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Research Article

**THE FREQUENCY OF VARIOUS PATTERNS OF VALVULAR
HEART LESIONS IN CHILDREN WITH RHD PRESENTING TO
TERTIARY CARE HOSPITAL****Dr Safoora Khalid¹, Dr Ayesha Sabir², Dr Rashida javed³, Dr Nabeela Zia¹,
Dr Fazaila Jabeen¹**¹Senior Registrar at the Children's Hospital, Lahore, ²Senior Registrar at Jinnah Hospital,
Lahore, ³Senior Registrar at Arif Memorial Teaching Hospital, Lahore.**Article Received:** November 2019 **Accepted:** December 2019 **Published:** January 2020**Abstract:**

INTRODUCTION: Pediatric cardiac diseases are either congenital or acquired and they exhibit spectacular spectrum. Rheumatic fever is the body's response to a strep infection of the throat or tonsils or "strep throat." Rheumatic fever is thought to result from an inflammatory autoimmune response. A diagnosis of RHD is made after confirming antecedent rheumatic fever.

OBJECTIVE: To determine the frequency of various patterns of valvular heart lesions in children with RHD presenting to tertiary care hospital.

STUDY DESIGN: Cross sectional study.

PLACE AND DURATION OF STUDY: Department of Cardiology, children hospital Lahore over a period of six months i.e. 4-08-16 to 4-2-17.

SUBJECTS AND METHODS: After meeting the inclusion criteria 100 patients were enrolled. Informed consent was taken. The transthoracic echocardiography was done by experienced echo cardiographer and reviewed by pediatric cardiologist. All the collected data was entered and analyzed on SPSS version 20.

RESULTS: In our study the mean age of the patients was 6.68 ± 3.51 years, the male to female ratio of the patients was 0.9:1. In this study the mitral valve regurgitation, mitral stenosis and mixed mitral valve lesion was noted in 72%, 16% & 12% respectively

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INTRODUCTION:

Pediatric cardiac diseases are either congenital or acquired and they exhibit spectacular spectrum. Acquired heart disease constitute a major cause of cardiovascular morbidity and mortality worldwide with an enormous burden on health resources.

Rheumatic heart disease (RHD) continues to be the dominant form of acquired heart valve disease in developing nation. Recent echocardiography based surveys in some developing countries have estimated the prevalence of RHD to be 3-10 times compared to previous estimates based on clinical examination alone. In Pakistan the prevalence of RHD is 21.9/1000 children. The prevalence of RHD has greatly decreased in developed nation but the the burden of valvular heart diseases continue unabated across the globe especially in developing world due to multiple factors.

RHD in the pediatric age commonly presents as isolated mitral regurgitation or in combinations of mitral and aortic regurgitation. The severity of rheumatic mitral and aortic valve disease in the developing countries differs in many ways from that in the industrialized countries. In studies from developed counties stenosis was considered a delayed manifestation and less common especially in the first decade of life suggesting that it takes several decades to evolve but the condition id opposite in the developing countries where stenotic valvular lesions causing disability early in the life. In developing regions, predisposing factors to recurrent rheumatic fever persist, prophylactic penicillin is often not available and disease progression is not detected.

RHD continues to be serious health problem, especially in developing countries cause of increase poverty and poor health resources it has been studied that there is increased prevalence of RHD in order children in India and that to belonging to the rural areas (P-value <0.05). Since our country belongs to the same region and suffer from same social crises and limited health resources then recognizing these valvular lesions is important, study done in Multan identified new cases of RHD , as 3905 patients were studied and out of those 455 (11.65%) had valvular lesions. Out of these 455 patients they found out that mitral regurgitation was the commonest type of lesion (94%) whereas mitral stenosis was present in 15% and mixed mitral valve disease present in 9.5% of patients.

We aimed to examine age distribution, pattern and severity of vulvular heart lesion in RHD in pediatric population in our local setup and complication

associated with it. This will help to identify the gender predisposition and type of valvular involvement and their age distribution so that we can report pur local data the identification of this would help in planning focused screening program and awareness campaign for early detection of RHD and complication associated with it. This will not only decrease chances of life threatening complications but also minimize cost used to treat them. It will also help us to decrease psychosocial trauma to family.

OBJECTIVE:

To determine the frequency of various patterns of valvular heart lesions in children with RHD presenting to tertiary care hospital

PATIENTS AND METHODS:

This was a cross sectional study conducted over a period of six months from 4-08-16 to 4-2-17 in department of pediatrics, Jinnah Hospital Lahore. Sample size of 100 calculated with 95% confidence interval, 8% margin of error and taking expected percentage of GERD i.e. 52.4% in children presenting with cerebral palsy.

Data collection and analysis:

100 children presenting to outdoor department of cardiology, emergency with newly diagnosed valvular lesions due to rheumatic heart disease, as diagnosed on echocardiography was included in the study. The transthoracic echocardiography was done by experienced echo cardiographer and reviewed by pediatric cardiologist, data was entered as per Annex A. patients was studied as per operational definition.

Data was entered in SPSS version 20.0 and analyzed using its statistical package. Frequency and percentages was calculated for qualitative variable including gender and types of Severity valvular and various pattern (i.e. mitral regurgitation mitral stenosis mixed) involvement of rheumatic heart disease. Means and SD were calculated for quantitative variable like age. Data was presented as frequency and percentages. Data was stratified for age, gender to address the effect modifier. Post stratification mixed chi square test was be applied to check the significance with p-value≤0.05 as significant.

RESULTS:

Out of 100 cases the mean age of the patients was 6.68±3.51 years. 48(48%) patients were male and 52(52%) patients were females. (Fig.1) Mitral valve regurgitation was present in 72(72%) patients, mitral stenosis in 16(16%) while mixed mitral valve lesion was noted in 12(12%) patients. (Fig.2)

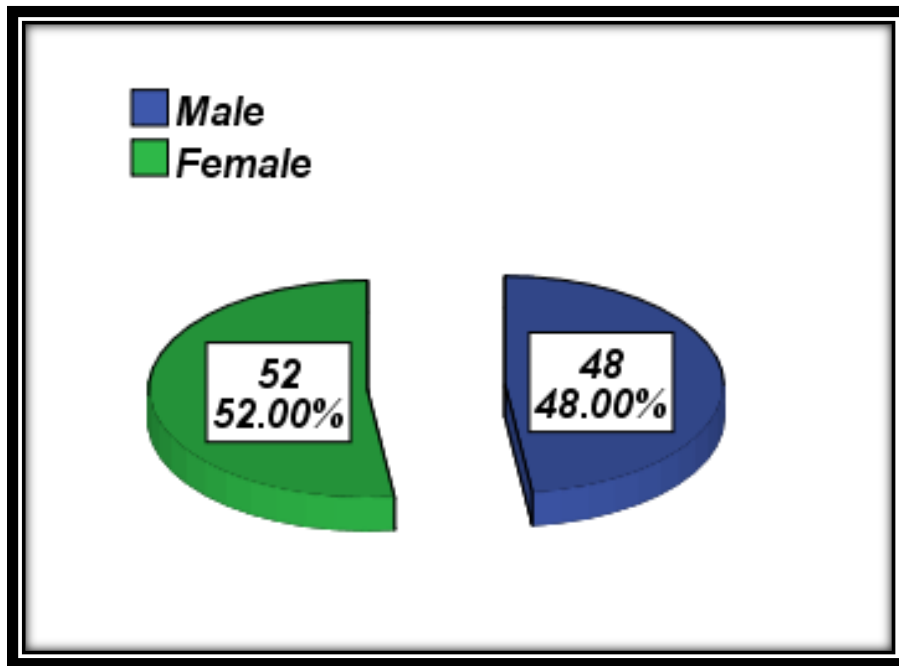


FIG:1: Frequency distribution of gender

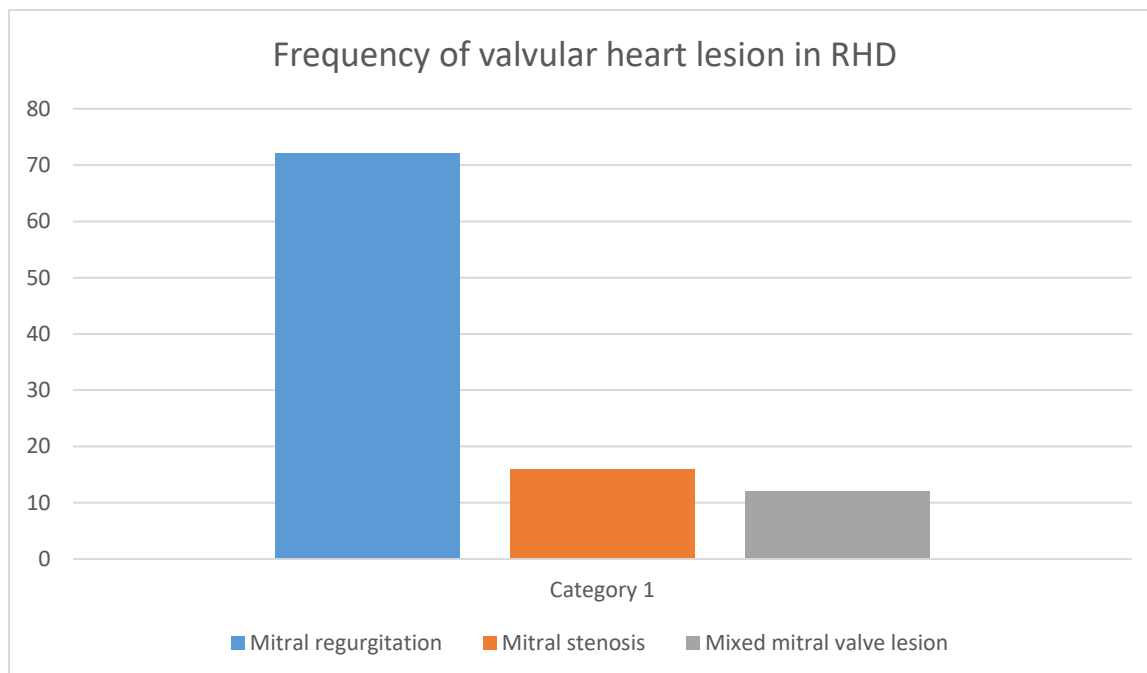


FIG: 2 Frequency of valvular heart disease in Rheumatic heart disease.

DISCUSSION:

This present cross sectional study was carried out at Cardiology department, children hospital Lahore to determine the frequency of various patterns of valvular heart lesions in children with RHD presenting to tertiary care hospital.

In countries like Pakistan where issues like poverty, illiteracy, overcrowding and poor access to healthcare facilities are on the top. Like developing countries the pattern is characterized by high incidence of mitral regurgitation, mitral stenosis, aortic regurgitation and mixed lesions in young people. Although in western countries RHD is now very rare, it remains a major public health problem in developing countries.

In our study the mitral valve regurgitation was present in 72(72%) patients, the mitral stenosis was present in 16(16%) and the mixed mitral valve lesion was noted in 12(12%). Some of the studies are discussed below showing their results as.

One study in Pakistan showed mitral valve to be commonly affected and regurgitation lesions commoner than stenotic lesions; and were severe in younger patients. Mitral regurgitation (MR) was 45.6%, mitral stenosis (MS) 20%, aortic regurgitation (AR) 34.4% and mixed valvular lesion in 54.3%.

A study by C.N. Manjunath *et al*³ presented that in RHD, the order of involvement of valves was mitral (60.2%), followed by aortic, tricuspid and pulmonary valves. Mitral stenosis, predominantly seen in females, was almost exclusively of rheumatic etiology (97.4%). The predominant form of isolated MR was rheumatic (41.1%) followed closely by myxomatous or mitral valve prolapse (40.8%).

A study done in Multan identified new cases of RHD, as 3905 patients were studied and out of those 455 (11.65%) had valvular lesions. Out of these 455 patients they found out that mitral regurgitation was the commonest type of lesion (94%) whereas mitral stenosis was present in 15% and mixed mitral valve disease present in 9.5% of patients.

Mohammad Faheem *et al* concluded in their study that the most of the patients had mixed Valvular lesions. The predominant lesion was mitral stenosis followed by mitral regurgitation, aortic regurgitation and aortic stenosis respectively.

The prevalence of RHD varies from 0.67 to 4.54/1000 children in different Indian states. Two-dimensional, M-Mode and color Doppler echocardiography is the

current gold standard for accurately identifying and quantifying the type and severity of valvular involvement in RHD. Other studies conducted in the developing countries continue to show the high prevalence of the disease, which is in contrast to the virtual extinction of the disease in the developed world.

In a series of 150 patients with combined aortic and mitral valve disease, only 10 patients (6.7%) were found to have essentially pure AS and MS.

Sulaiman Lubega *et al* showed that mitral valve dysfunction was found in almost all the cases of RHD and majority of the children had severe valve disease at the time of their first presentations. Children with MS were predominantly above 10 years and severe AR was more common in males.

CONCLUSION:

According to our study the frequency of mitral valve regurgitation, mitral stenosis and mixed mitral valve lesion was 72%, 16% & 12% respectively in children with RHD presenting to tertiary care hospital.

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