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Original Research Article

TO DETERMINE THE DIFFERENCES IN THE MORBIDITY AND MORTALITY AMONGST PATIENTS WITH VALVULAR VS NON-VALVULAR ATRIAL FIBRILLATION AMONG PATIENTS ATTENDING CARDIOLOGY DEPT.

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Abstract

Background & Methods: The aim of the study is to determine the differences in the morbidity and mortality amongst patients with valvular Vs non-valvular atrial fibrillation among patients attending cardiology. Patients underwent detailed historical and physical evaluation to establish the diagnosis and classified into valvular and non valvular causes of atrial fibrillation.

Results: In ECG we found, Pathological Q wave (25%) & followed by Left axis deviation (20%) in valvular Pathological Q wave (28.5%) & followed by Left bundle branch block (20%) in non- valvular. In our study we found, stroke as the most common cause mortality i.e. (50%) in valvular AF v/s (33%) in non valvular AF patients.

Conclusion: We clearly demonstrate the expertise about the guideline based antithrombotic therapy in patients with AF in this part of the country. While both rate-control and rhythm-control strategies have been shown to be equally effective in providing morbidity and mortality benefits, our patient population continued to receive rate-control therapy in the large majority during the last one year as analyzed by us.

Keywords: morbidity, mortality, valvular, atrial fibrillation & cardiology.
Study Design: Observational Study.

1. Introduction

In developing countries like India, problems are different than developed countries. RHD continues to be a major cause of AF related morbidity and mortality in India[1]. As life expectancy is increasing, prevalence of non valvular atrial fibrillation is also increasing. Due to illiteracy, poverty, and non-availability of reliable PT/INR testing facilities in various rural or semi urban regions of India, INR monitoring for VKA therapy is difficult[2]. The cost and accessibility to INR monitoring center are also big issues. Around 2.2 million American people are suffering from AF. which occurs more commonly in men than in women[3-4].

In a canine atrial preparation, rapid atrial pacing as well as a background of vagal stimulation were used to induce persistent atrial fibrillation[5]. During atrial fibrillation, the appendage

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was excluded with a clamp; when the atrial pacing was discontinued, the atrial fibrillation was no longer apparent in the appendage but the rest of the atria continued to fibrillate. From these experiments, Moe concluded that reentry was the most likely mechanism for atrial fibrillation. He stated that "the grossly irregular wave front becomes fractionated as it divides about islets or strands of refractory tissues, and each of the daughter wavelets may now be considered as independent offspring[6]. Fully developed fibrillation would then be a state in which many such randomly wandering wavelets coexist." This became the multiple wavelet hypotheses for atrial fibrillation and carried not only the day but the subsequent decades until the observations of as described later. While supporting reentry as the major mechanism of atrial fibrillation. The irregular activation of the atria could be produced by several factors including a single rapidly discharging ectopic focus, multiple rapidly discharging foci, or rapidly circulating circus movement[7-9].

2. Material and Methods

This study was conducted at Tertiary Care Centre for 01 Year. Patients underwent detailed historical and physical evaluation to establish the diagnosis and classified into valvular and non valvular causes of atrial fibrillation. The height and weight were noted. A12 lead ECG with rhythm strip recording and special investigations viz. comprehensive echocardiography, chest skiagram, thyroid hormone estimation, pulmonary function testing and stress tests were carried out if needed.

INCLUSION CRITERIA

1. All consecutive patients attending cardiology/ medicine services during the recruitment period.

EXCLUSION CRITERIA

1. Arrhythmias Patients other than atrial fibrillation.
2. Patients with psychiatric illness.

3. Result

Table 1: Gender Distribution

	VALVULAR (n = 40)		**NON VALVULAR (n = 35)**	
Gender	**No.**	**Percentage**	**No.**	**Percentage**
Male	21	52.5	18	51.4
Female	19	47.5	17	48.6

In our study we found, Male (52.5%) & Female (47.5%) in valvular whereas Male (51.4%) & Female (48.6%) in non- valvular.

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Table 2: BMI

		VALVULAR (n = 40)		NON VALVULAR (n = 35)	
CLASSIFICATION	**B.M.I(Kg/m^2)**	**No. of Patients**	**Percentage**	**No. of Patients**	**Percentage**
Underweight	<18.5	13	32.5	12	34.2
Normal range	18.5-24.9	17	42.5	14	40
Preobese	25-29.9	06	15	06	17.3
Obese I	30-34.9	04	10	03	8.5
Obese II	35-39.9	00	00	00	00
Obese III	≥40	00	00	00	00

In our study we found, Normal range (42.5%) followed by Underweight (32.5%) in valvular whereas Normal range (40%) followed by Underweight (34.2%) in non- valvular.

Table 3: $CHADS_2$ score

	VALVULAR (n = 40)		NON VALVULAR (n = 35)	
$CHADS_2$ score (N = 75)	**No of Patients**	**Percentage**	**No of Patients**	**Percentage**
0	09	22.5	09	22.8
1	14	35	12	34.2
2	08	20	07	20
3	06	15	05	14.2
4	03	7.5	02	5.7

In our study we found, $CHADS_2$ score 01 (35%) followed by 00 (22.5%) in valvular whereas $CHADS_2$ score 01 (34.2%) followed by 00 (22.8%) in non- valvular.

Table 4: ECG

	VALVULAR (n = 40)		NON VALVULAR (n = 35)	
ECG (N = 75)	**No of Patients**	**Percentage**	**No of Patients**	**Percentage**
Right axis deviation	07	17.5	06	17.1
Left axis deviation	08	20	04	11.4
Pathological Q wave (Old MI)	10	25	10	28.5
Left bundle branch block	07	17.5	07	20
Right bundle branch block	01	2.5	01	2.8
Right ventricular hypertrophy	03	7.5	03	8.7
Left ventricular hypertrophy	04	10	04	11.5

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In our study we found, Pathological Q wave (25%) & followed by Left axis deviation (20%) in valvular Pathological Q wave (28.5%) & followed by Left bundle branch block (20%) in non- valvular.

Table 5: CAUSES OF DEATH IN VALVULAR Vs NON VALVULAR PATIENTS

CAUSES OF DEATH	STROKE	SUDDEN DEATH	HEART FAILURE	MYOCARDIAL INFARCTION	INFECTION	RESPIRATORY FAILURE	UNKNOWN
VALVULAR (n = 40)	(50%)	(5%)	(5%)	(0%)	(15%)	(5%)	(20%)
NON VALVULAR (n = 35)	(33%)	(7%)	(14%)	(20%)	(0%)	(0%)	(26%)

In our study we found, stroke as the most common cause mortality i.e. (50%) in valvular AF v/s (33%) in non valvular AF patients.

4. Discussion

Obesity is found in 25% of AF patients and mean body mass index was 27.5 kg/m^2 in a large German AF registry i.e.; overweight. In the Realize AF registry the mean BMI was 28.3 kg/m^2. The mean BMI found in our study is 20.30 ± 4.2 kg/m^2.

Our study cannot prove that an elevated body mass index is related to the prevalence of AF, although obesity was identified as an important risk factor.[3]This may be due to relatively low body mass index among Indian population, compared with the western population, so that inconclusive result was found[10].

Out of 75 patients in 48 patients echocardiographic evaluation was done. In our study, left atrial size of patients ranged from 26 to 60 with a mean of 47.57± 8.66. LV ejection fraction ranged from 20 to 78% (mean 54.22 ± 13.81). These findings are consistent with finding in ALFA study conducted in 756 patients in France where mean LA size and LVEF found to be 43.8 ± 8.6 mm and 58 ± 12.6 % respectively.

According to ACC/ AHA / ESC guidelines valvular AF is considered as high risk and anticoagulation is indicated. Amongst our patients those with valvular AF 72% patients were on Vitamin K antagonist, 4% patients were on antiplatelets, 4%patients were on both therapies. Twenty percent of patients were not on any antithrombotic therapy. This represents a gap of 28% from the expected guideline based therapy[11].

In non valvular AF the risk stratification for stroke and thrombo-embolism was carried out with the $CHADS_2$ scoring. According to ACC/ AHA / ESC guidelines patients with $CHADS_2$ score 0-1, it is recommended to use a more comprehensive risk factor based approach, incorporating other risk factors for thrombo-embolism i.e.; $CHADS_2$-VAS_C scoring system[12]. $CHADS_2$-VAS_C score 0 is recommended with either aspirin 75-325 mg daily or

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no antithrombotic therapy (preferred: no antithrombotic therapy rather than aspirin). In $CHADS_2$-VAS_C score 1 either OAC or aspirin 75–325 mg daily (preferred: OAC rather than aspirin). Oral anticoagulants is recommended in patients with $CHADS_2$ /$CHADS_2$-VAS_C score ≥ 2.[3]Amongst our patients those with $CHADS_2$ score 0, 50% were not on any anti-thrombotic therapy, 25 % patient were on anti-platelet agents and one patient (25%) were on oral anticoagulants. In the $CHADS_2$ score 1 population, 35 % were on Vitamin K antagonist, 45 % were on anti-platelet agents, 5% on both and 15% were on neither of the two. In the $CHADS_2$ score $\geq$ 2 population, 32% were on Vitamin K antagonist, 27% were on anti-platelet agents, 32% on both and 9% were on neither of the two.

5. Conclusion

We clearly demonstrate the expertise about the guideline based antithrombotic therapy in patients with AF in this part of the country. While both rate-control and rhythm-control strategies have been shown to be equally effective in providing morbidity and mortality benefits, our patient population continued to receive rate-control therapy in the large majority during the last one year as analyzed by us.

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