

A study of various valvular diseases in the patients of rheumatic heart disease with reference to 2D echo

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Abstract

Background: In developing countries, rheumatic heart disease (RHD) remains a significant cause of cardiovascular morbidity and mortality. **Aims and Objectives:** To Study various Valvular Diseases in the patients of Rheumatic Heart Disease with reference to 2D Echo. **Methodology:** Present study was carried to study the clinical profile of Rheumatic fever (RF) and Rheumatic heart disease (RHD) in patients of all age groups. The study was approved by the ethics committee prior to commencement of data collection. This cohort study was conducted on all cases diagnosed as Rheumatic fever and Rheumatic Heart Disease. 196 cases fulfilling inclusion criteria were selected as subjects. These patients fulfilling the inclusion criteria were studied during period of 2 year. **Result:** Mitral regurgitation found in 76 (59.8%) of which 38 were isolated MR, mitral stenosis in 47(37.1%) patients with 17 of isolated MS. There were 37 (27.2%) patients of aortic regurgitation with 4 (3.1%) of isolated AR, 30 (23.6%) patients of aortic stenosis with 9 (7.1%) of isolated AS. There were 12 (9.6%) patients of functional tricuspid regurgitation all associated with mitral or aortic lesions. Isolated MR were 38 (29.92%), isolated MS were 17 (13.38%), isolated AR were 04 (03.15%), isolated AS were 09 (07.09%), combined diseases (MS+MR/AS+AR) were 22 (17.32%), multivalvular diseases were 37 (29.13%). Among combined diseases, MS+MR were 15 (11.81%) and AS+AR were 07 (5.51%). **Conclusion:** It can be concluded from our study that the most common lesion diagnosed on 2 D Echo were mitral regurgitation followed by aortic regurgitation and tricuspid regurgitation among isolated MR was common followed by MS Among combined diseases MS+MR was common followed by AS+AR.

Key Words: Rheumatic Heart Disease, 2 -D Echo, Valvular heart disease.

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INTRODUCTION

In developing countries, rheumatic heart disease (RHD) remains a significant cause of cardiovascular morbidity and mortality^{1,2}. Epidemiological studies from India in the last decade, using clinical screening followed by echocardiography have shown a consistent decrease in the prevalence of RHD³⁻⁵. However, several studies in other parts of the world have shown a very high prevalence of

RHD when asymptomatic patients are screened by echocardiography⁶⁻⁹. It is suggested that echocardiographic screening with institution of secondary prophylaxis for positive cases may lessen the burden of RHD, and in 2004, the WHO recommended echocardiographic screening for RHD in high-prevalence regions¹.

MATERIAL AND METHODS

Present study was carried to study the clinical profile of Rheumatic fever (RF) and Rheumatic heart disease (RHD) in patients of all age groups. The study was approved by the ethics committee prior to commencement of data collection. An informed consent was obtained from father/ mother/ guardian of the patient for participation in the study. Assent consent was also obtained from the patients. The study was conducted in the patients presented to tertiary care hospital. This cohort study was conducted on all cases diagnosed as Rheumatic fever and Rheumatic Heart Disease. 196 cases fulfilling

inclusion criteria were selected as subjects. These patients fulfilling the inclusion criteria were studied during period of 2 year. The study was both retrospective and prospective cohort study. WHO criteria for the diagnosis of rheumatic fever (BASED ON THE REVISED JONES CRITERIA) Patients of chronic rheumatic valvular heart disease (2 D ECHO confirmed), Patients of all age groups. Patients who do not give informed consent. Patients other than rheumatic fever and rheumatic heart disease. All relevant clinical, laboratory, 2-D Echocardiography data was entered on a pre designed case proforma (Annexure 1). This was updated with investigations done 36 on follow-up viz. 2D-Echo/CD and other relevant historical, clinical or laboratory data as and when required during the course of the study. The complete history of the patient including demographic data, clinical presentation and follow up status was recorded in a separate proforma. A thorough clinical cardiovascular examination was carried out on every patient of RF/RHD following up in cardiology OPD. Their clinical case sheets were analyzed. 2-D Echo: 2-D Echo was done on Philips i. E -33. M-mode echo analysis with color Doppler performed on every patient on inclusion. Based on colour flow Doppler mapping, it has been suggested that the severity of mitral and aortic valvular regurgitation may be classified into a six-point scale¹⁰.

RESULT

Table 1: Distribution of valvular lesions

Valvular Lesion	Frequency	Percentage	Isolated Lesion	%
Mitral Regurgitation	76	59.84	38	29.92%
Mitral Stenosis	47	37.01	17	13.38%
Aortic Regurgitation	37	29.13	04	03.15%
Aortic Stenosis	30	23.62	09	07.09%
Tricuspid Regurgitation	12	09.45	-	-

In the study of 127 patients, mitral regurgitation found in 76 (59.8%) of which 38 were isolated MR, mitral stenosis in 47 (37.1%) patients with 17 of isolated MS. There were 37 (27.2%) patients of aortic regurgitation with 4 (3.1%) of isolated AR, 30 (23.6%) patients of aortic stenosis with 9 (7.1%) of isolated AS. There were 12 (9.6%) patients of functional tricuspid regurgitation all associated with mitral or aortic lesions. There were no patients of tricuspid stenosis or pulmonary involvement.

Table 2: Pattern of Valvular Disease

Valvular Disease	Frequency	%
Isolated MR	38	29.92
Isolated MS	17	13.38
Isolated AR	04	03.15
Isolated AS	09	07.09
Combined disease	22	17.32
Multivalvular disease	37	29.13
Total	127	100

Out of 127 RHD patients, isolated MR were 38 (29.92%), isolated MS were 17 (13.38%), isolated AR were 04 (03.15%), isolated AS were 09 (07.09%), combined diseases (MS+MR/AS+AR) were 22(17.32%), multivalvular diseases were 37(29.13%). Among combined diseases, MS+MR were 15(11.81%) and AS+AR were 07 (5.51%).

DISCUSSION

There are significant advantages in using echocardiography to detect valvulitis. Foremost, is its superior sensitivity in detecting rheumatic carditis, which should prevent patients with carditis from being misclassified as non carditic and placed on abbreviated secondary prophylaxis, in line with the more benign prognosis. It is reasonable to accept that valvular regurgitation may not always be detected by routine clinical auscultation. Even in the Irvington House reports, a number of patients with no audible murmurs in the first attack of RF developed RHD on follow up 52, 44. This suggests that carditis was missed by clinical examination, even in the golden era of clinical auscultation. The likelihood of misclassification is higher now, since clinical auscultatory skills of training physicians are suboptimal, at least in countries where RF is declining 53,54. A second advantage of echocardiography is that it allows assessment of the valve structure and differentiates from nonrheumatic causes of valvular dysfunction (e.g. mitral valve prolapse, bicuspid aortic valve). This prevents patients from being mislabelled as cases of rheumatic carditis. On the other hand, there are logistical problems with the universal use of echocardiography to detect RF, including the likelihood of detecting carditis in a large proportion of RF patients. This could be ascribed either to the high sensitivity of Doppler echocardiography for diagnosing valvular regurgitation, or to the over diagnosis of physiological valvular regurgitation as an organic dysfunction, or to both. Another logistical problem with universally applying echocardiography stems from the observation that the use of echo- Doppler echocardiography resulted in a diagnosis of carditis in 90–100% of RF patients. This prevalence of carditis in RF patients is significantly higher than that reported clinically, and the utility of the test that diagnoses a disease characteristic (such as carditis in RF) in almost

every patient with RF is questionable. Finally, in developing countries, which bear the brunt of RF disease, it is unlikely that echocardiographic facilities will be widely available⁵⁵. Moreover, most of the RF episodes in developing countries are recurrences in patients with established RHD, and the ability of echo-Doppler echocardiography to detect the recurrence of subclinical carditis remains unclear, unless there is an interval change in Echo-Doppler findings from a previous echocardiogram. In our study we have found that mitral regurgitation found in 76(59.8%) of which 38 were isolated MR, mitral stenosis in 47 (37.1%) patients with 17 of isolated MS. There were 37(27.2%) patients of aortic regurgitation with 4 (3.1%) of isolated AR, 30(23.6%) patients of aortic stenosis with 9(7.1%) of isolated AS. There were 12 (9.6%) patients of functional tricuspid regurgitation all associated with mitral or aortic lesions. There were no patients of tricuspid stenosis or pulmonary involvement. Isolated MR were 38(29.92%), isolated MS were 17 (13.38%), isolated AR were 04 (03.15%), isolated AS were 09 (07.09%), combined diseases (MS+MR/AS+AR) were 22(17.32%), multivalvular diseases were 37(29.13%). Among combined diseases, MS+MR were 15(11.81%) and AS+AR were 07 (5.51%).

CONCLUSION

It can be concluded from our study that the most common lesion diagnosed on 2 D Echo were mitral regurgitation followed by aortic regurgitation and tricuspid regurgitation among isolated MR was common followed by MS Among combined diseases MS+MR was common followed by AS+AR .

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