Original Research Article

Study of mitral valvular heart disease in tertiary care centre

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Abstract

Introduction: The study of valvular lesion is OPD and referrals is a randomized study which gives information regarding age and time of presentation. Rheumatic fever played an important role in the development of majority of Mitral Valve lesions. The extent of Mitral valvular damage also accounts to some extent in the dysfunction of other valves and development of complications like Pulmonary Artery Hypertension.
Aims: To study patients with mitral valvular heart disease in a tertiary care Centre.**Materials and methods**: This is a Prospective observational study conducted at Gandhi medical college and Gandhi hospital, a tertiary care Centre in Secunderabad. The study was approved by the institute ethical committee for a period of 18 months. Our center mainly use St. Judes valve (Mechanical prosthesis).**Results**: Majority of patients post operatively are maintained INR between 2-3 and as our goal was also to maintain INR between 2-3 all of them were treated with acitrom 3-5 mg, as no resistance developed. Out of 30 patients only 6 presented with a single episode of hemoptysis majority presented with Grade II shortness of breath. The ICU stay on an average was 5 days ± 3 days with an inotropic support of 2 ml/day. In 30 cases we have not come across a single pregnant lady presenting with symptoms as the heart disease in pregnancy varies from 3.33-5%. In 30 patients 2 male presented with CVA though pre-op carotid Doppler was done. All patients of MS and ½ of MR lesions presented with Atrial fibrillation and they were treated accordingly prior to taking up for surgery. 3 females 1 with severe PAH and 2 with mod PAH they were treated with tab. Sildenafil before Surgical intervention. 2/3 of the patients presented with increased size of LA which lead us to have surgical comfort. ¼ of them were LA ligated who were having LA clot to prevent post op CVA. Out of 30 patients majority presented with sub chordal fusion, and depending on we opted For chordal repair.**Conclusion**: Prevalence of VHD is at risk from 0.7% in those aged 18-44 to 15% in over 60 years of age. The majority disease consisted in our study is MS next to it is MR. There is equal sex preponderance.

Keywords: Mitral valve disease, Atrial fibrillation, pulmonary artery hypertension.

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Introduction

Mitral valve disease is a troubling and painful condition that affects a great majority of population world over. The nature and anatomy of mitral valve is quite clear, and much is known about the various predisposing and contributing factors that lead to initiation the, one that results in optimal clinical results and least pain and inconvenience to the patient is however open to debate. Mitral valvular disease management has rapidly progressed in the last few years as our under-standing of valve pathophysiology has developed. All methods of treatment aim to reduce disease severity and associated chronic etiologies. Surgical techniques have been used for over 100 years with success. Mitral valve replacement remains the surgical treatment of choice for many practitioners. Post-operative impairment of valve function remains controversial. Recently invasive methods of treatment have been explored. It is important to understand that even with surgery the valve must function on its own. The mitral valve surgery involves operating on mitral valve, not on annulus. Mitral surgery has better success rate that medicine that is used to treat long-term symptoms. The results last longer, and majority of people come back after surgery than after treatment with medicine. Mitral valve diseases are most distressing lesions that require at most care before they lead to death[1,2].We have three types of mitral valve diseases: mitral stenosis (MS), mitral regurgitation (MR), and mitral valve prolapse (MVP), according to recent 2015 practice guidelines published jointly by the American College of Cardiology (ACC) and the American Heart Association (AHA). Valvular heart disease (VHD) was historically caused by rheumatic heart disease and this remains a major burden in developing countries. However, industrialized countries face a different type of problem. As rheumatic disease has fallen substantially due to improved living conditions and the introduction of penicillin for streptococcal pharyngitis in the 1940s, the man cause of valvular heart disease is degenerative. There has also been a demonstrable association between Valvular Heart Disease and increasing age. The prevalence of Valvular heart disease increased with age, rising from 0.7 % to I % in those aged 18-44 to 13% in those over 75 years of age. The majority of disease consisted of mitral stenosis. There was equal sex preponderance[3]. The commonest native left-sided valve lesion was mitral stenosis, and next mitral regurgitation. The dominant etiology of and mitral regurgitation was Rheumatic, while mitral stenosis resulted from rheumatic disease in 85. Our study deals with those having mitral stenosis as group 1., those having mitral regurgitation as group 2 and Patients having both the lesions that is MS + MR as group 3[1,2].

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Methodology

This is a Prospective observational study conducted at Gandhi medical college and Gandhi hospital, a tertiary care Centre in Secunderabad. The study was approved by the institute ethical committee from April 2015 — December 2016 for a period of 18 months.

Inclusion Criteria

All the patients with Mitral Valvular heart disease undergoing surgery with clinical presentation.

Exclusion Criteria

Other valvular heart diseases. All the patients who meet the inclusion criteria were taken into consideration, which is 30 in the present study. Patients of either sex admitted in our tertiary care center satisfying the above inclusion criteria were enrolled. All eligible candidates were included in the study after taking the written consent from the parents. The clinical history, examination details and investigation details were entered in a pre-designed structured proforma .Patients admitted with Mitral valvular heart disease during the period after fulfilling the criteria were included in the study. Informed consent is taken prior to the study. After a detailed medical history and thorough physical examination, following laboratory tests were done in a step wise manner.

Chest X-ray: - to know about the Chamber enlargement, 12lead ECG was done to rule out MI and right and left ventricular enlargements. 2DECHO done to know about valvular pathology. All investigations like Coronary angiogram to rule out coronary pathology, Surgical Profile to know Hb% and coagulation disorders, Carotid Doppler: to know the obstruction in carotids, TSH to know to status of thyroid disease and ASO Titer to rule out endocarditis.

Statistical analysis

All the data collected was analyzed after editing for completeness and consistency. Since the present study is observational in nature all the descriptive statistics were presented like mean, standard deviation for continuous variables, and median, IQR, and % distribution for categorical variables. Non – parametric tests were used wherever applicable. The analysis is carried out using statistical package for social sciences (SSPS 20th version).

Results

A total number of 30 patients, who fit into the inclusion criteria, admitted in the department of Cardiothoracic Surgery Gandhi Hospital during the period of April 2015 to December 2016 are included in the study.

Table 1: Division of cases in study

Group	Number of cases(percentages)
Patients with MS	18 (60%)
Patients with MR	9 (30%)
MR + MS cases	3 (10%)

Out of the 30 patients enrolled in the study 60% patients were in group 1, 30% patients were in group 2, 10% patients were in group 3. There were 13 females and 5 males in group 1, 2 female and 7 males in group 2 & 3 males in group 3.

Table 2: Demographic distribution among 3 groups

Age in years	Number of cases	Percentages
20-30	8	27
31-45	20	67
46-60	2	6
Mean age	25.6 ± 10.5	
Gender		
Females	15	50
Males	15	50

Out of 30 patients 8 were between 20 and 30 years 20 were between 31 and 45 years, 2 were between 46 and 60 years. Out of 30 cases included in the study 15 were females of all 3 groups & 15 were males of 3 groups.

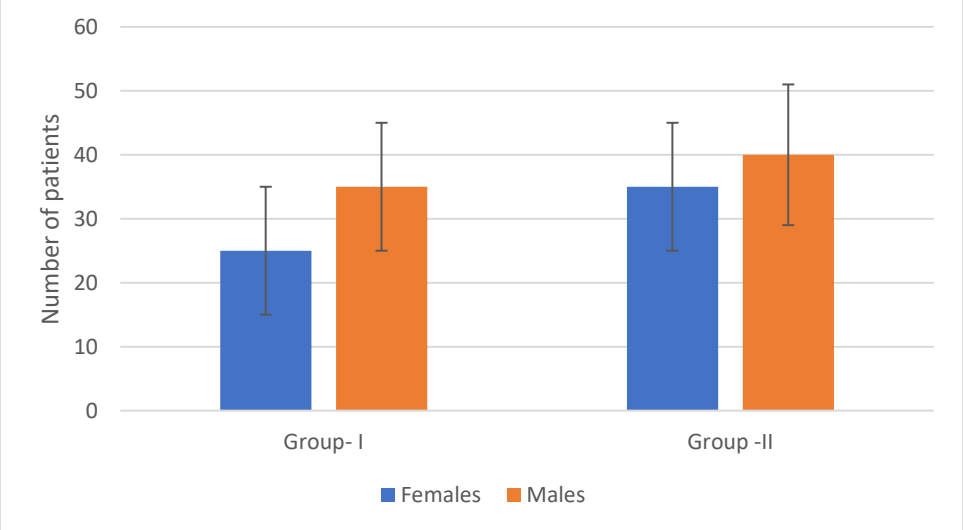

Fig 1: Mean age of presentation in study

Of the total 30 cases, Females presented with a mean age of 25 ± 10 years in group 1 & males presented with mean age of 35 ± 10 years in a group 1.In group 2 females presented with a mean age of 35± 10 and males with a mean age of 40 ± 11 years.

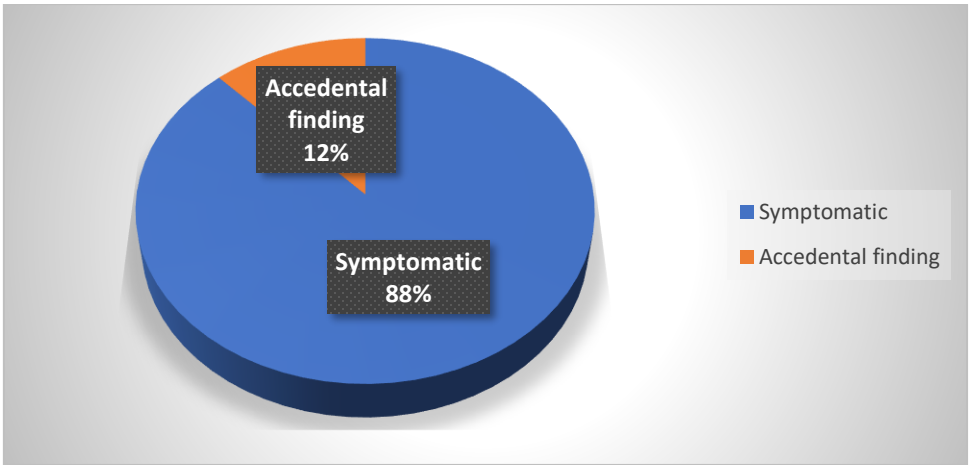

Fig 2: Distribution according to symptoms in all groups

In the study 90% of patients presented with symptoms and 10% were detected accidentally to have the lesion.Of the 30 cases, 19.6 (79%) patients presented with severe symptoms.Out of the 30 patients enrolled in the study all patients were treated with mechanical prosthesis.

Table 3:Distribution according to atrial fibrillation and PAH

Post op findings	Number of cases	Percentages
Atrial fibrillation	24	80%
Pulmonary artery hypertension	6	20

Out of the 30 patients 80% that is 24 patients presented with AF,20% that is 6 patients presented with pulmonary artery hypertension.

Discussion

The relationship between mitral valve disease and presentation still needs to be defined. It is improbable that symptoms alone act in diagnosing mitral valve disease. In this perspective observational study, a total no of 30 patients, who fit in to the inclusion criteria were included. Out of 30 patients enrolled in the study 8 were of more than 20 years 20 were between 30-42 years, 2 were between 40-50 years and 1 was above 60 years. Mean age of presentation was 25± 11 years. There were 3 males and 5 females out of 8 in the age of above 30 years. Study includes out of 30 patients 15 females and 15 were males. A proportionate no of females underwent surgery than males. This is comparable to Kaithin and Abott study of 2015. In the Ghogale PR *et al*[4] study there were 124 patients, 72 were males and 52 were females, the ratio being 1.38:1. In a study by Aurakzai HA et al[5], the male: Female ratio was 1.17:1.10 In the present study out of the 100 patients with rheumatic heart disease 70 (70%) were in the age group of 10-40 years. In a study by Ramakrishna CD et al, in South India 33.50% of patients were younger than 40 years[6].In a study by Meenakshisundaram R et al[7], in Chennai the mean age of males is 23 years and that of Females is 34 years.12 In a study by Aurakzai HA *et al* in Pakistan the mean age of males was 42.3 years and mean age of Females was 44.3 years[5,8].Out of 30 cases included in the study 18 were of MS and 9 were of MR, 1 was MR + CABG. In the current study presentation of MR cases is shortness of breath of grade III and 14 out of 16 and 8 out of 8 in MS and chest pain in 1 case. In our study Out of the 30 patients 80% that is 24 patients presented with AFIn the Ghogale PR *et al[4]* study out of 124 patient's atrial fibrillation was present in 35 (28.22 %). In a study by Ramakrishna CD et al, in South India 32% of patients had atrial fibrillation[6]. In a study by Chockalingam et al, in Chennai, India 5.9 % of patients had atrial fibrillation.29 In present study the most common symptom was breathlessness 81 (65.32%) of patients, followed by palpitation in 52.41 % of cases. A study by Shelty MR et al, found breathlessness as the commonest symptom in 76% of cases and palpitation in 68.6 % cases[9].Out of the 30 patients 20% that is 6 patients presented with pulmonary artery hypertension.In the Ghogale PR *et al*[4]study the most common complication were pulmonary hypertension 69 (55.65%), followed by congestive cardiac failure (33.87%), acute pulmonary edema (12.09%), infective endocarditis (4.84%), Cerebrovascular accident (4.03%), left atrial thrombus (3.23%) and death (3.23%). In a study by Meenakshi Sundaram R et al[7], in Chennai, India Various complication noticed were congestive heart failure (54%), acute pulmonary edema (31%),embolic episodes (21%) and infective endocarditic (0.3%).12 In a study by Chockalingam A et al, (2003) in Chennai pulmonary hypertension was present in 42.4% in patients aged 18 years and 80.8% in patients aged 17 years, 0.9% had left atrial thrombus, 0.4% had embolic cerebrovascular accidents[9].

Prevalence of heart disease in pregnancy varies from 3.33% to present study prevalence of 4.3% ours being treating hospital and referral center this may not reflect the true pregnant population [10]. The % of females was higher than males in group 1 compared to group 2. The general characteristics of subject population in all groups were equally matched except for hypertension and smoking factor. Age and etiology were important factors in valvular lesions. The results prove that rheumatic fever plays a great role in causation of mitral lesions. The relationship of Laclot with development of CVA, pre-& postoperatively was analyzed. The presence of laclot attributed to CVA in 1/8 of patients. Interestingly patients with improved lung function with exercise preoperatively had better surgical outcome. This highlights the importance of exercise and should be encouraged[11].

Conclusion

Preponderance of females in MS and Male preponderance in MR. Multivariable analysis suggest that Pre – Operative correction of patient characteristics including anemia, renal in sufficiency and chronic obstructive pulmonary disease [COPD] may decrease the risk of post-operative mortality and morbidity and shorter length of hospital.

Limitations

This survey was not a population based epidemiological study and it is not possible to derive any information on the prevalence of

different types of VHD, because the selection of participating centers may have introduced a selection bias. The results of this survey should therefore not be generalized to all centers within a particular county or region. On – site auditing concerned only a limited number of patients, and the audit only focused on the accuracy of data entry and not on the validity of the diagnosis. 18 months follow-up status was missing for a small majority of patients and it was unlikely to affect mortality rates. Because patient management was based on the working diagnosis made by the attending physician, our analysis is suitable for the evaluation of patient management. Due to the nature of the survey and the limits of the existing guidelines, more than performing a strict head to head comparison with guidelines the aim was here to analyze the rationale for management.

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