/3 of hospital admissions for cardiac disturbances. In our study 100 patients admitted were included. In this present study age of patients varied from 30 to 90 years of age. Mean age of the patients in this study was 54.98 years which is near to the 54.2 years mean age in Indian Heart Rhythm Society -AF registry which is national atrial fibrillation registry under Indian Heart Rhythm Society with data comprising 1532 patients with AF from 24 centers [3,4]. In an observational hospital based study in Bihar, Vidya et al reported that the mean age of the patients was 47 years and majority of patients were aged between 51-60 years [5]. Bhardwaj et al reported that the mean age of patients was 51.2 years, while analyzing patients with AF presenting at a tertiary care hospital in Gujarat [6]. Recent analysis of a sample of 2231 US and 1053 Indian patients using the NUVANT Mobile Cardiac Telemetry System revealed mean age of 61.3 for the US and 57.8 for Indian patients with AF [7]. In our study 45 % of patients were in the age group 41-60yrs. The cause of younger age patients presenting with AF in study when compared to western population can be attributed to RHD. Mean age of patients with RHD in the study was 46.85 years whereas, CRRAFT study which exclusively included AF patients with RHD reported a mean age of only 38 years [8]. Majority of the cases were in the group 41-60 years (53%) and 21-40 years (32.65%).

On etiological analysis 49% of patients with atrial fibrillation in our study was due to RHD, followed by CAD 20%, Hypertension causing 16% of cases and DCM 6%. In study by Rao et al 75% of the cases admitted were RHD, followed by IHD 10.20%9. IHRS-AF Registry 47.6% cases in India were due to RHD followed by hypertension 31.4% and CAD 27% [4]. The prevalence of RHD in patients with AF was 26.7% in the REALIZE-AF global study as compared to 40.7% in the Indian cohort9. In the REALIZE -AF registry 72%of patient globally and 51% of AF patients from India had hypertension [9].

Among RHD commonest pathology was MS seen in 46(93.8%) out of 49 cases of RHD in the study, isolated MS was present in 24 (48.9%), 18 (36.7%) cases had coexisting mitral stenotic and regurgitation lesion. Both mitral and aortic lesion was seen in 4 cases (8%). Only 2 (4%) had isolated MR among the RHD cases in our study. One of the patients had undergone MVR (mitral valve replacement). This study was different from Diker et al where 29% of patient had isolated MS, 16% isolated MR and 1% with aortic valvular disease [10,11]. Bhardwaj et al reported that amongst 84 patients with AF due to RHD, all patients had involvement of mitral valve, with mixed MS and MR being most common (26.61%), isolated MS 15.47% and isolated MR in 9.5% [6].

In our present study 68 % of patients present with heart failure, 9 % presented with TIA/ stroke, 6 % of patients presented with ACS. In the REALIZE- AF study major events where HF-27%, followed by ACS-20%, Stroke 18% whereas, study by Rao et al found that 40% had CCF, ACS and stroke among 13.3% each [9]. The mortality in this study was 2%, the causes of death were cardiogenic shock and aspiration pneumonia in a patient with stroke. The all-cause mortality was 6.5% at one year in IHRS-AF registry [4].

CONCLUSIONS

Atrial fibrillation is one of the commonest arrhythmia encountered by the physician and specialist. With RHD being the most common risk factor in the Indian subcontinent, but other risk factors are on the rise especially systemic hypertension and ischemic heart disease. Better

management of streptococcal infection and acute rheumatic fever has reduced the number of new cases of rheumatic heart disease. Whereas an increasing number of other risk factors like hypertension, diabetes mellitus, Ischemic heart disease and obesity with the changing life style has become a major area of concern.

Tertiary care centers with facilities for electrophysiological studies and ablative procedures are required in our country. Each state should have their own registries for collecting more information about epidemiological, geographical status and have plans to bring down the disease burden.

LIMITATION OF OUR STUDY

Large sample size was required.

Treatment strategies were not included in the study.

Only inpatients were taken for the study.

No follow up done in this study.

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