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Cardiology

ECHOCARDIOGRAPHIC PRESENTATIONS OF RHEUMATIC HEART DISEASE CASES IN AND AROUND KANPUR.

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ABSTRACT

Background: Rheumatic heart disease (RHD), the only long-term sequelae of acute rheumatic fever (ARF), continues relentlessly among middle-income and low-income countries and in some industrialized world indigenous communities. The significant number of patients who enroll in register-based programs is symptomatic with advanced disease, indicating that they have had several ARF silent attacks. Patients with mild, asymptomatic RHD have the maximum gain from secondary prophylaxis because, in the absence of ARF recurrence, the majority will have no detectable disease within 5–10 years. Screening to detect asymptomatic cases is, therefore, an attractive strategy. Echocardiography has proven to be more sensitive and specific than auscultation. With the advent of portable technology, echocardiography can now be performed at a relatively low cost, even in remote settings. This development raises the possibility that people with previously undiagnosed RHD, including those without a known ARF history, can be diagnosed. Secondary prophylaxis started at an earlier stage of the illness than previously possible, potentially reducing morbidity and mortality.

Methodology: It is a cross-sectional study done among patients attending the department of medicine, GSVM Medical College, Kanpur, within the study duration of five years, December 2014- August 2019.

Results: Our study showed that in RHD, female sex was predominantly affected (57.14%), and the sex ratio was 1.33 favoring female sex. It was also found females develop RHD at an earlier age compared to males. The Mitral valve was the most common valve to be affected and Mitral stenosis was the most common valvular lesion found (70.29%). Congestive heart failure was the most common complication present at the time of diagnosis.

Conclusion: Among 350 patients, RHD more commonly affects the female sex. Among the study cases, the maximum no. of patients was from the age group 15-20 yrs. (26.28 %). Pure MS was the most common lesion found (70.29%), and MS/MR was the most common mixed valvular lesion present (4.00%). At RHD diagnosis, congestive heart failure was the most common complication found at diagnosis (4.00 %). In all 350 RHD cases, valvular involvement was universally present.

KEYWORDS :

AIMS AND OBJECTIVES

1. To identify all possible presentations of RHD using echo cardio graphy.
2. To study RHD cases' magnitude presented as valvular heart lesions and know the percentage involvement of the Mitral valve, Aortic valve, Tricuspid valve, and pulmonary valve.
3. To study the percentage of RHD patients presented with complication at the time of diagnosis.

MATERIAL AND METHODS

1. A cross-sectional study with Sample Size: 350 RHD cases.
2. The study was conducted in the Department of Medicine at G.S.V.M. Medical College, Kanpur.
3. Study duration: December 2014 to August 2019.
4. Study Population: All RHD cases diagnosed by echocardiography in the P.G. Medicine Department, G.S.V.M. Medical College, Kanpur.

OBSERVATIONS:

This study was done on 350 RHD patients who came for echocardiography for various cardiac complaints to the Department of Medicine, G.S.V.M. Medical College, Kanpur. They were diagnosed as RHD cases purely based on echo cardiography.

Then subsequently, a history of rheumatic fever was obtained. Data was collected, computed, and tabulated regarding various cardiac lesions found RHD.

Table – 1 Sex Distribution Of RHD

SEX	Number of patients	Percentage of patients
Male	150	42.87%
Female	200	57.14%

Among 350 RHD patients 150 were males (42.87%) and 200 were female (57.14%).

Table – 2 Age Distribution Of RHD Patients

AGE	Number Of Patients	Percentage Of Patients
10-15 YRS	30	18.57%
16-20 YRS	92	26.28%
21-25 YRS	77	22.10%
26-30 YRS	67	19.19%
31-35 YRS	62	17.70%
36-40 YRS	22	6.28%

Among 350 RHD cases maximum no. of patients were from age group 16-20 yrs. (26.28%) Next common age group was 21-25 yrs. (22.10%)

Table – 3 Differential Sex Distribution Of RHD Cases Below And Above 25 Yrs Of Age

Age	Number of patients	Total Number of patients	Percentage %
RHD Male patients (<25 yrs.)	57	150	38%

RHD Male patients (>25 yrs.)	93	150	62%
RHD female patients (<25 yrs.)	137	200	58.51%
RHD female patients (>25 yrs.)	63	200	31.50%

In 350 RHD cases 68.5% female develop RHD by the age of 25 yrs. whereas only 38% males develop RHD by this age. This difference was statistically significant (p Value was <0.0001)

Table 4 Distribution Of Pure Valvular Lesions In Patients Of RHD

Pure Valvular Lesions	Number of patients	Percentage of patients
Pure Mitral stenosis	246	70.29%
Pure Mitral regurgitation	25	7.14%
Pure Aortic Regurgitation	5	1.43%
Pure Aortic stenosis	31	8.86%
Pure Pulmonary stenosis	2	0.57%
Pure Tricuspid stenosis	0	0%
Pure Tricuspid regurgitation	0	0%
Pure Pulmonary regurgitation	0	0%

In 350 RHD cases Pure MS was the most common lesion found (70.29%) followed by Pure AS (8.86%).

Table 5 Distribution Of Combined Lesions In RHD Patients

Mixed Valvular Lesions	Number Of Patients	Percentage Of Patients
Mitral Stenosis/Mitral regurgitation	14	4.00%
Mitral stenosis/Aortic stenosis	7	2.00%
Mitral stenosis/Aortic regurgitation	4	1.14%
Mitral regurgitation/Aortic regurgitation	3	0.85%
Mitral regurgitation/ Aortic stenosis	1	0.29%
Aortic stenosis/Aortic regurgitation	12	3.43%
Mitral stenosis /Tricuspid regurgitation	3	0.86%

In 350 RHD cases MS/MR was most common mixed valvular lesion present (4.00%) followed by AS/AR (3.43%).

Table 6 Distribution Of Individual Valve Involvement In RHD Cases

Type Of Valve Involvement	Number Of Patients	Percentage Of Patients
Mitral Valve	276	78.86%
Aortic Valve	36	10.29%
Tricuspid Valve	3	0.86%
Pulmonary Valve	2	0.57%

In 350 RHD cases Mitral Valve was the most common valve to be affected (78.86%) and pulmonary Valve was the least common to be affected (0.57%).

Table 7 Distribution Of Mixed Valvular Involvement In RHD Cases

Mixed Valvular Involvement	Number Of Patients	Percentage Of Patients
Mitral + Aortic valve	27	7.71%
Mitral + Tricuspid valves	3	0.86%
Mitral + Pulmonary valves	1	0.29%
Aortic + Tricuspid valves	1	0.29%
Tricuspid + Pulmonary valves	0	0%
Aortic + Pulmonary valves	0	0%
Mitral + Aortic+ Tricuspid + Pulmonary valves	1	0.29%

Table – 8 Percentage Of RHD Patients Presented With Complication At The Time Of Diagnosis

COMPLICATION	Number Of Patients	Percentage Of Patients
Atrial fibrillation	2	0.57
Infective endocarditis	1	0.29
Congestive heart failure	14	4.00
Left atrium clot	2	0.57
Pericardium effusion	0	0
Total Patients with complications	Total RHD patients	Percentage %
19	350	5.43

Among 350 RHD patients congestive heart failure was the most common complication found at the time of diagnosis (4.00%). Only 5.43% RHD Pts presented with complications at the time of diagnosis.

Table -9 Distribution Of Cardiac Lesions As Detected By Echo Cardiography In 350 RHD Cases

Cardiac lesions	Number Of Patients	Percentage Of Patients
Valvular involvement	350	100%
Infective endocarditis	1	0.29%
Congestive Heart Failure	14	4.00%
Atrial Fibrillation	2	0.57%
Left atrium clot	2	0.57%

In 350 RHD cases valvular involvement was the most common cardiac lesion found (100%) followed by congestive heart failure (4.00%)

Table – 10 Percentage Of Echocardiographically Diagnosed RHD Patients Having History Of Rheumatic Fever

RHD Patients	Number of patients	Percentage of patients
History of rheumatic fever present	146	41.71%
History of rheumatic fever not present	204	58.29%

In 350 RHD Patients, history of Rheumatic fever was present only in 41.71% patients.

RESULTS:

Our study showed that in RHD, female sex was predominantly affected (57.14%), and the sex ratio was 1.33 favoring female sex. This finding contrasted with Ravisha MS et al. (2003) study, which shows male predominance with a sex ratio of 1.15:1. It was also found females develop RHD at an earlier age compared to males.

The Mitral valve was the most common valve to be affected (78.86%), followed by the aortic valve (10.29%), which was consistent with the findings of the study of Zhang Wanzhu et al. (2013) and Ravisha MS et al. (2003).

Mitral stenosis was the most common valvular lesion found (70.29%), which is against the findings of Ravisha MS et al. (2003) & Zhang Wanzhu et al. (2013). Congestive heart failure was the most common complication present at the time of diagnosis. It was consistent with the findings of Racisha MS et al. (2003) & Zhang Wanzhu et al. (2013).

CONCLUSION:

The echocardiographic findings of 350 RHD Patients were evaluated, and the following conclusions were drawn:

Among 350 RHD patients 150 were males (42.87%) & 200 were female (57.14%). Thus, it clearly shows RHD more commonly affects the female sex. Among 350 RHD cases, the maximum no. of patients was from the age group 15-20 yrs. (26.28 %). The next common age group was 20-25 yrs. (22.10%). In 350 RHD cases, 68.5% of females

develop RHD by the age of 25 yrs. In contrast, only 38% of males develop RHD by this age. This difference was statistically significant (P-Value was <0.0001), Indicating that RHD develops earlier in female patients compared to males. 62% percent of males develop RHD after the age of 25 yrs. Here is only 31.50% of females develop RHD after the age of 25 yrs. In 350 RHD cases, Pure MS was the most common lesion found (70.29%), followed by Pure AS (8.86%). In 350 RHD cases, MS/MR was the most common mixed valvular lesion present (4.00%), followed by AS/AR (3.43%). In 350 RHD cases, Mitral Valve was the most common valve to be affected (78.86%), and Pulmonary Valve was the least common to be affected (0.57%). In 350 RHD cases, the Mitral + Aortic valve was the most common mixed valvular involvement (7.71%), followed by Mitral + Tricuspid Valve (0.86 %). At the time of RHD diagnosis, congestive heart failure was the most common complication found at diagnosis (4.00 %). Only 5.43 % of RHD Pts presented with complications at the time of diagnosis.

Only 4% of RHD patients presented with complications at the time of diagnosis. In all 350 RHD cases, valvular involvement was universally present. In 350 RHD patients, a history of Rheumatic fever was current only in 41.71 % of patients.

Compliance With Ethical Standards.

Conflict Of Interest: None.

Disclaimer: nil

Informed Consent: informed written consent was received from all the participants.

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