

Original article:

A study on clinical profile of Rheumatic heart Disease (RHD) adult patients at a tertiary care institute of western Maharashtra

**Dr Sudarshan Lamture¹, Dr Varsha Bhatt², Dr Arjun Kakrani³, Dr Shubhangi Kanitkar⁴,
Dr Kavya Koneru⁵, Dr Sagar Shah⁶**

- 1- Post graduate student, Dept of General Medicine, DYPMC, DPU, Pimpri pune
- 2- Prof- Dept of General Medicine, DYPMC, DPU, Pimpri pune
- 3- Ex-Head - Dept of General Medicine, DYPMC, DPU, Pimpri pune
- 4- Prof & Head- Dept of General Medicine, DYPMC, DPU, Pimpri pune
- 5- Post graduate student, Dept of General Medicine, DYPMC, DPU, Pimpri pune
- 6- Post graduate student, Dept of General Medicine, DYPMC, DPU, Pimpri pune

Corresponding author: Dr Sudarshan Lamture , Dept of General Medicine, DYPMC, DPU, Pimpri pune ; Email-id- lamturesudarshan@gmail.com

Abstract:

Background: Rheumatic heart disease (RHD) is still a public health issue in many countries in the world, and particularly in Southeast Asia. Clinic-based and epidemiological studies on RHD in India have used different methodologies and clinical criteria to estimate RHD burden in India. The present study employs clinical criteria, including echocardiography, to study clinical profile of adult RHD Subjects.

Methods: A Cross-sectional prospective observational study was carried out at a tertiary care institute for duration of 1 year (May 2019 to April 2020) in Department of General Medicine, among 30 cases of confirmed RHD. Diagnosis of RHD was based on the previous history of acute RF with valvular lesion, established diagnosis of RHD at previous centres, and/or the World Heart Federation criteria for echocardiographic diagnosis of RHD. All male and female patients with age 40 years and above attending general medicine OPD were included as study subjects.

Results: A total of 30 (12%) cases were confirmed case of RHD among screened subjects (250) for heart failure. Mean age of cases was 55.35±9.8yrs. There were more female cases (Female 17; male 13). On echocardiographic findings most of them had single valve involvement. Mitral valve was the most common involvement followed by aortic. Mitral stenosis (40%) was the most common lesion. Ejection fraction (EF) less than 40 was found in 5 (16.7%) cases only.

Conclusion: RHD is one of the chronic acquired heart diseases requiring long term secondary prevention to reduce future complication and disease burden.

Keywords: Rheumatic Heart Disease, Adults, lesions, Valve

Introduction:

Rheumatic heart disease is the most commonly acquired chronic heart disease in which the heart valves have been permanently damaged due to rheumatic fever. Rheumatic fever is initiated by a pharyngeal infection with group A beta-hemolytic streptococci (GAS) and following a latent period of approximately 2 to 3 weeks, the illness is characterized by acute inflammation of the heart, joints, skin, subcutaneous tissue, and central nervous system. The heart valve damage may start shortly after untreated or under-treated streptococcal infection such as strep throat or scarlet fever. Risk factors of streptococcal infection include poverty, malnutrition, overcrowding, poor housing, and shortage of healthcare resources, underlining the high prevalence in developing countries. (1)

Rheumatic heart disease (RHD) remains a major public health problem, and claims over 291,000 lives each year - the large majority in low- or middle-income countries. (2) Although RHD is preventable, underestimation of its prevalence leads to a neglect of primary prevention in national health policies and eventual progressive occurrence and fatality in children and young adults, especially in developing countries (3,4).

All manifestations of RF resolve completely after, except for cardiac valvular lesion, which is the hallmark of RHD. Post rheumatic valvulopathies remain the main cause of heart failure among children and young adults (1). Therefore, patients with clinical features of RF/RHD should be promptly treated and referred for definite diagnosis and long-term management to limit the extent of heart damage. However, in developing countries where access to medical care is difficult, patients often present to tertiary care with already disabling symptoms (1,5). Secondary penicillin prophylaxis to prevent reactivation of RHD should be undertaken by all patients, but long-term management, and patient compliance is challenging (3).

There is scarcity of studies on clinical profile of RHD among adult population. Present study tried to find out the clinical characteristic and pattern of RHD among adults, to add future better diagnosis and management. The study also had the purpose of raising awareness of RHD and its burden among adult population.

Methodology:

A Cross-sectional prospective observational study was carried out at a tertiary care institute for duration of 1 year (May 2019 to April 2020) in general medicine department among 30 cases of confirmed RHD. Diagnosis of RHD was based on the previous history of acute RF with valvular lesion, established diagnosis of RHD at previous centers, and/or the World Heart Federation criteria for echocardiographic diagnosis of RHD. All male and female patients with age 40 years and above attending general medicine OPD were included as study subjects. Detailed history of all participants was taken which included past history, personal history, medication history, addiction history and family history. Detailed evaluation of all symptoms such as angina, dyspnoea, syncope, and fatigue and of all the risk factors like hypertension, diabetes mellitus, smoking, dyslipidaemia, overweight or obesity, family history of cardiovascular disease was done in all patients.

Cases not willing to participate and having congenital heart diseases were excluded from study. Before the start of study, Institutional Ethics sub-Committee clearance was obtained. Written and informed consent was obtained from all patients either in Marathi/Hindi/English. The patients were told about the purpose, procedure, risks and benefits of the study in the language they can understand.

Data was entered into Microsoft Excel and analysed using SPSS (Statistical Package for Social Sciences) Software 20. Categorical variables were expressed in terms of frequency and percentage and continuous in terms of mean and SD.

Results:

A total of 30 (12%) cases were confirmed case of RHD among screened subjects (250) for heart failure. Mean age of cases was 55.35±9.8yrs; range-42-80yrs. There were more female cases (Female 17; male 13). Chest pain (46.7%), palpitation (60%) and breathlessness (76.7%) were the main reason to attend OPD among study subjects. Most of them had atypical Chest pain (9/30) typical chest pain suspecting angina was found in 5 cases. Family history of RHD was found among 1 case. Diabetes was diagnosed among 4 cases; hypertension was observed in 7 cases and dyslipidaemia was in 11cases during investigation.

On physical examination mean weight was 63.5±10.1kg; range-46.5-81.7kg, mean height-165.8±7.6cm; range-153-180cm and mean BMI was 22.8±2.7kg/m²; range-18.5-28.65 kg/m².

On echocardiographic findings most of them had single valve involvement. Mitral valve was the most common involvement followed by aortic. Mitral stenosis (40%) was the most common lesion. Ejection fraction (EF) less than 40 was found in 5 (16.7%) cases only.

Table 1: Clinico-demographic profile of study subjects

Variables	Frequency (n=30)	Percentage
Age distribution		
41-50yrs	11	36.7
51-60yrs	11	36.7
61-70yrs	6	20.0
>70yrs	2	6.6
Male	13	43.3
Female	17	56.7
BMI-		
Normal	23	76.7
Overweight	7	23.3
Other risk factors		
Diabetes	4	13.3
Hypertension	7	20.3
Dyslipidaemia	11	36.7

Table 2: RHD Valvular lesion findings

RHD lesions	Frequency	Percentage (%)
Mitral Stenosis (MS)	11	36.7
Mitral Regurgitation (MR)	9	30
MS with MR	7	23.3
Aortic regurgitation (AR)	1	3.3
Mitral and aortic involvement	2	6.7
Total	30	100

Discussion:

Rheumatic heart disease (RHD) is an eminently preventable chronic cardiac disease, and its prevention lies on the understanding of clinical manifestations for timely diagnosis and prompt treatment as per regimen. The patients in this study were adults with advanced RHD, supporting the suggestion that rheumatic valvular abnormalities would be advancing into adulthood. There was a slight predominance of RHD in female, with a male to female ratio 1:1.3. This was particularly similar to previous RHD studies in which the disease was more prevalent in females than in males (5, 6,7).

More often than not, patients with RHD in adulthood presented at hospital with worsening symptoms due to complications of RHD. In our study most common reason to attend hospital were chest pain, palpitation and breathlessness.

Mitral valve lesion was the predominant rheumatic valvulopathy in both the children's and young adult groups. In our study also we found same. The prevalent involvement of the mitral valve had been extensively described in the literature in other parts of India (8), and developing countries like Nepal (1, 5, 9), Pakistan (10) and Indonesia (11). Followed by mitral valve aortic valve is the most commonly affected valve in our study. Similar findings were in found in various studied in Asia (1,5,8,9,10,11).

Regarding single valvular lesion, isolated pure mitral valve lesion (66.7%) was affected more than isolated aortic valve (3.3%). Similarly, studies done by Lilyasari O et al, Laudari et al. and Alkhalifa et al. showed that isolated mitral valve lesion was the most commonly affected valve lesion (22.2, 46.8 and 60%, respectively) (11,12,13). Slight variation in study findings may be due to age group involvement and geographical variation in disease frequency. Among multivalve lesions, dual-valve lesion was the most commonly seen. In our study very few patients had a multivalve lesion (6.7%) indicating the advanced stage of the disease. In contrast to our finding more multivalve lesion were reported in the study by Faheem et al. (10) and Lilyasari O et al (11). This may be because of difference in age group of study population. Mitral stenosis (either as isolated lesion or in combination) was the predominant mitral valve lesion, affecting (62.57%) consistent with a previous study in India, in Pakistan and in Indonesia (8,10,11)

This study reported an overall 10% cases of aortic regurgitation. Study in Indonesia also showed similar findings of aortic involvement (11). Similar data were reported with aortic regurgitation incidence of 47%, and almost always existed in combination in a study in Pakistan (11). In contrast to it Study in Zambia by Musuku J et al. had no report of affected aortic valve (14).

Conclusion:

RHD remains the major acquired valvular heart disease among children as well as adults. Patients with chronic RHD often presented with complications of the disease or with reactivation of RHD. Mitral valve lesion was the predominant single as well as dual valve lesions, and stenosis in most common lesion among adults. Multivalve lesions indicated an advanced stage of disease. Poor compliance and limited access to secondary prophylaxis remain significant challenges to RF/RHD control programs, especially in rural areas. This study supports the need for more effective preventive methods, early diagnosis, and follow-up care to prevent complications of RHD.

Limitation: study had small sample size and single centre study in adult population in urban area so generalisability will not be possible, further multicentric study with large sample size will be required

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