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Original Research

To evaluate the mitral valve heart diseases in tertiary care hospital

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ABSTRACT:

Aim: To evaluate the mitral valvular heart disease in tertiary care hospital. **Methods:** This is a prospective observational research undertaken in the department of C.T.V.S., J.L.N. Medical College, Ajmer, Rajasthan, India.This research included all patients with Mitral valvular heart Disease who were receiving surgery and had a clinical manifestation. **Results:** There were 50 patients that met the inclusion criteria. Out of 50 patients, 14 were between the ages of 25 -35, 33 were between the ages of 35 - 45, and three were above the age of 45. Out of the 50 cases studied, 24 were female from all three groups and 26 were men from all three groups. Out of the 50 patients participated in the trial, 28 percent were in Group 1, 66 percent were in Group 2, and 6 percent were in Group 3. In the research, 88 percent of patients came with symptoms, while 12 percent were discovered to have the lesion by chance. Forty (80 percent) of the 50 patients exhibited with severe symptoms of mitral valve disease. The mechanical prosthesis was used on all 50 patients who participated in the trial. Out of the 50 patients, 30 percent, or 15 patients, had AF, and 44 percent, or 22 patients, had pulmonary artery hypertension. **Conclusion:** Females predominate in mitral stenosis, whereas men predominate in mitral regurgitation. According to multivariable analysis, pre-operative correction of patient characteristics such as anaemia, renal insufficiency, and chronic obstructive pulmonary disease [COPD] may reduce the risk of post-operative mortality and morbidity and shorten hospital stay.

Keywords: mitral valvular heart disease, mitral stenosis, mitral regurgitation.

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INTRODUCTION

Heart valve diseases are a significant cause of cardiovascular morbidity and death globally, putting a huge strain on healthcare resources. In India, rheumatic heart disease is the leading cause of cardiac morbidity and death. The most frequent valvular heart illness is rheumatic mitral valvular disease, followed by aortic valvular disease, tricuspid valve disease on occasion, and pulmonary valve disease on rare occasions. [1] Epidemiological studies reveal a prevalence rate of up to 5.1/1000 in rural areas and 1.6/1000 in urban areas. Calcific aortic stenosis was initially described in 1904 and was regarded to be a rare condition. [2] The majority of the findings were from autopsy research. It was not recognised as a distinct clinical entity until the nineteenth century. [3] As a consequence, for many decades, aortic valve sclerosis (cusp thickening without stenosis) and calcific aortic valve stenosis were considered distinct clinical diseases. However, new research reveals that these are separate phases of the same disease process. [4] Sclerosis is caused by aortic valve leaflet thickening and fibrosis. It develops slowly over many decades, eventually leading to aortic stenosis. [5,6] Aortic valve lesions, such as stenosis and regurgitation, are present in a variety of illnesses, including rheumatic, degenerative, connective tissue disorders, and infective endocarditis. Mitral valve disease usually results from rheumatic heart disease, other causes of mitral stenosis are congenital mitral stenosis, mitral annular calcification, rheumatoid arthritis and infective endocarditis. Mitral regurgitation occurs in mainly due to rheumatic heart disease and other causes of MR includes degenerative MR, ischemic and functional MR, infective endocarditis, myocardial diseases,. Main symptoms of mitral valve disesases are dyspnea, fatique, palpitation orthopnea , paroxysmal nocturnal dyspnea etc.. in tropical areas. Aside from rheumatic and congenital defects, aortic regurgitation is usually caused by a degenerative process. [7] With RHD mostly impacting the young

people during their productive years, the socioeconomic effect on society is considerable. The echocardiography and colour doppler research is the most sensitive selective and non-invasive instrument in the assessment of valve lesions and is regarded the gold standard inquiry. Valve morphology, leaflet thickness, motility, and calcification are all described by the M-mode. There is a scarcity of data on the extent of valvular heart disease as evaluated by echocardiography (Echo).

MATERIAL AND METHODS

This is a prospective observational research of 50 patients undertaken in the department of C.T.V.S., J.L.N. Medical College, Ajmer, Rajasthan, India.This research included all patients with Mitral valvular heart Disease who were receiving surgery and had a clinical manifestation. This research did not include any other valvular heart disorders.

METHODOLOGY

All patients who met the inclusion criteria, which totaled 50 in the current research, were considered. Patients of either gender who were hospitalized to our tertiary care facility and met the following inclusion criteria were enrolled. After obtaining written agreement from the patients, all eligible individuals were enrolled in the research. A pre-designed structured proforma was used to record the clinical history, examination information, and investigation details. The research comprised patients who were hospitalized with mitral valvular heart disease after meeting the criteria. Prior to the research, informed consent is obtained. Following a comprehensive physical examination and a complete medical history, the following laboratory tests were performed in a step-by-step fashion.

INVESTIGATIONS

CHEST X-RAY**,** to determine the extent of the Chamber enlargement and cardiac morphology, a 12-lead ECG was performed to rule out MI and right and left ventricular enlargements. 2DECHO was performed to learn more about valve pathophysiology. All tests, such as a coronary angiography to rule out coronary pathology where needed, a blood profile to determine Hb percent and coagulation problems, were performed. Carotid Doppler: to determine carotid occlusion, TSH: to determine thyroid disease status, and ASO Titer: to rule out endocarditis, CRP and renal with liver function tests were also done.

STATISTICAL ANALYSIS

After editing for completeness and consistency, all data gathered was examined. Because this is an observational research, all descriptive statistics were reported, such as mean, standard deviation, and percent distribution for continuous variables and median, IQR, and percent distribution for categorical variables. Wherever possible, non-parametric tests were utilised. The investigation is carried out with the help of a statistical tool for social sciences (SSPS 25.0 version).

RESULTS

There were 50 patients that met the inclusion criteria. Out of 50 patients, 14 were between the ages of 25 - 35, 33 were between the ages of 35 - 45, and three were above the age of 45. Out of the 50 cases studied, 24 were female from all three groups and 26 were male from all three groups. Out of the 50 patients participated in the trial, 28 percent were in Group 1, 66 percent were in Group 2, and 6 percent were in Group 3. Out of the total of 50 instances, Females in group 1 had a mean age of 26.5± 9.25 years, while men in group 1 had a mean age of 34.50± 9.85 years. Females in Group 2 had a mean age of 36.26± 9.74 years while men had a mean age of 41.69± 10.55 years. In the research, 88 percent of patients came with symptoms mainly dyspnea fatique and palpitation, while 12 percent were discovered to have the lesion by chance. Forty (80 percent) of the 50 patients exhibited with severe symptoms. The mechanical prosthesis was used on all 50 patients who participated in the trial. Out of the 50 patients, 52 percent, or 26 patients, had AF, and 44 percent, or 22 patients had pulmonary artery hypertension. In our 50 patients female were 24 in numbers with suffering of mitral stenosis 19 (79%), mitral regurgitation 2,(8%), both MS and MR 3(13%). Out of 26 male patients , 10(38%) were having mitral stenosis, 12(46%) had mitral regurgitation and 4(16%) having MS and MR.

Table 1: Demographic distribution

Age in years	Number of cases	Percentages
Gender		
Females	24	48
Males	26	52
25-35	14	28
35-45	33	66
Above 45	3	6
Mean age	26.7 ± 9.5	

Table 2: Division of cases

Group	Number	%
MS	29	58
MR	14	28
MR + MS cases	7	14

Table 3: Atrial fibrillation and PAH

findings	Number of cases	Percentages
Atrial fibrillation	15	30%
Pulmonary artery hypertension	22	44%

DISCUSSION

In the diagnosis, therapy, and follow-up of patients with valvular heart disease, echo is currently the single most essential modality of inquiry. Various school surveys conducted throughout India have definitely shown the superiority of echo over clinical evaluation in diagnosing asymptomatic rheumatic heart disease. The association between mitral valve disease and presentation is yet unknown. It is unlikely that symptoms alone can be used to diagnose mitral valve disease. A total of 50 patients who met the inclusion criteria were enrolled in this prospective observational research. Out of 50 patients, 14 were between the ages of 25 -35, 33 were between the ages of 35 -45, and three were above the age of 45. Out of the 50 cases studied, 24 were women from all three age groups and 26 were men from all three groups.

The average age of presentation was 26.7± 9.5 years. The male to female ratio was 1.08:1. This is analogous to the 2015 Kaithin and Abott research. The Ghogale PR et al[8] research included 124 patients, 72 of whom were men and 52 of whom were girls, a ratio of 1.38:1. According to Aurakzai HA et al[9], the male:female ratio was 1.17:1. [10] In the current research, 70 (70 percent) of the 100 patients with rheumatic heart disease were between the ages of 10 and 40. In a research conducted by Ramakrishna CD et al in South India, 33.50 percent of patients were under the age of 40. [10] According to Meenakshisundaram R et al[11], the mean age of men in Chennai is 23 years and that of females is 34 years. [12] In a research conducted by Aurakzai HA et al in Pakistan, the mean age of men was 42.3 years and 44.3 years for females9, [12]. This research comprised 50 patients, 29 of which were MS, 14 of which were MR, and 7 of which were MR with MS. In our research, 30 percent of the 50 patients, or 15 individuals, manifested with AF. In the Ghogale PR et al8 research, 35 of 124 patients had atrial fibrillation (28.22 percent). In a research conducted by Ramakrishna CD et al in South India, 32% of patients had atrial fibrillation. [10] In a research conducted in Chennai, India by Chockalingam et al, 5.9 percent of patients had atrial fibrillation. The most prevalent symptom in the research was breathlessness in 81 (65.32 percent) of patients, followed by palpitation in 52.41 percent of cases. According to Shelty MR et al., the most prevalent symptom in 76 percent of symptoms is dyspnea, followed by palpitation in 68.6 percent of cases. In our study main symptoms are also dyspnea, fatique and palpitation in most of patients. Out of the 50 patients of our study 44 percent, or 22 individuals, had pulmonary artery hypertension. Pneumocongestive cardiac failure (33.87 percent), acute pulmonary edoema (12.09 percent), infective endocarditis (4.84 percent), Cerebrovascular accident (4.03 percent), left atrial thrombus (3.23 percent), and death were the most prevalent complications in the Ghogale PR et al[8] research (3.23 percent). Meenakshi Sundaram R et al[11] conducted a research in Chennai, India. Complications seen were congestive heart failure (54%), acute pulmonary edoema (31%), embolic events (21%), and infective endocarditis (0.3 percent). In a research conducted by Chockalingam A et al, (2003) in Chennai, 42.4 percent of patients aged 18 years and 80.8 percent of patients aged 17 years had pulmonary hypertension, 0.9 percent had left atrial thrombus, and 0.4 percent had embolic cerebrovascular accidents. [13]

The prevalence of cardiac disease in pregnancy ranges from 3.33 percent to 4.3 percent in our research, which may not represent the genuine pregnant population due to ours being a treating hospital and referral centre.[14] When comparing groups 1 and 2, the percentage of females was greater than the percentage of men. Except for hypertension and smoking, the basic characteristics of the subject population in all groups were evenly matched. In valvular lesions, age and causation were key determinants. The findings show that rheumatic fever has a significant influence in the development of mitral defects. The pre- and postoperative connection of Laclot with the development of CVA was investigated.

CONCLUSION

Females predominate in MS, whereas men predominate in MR. According to multivariable analysis, pre-operative correction of patient characteristics such as anaemia, renal insufficiency, and chronic obstructive pulmonary disease [COPD] may reduce the risk of post-operative mortality and morbidity and shorten hospital stay.

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