ORIGINAL ARTICLE

FREQUENCY OF DIFFERENT VALVULAR LESIONS OF RHEUMATIC HEART DISEASE PRESENTING TO A TERTIARY CARE HOSPITAL

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Background: Rheumatic Hearth Disease (RHD) is still prevalent in our country and a great source of morbidity. This study was done with an objective to determine relative frequency of different valvular lesions of RHD presenting in a tertiary care hospital. **Methods:** This cross sectional study was conducted at the Cardiology Department of Hayatabad Medical Complex, Peshawar. A total of 171 cases of RHD were included through consecutive sampling technique. **Results:** There were 64.33% females. Mean age was 25.6±6.95 years ranging from 15 to 40 years. The different percentage of valvular lesions in RHD were MR (59.06%), MS (46.78%), AR (43.85%) and mixed lesions (38.59%). **Conclusion**: Rheumatic heart disease is a very common disease in our community and mitral regurgitation is a predominant lesion at presentation Females are usually affected more than males.

Keywords: Rheumatic heart disease, Mitral stenosis, Mitral regurgitation, Aortic regurgitation

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INTRODUCTION

Rheumatic heart disease (RHD) results from recurrent attacks of rheumatic fever (RF), which is an inflammatory disease that occurs as delayed squeal to group A streptococcal pharyngitis The most severe manifestation is carditis which can cause permanent valvular damage in 30–45% of the affected children and young adults leading to rheumatic heart disease.[1] Approximately 40–60% of RF episodes result in RHD, with progression dependent on the severity of carditis, recurrences of RF, and availability of and compliance with secondary prophylaxis.[2]

While this disease has almost disappeared in developed countries, it is still a leading cause of morbidity and mortality from heart disease in developing countries.[3] According to one study RHD, the major sequel of rheumatic fever occurred in 30–45% of rheumatic fever patients[4]. Another study showed that carditis occurred in 79% cases of definite cases of RHD.[5]

Two definite patterns of RHD are established: one that is observed in developed counties and other in underdeveloped countries. In developed countries socioeconomic and health care status has been changed significantly in the last few decades. For example in USA , Europe and Japan the severe form of RHD is generally presents in their last forties or above years of ages, manifesting itself as mitral stenosis with or without concurrent regurgitation while in developing countries the pattern is characterized by high incidence of mitral regurgitation, mitral stenosis, aortic regurgitation and mixed lesions in young people In Arabian peninsula after discovery of petroleum, socioeconomic conditions have been improved and access to free medical care facilities have been unrestricted, so pattern of valvular lesions in RHD has changed. Significant slowing down in rate of progression of mitral stenosis is documented in Saudi Arabia. Countries with low economic standards but with high cultural values and where government provide health care programs such as Cuba and Costa Rica, pattern of valvular lesion in RHD is similar to that of developed countries. Studies reveal no significant differences between the status of the disease in Arabian Gulf countries and other countries of similar socioeconomic status. Nevertheless, both patterns can be seen in one country. For example, in South Africa, under the apartheid system, rheumatic fever decreased among the more privileged socioeconomic class, while among the socio-politically deprived black majority, the trend was comparable with the third world countries[6,7]

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. 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%.[9] Another study showed 39.7% MR, 33.4% AR, 26.7% MS and 56.3% had mixed valvular lesion.[8]

Limited data is available nationally and locally about this problem and this study is designed to determine the relative frequency of different valvular lesions of RHD. This study can be shared with other health professionals and suggestion will be given regarding necessary modifications in the routine management of patients who present with RHD.

MATERIAL AND METHODS

This study was conducted after obtaining approval from Institutional Ethics Committee, in the Cardiology unit of Hayatabad Medical Complex Peshawar. It was a cross sectional study where patients presenting with RHD were admitted in the cardiology ward after evaluation and consecutively included in the study.

The purpose and benefits of the study were explained to all patients and written informed consents were obtained. All adult patients of ages more than 15 years of both genders were included in this study. Patients of congenital heart disease, ischemic heart disease and atrio-ventricular (AV) canal defect detected by echocardiography were excluded from this study.

History, clinical examination and echocardiography were carried out to detect RHD and the type of valvular lesion, i.e., MR, MS, AR and mixed lesions. All the echocardiographic evaluations were done an expert cardiologist. Data was recorded on a *pro forma.* Samples size was calculated as 71, using 20% proportion of MS among RHD patients with 95% confidence level and absolute precision of 6%.[6] The WHO software for sample size calculation was used. Data was analysed using SPSS version 10.

RESULTS

A total of 171 patients of RHD were included. Mean age was 25.68±6.95 years with a range of 15–40 years. Age distribution is given in table-1. There were 110 (64.33%) females and 61 (35.67%) males. Proportion of MR in 101 (59.06%) MS in RHD was 80 (46.78%), and AR in 75 (43.85%), Mixed lesions cases were 66 (38.59%).

Table-1: Distribution by Age

Age in years	Frequency	Percent
<=20	45	26.31
21–25	42	24.56
26–30	40	23.39
31+	44	25.74
Total	171	100.0

DISCUSSION

Rheumatic heart disease continues to be a major health problem in the developing countries. It accounts for a large percentage of cardiovascular diseases related admissions and is an important indication for cardiac surgery in the third world countries like Pakistan. Recent studies conducted in this country continue to show the high prevalence of the disease, which is in contrast to the virtual extinction of the disease in the developed world.[9]

In this study females in RHD were about 2/3rd and this finding coincides with another local study done by Faheem *at al*.[8] The reason may be our social norms and cultural set up where most of the females remain house bound and have no free access to health. We did not find any study which clearly mentioned any scientific reason for female predominance of the disease.

In this study we found that RHD was more common in younger age group. Patients under 20 years constitute a major portion which is 26.31% which is comparable to a local study done by Orakzai *et al* which is 25.5%.[9]

In this study there were 101 (59.06%) cases of MR in RHD that is comparable to studies by Faheem *et al* (58.6%)[8] and Orakzai *et al* (56%)[10]. Reason may be unawareness of our public about the disease (RHD) and it is left untreated and lesion may progress rapidly to severe form of mitral regurgitation. Other lesions in this study like MS, AR and mixed lesion are comparable to other developing countries and this study is comparable to study done in Yemen by Hussein K, Saleh[7] where distribution of theses lesions was MS (50%), AR (40%), and mixed lesions (34%).

Limitations of this study were: 1) This study included only those patients referred to a tertiary care hospital, so results are not applicable to the general population, 2) Patients under 15 years of age were not included in the study because patients fewer than 15 years age are usually treated in Paediatrics cardiology unit and this study was conducted in adult cardiology unit, 3) In this study relative frequency of different valvular lesions of RHD was determined, patients presenting with complications were not included 4).

Patients from northern areas of this province are usually treated in their own tertiary care hospitals, so patients from these areas were not included in the study.

CONCLUSION

Rheumatic heart disease is still a common problem in our population. In our study females were affected more than males and mitral regurgitation was the commonest lesion. RHD involve both genders from early age adolescent and young adults are the principal victims.

REFERENCES

1. Messias-Reason IJ, Schafranki MD, Kremsner PG, Kun JF. Ficolin 2 functional polymorphism and risk of rheumatic heart disease. British Society for immunology, Clin Exp Immunol 2009;157;395–9.
2. Lee JL, Naguwa SM, Cheema GS, Gershwin ME. Acute rheumatic fever and its consequences: a persistent threat to developing nations in the 21st century. Autoimmun Rev 2009;9(2):117–23.
3. Alkhalifa MS, Ibrahim SA, Osman SH. Pattern and severity of rheumatic valvular lesions in children in Khartoum, Sudan. East Medterr Health J 2008;14(5):1015–21
4. Sampaio RO, Fae KC, Demarchi LM, Pomerantzeff PM, Aiello VD, Spina GS, *et al*. Rheumatic heart disease:15 years of clinical and immunological follow up. Vasc Health Risk Manag 2007;3(6):1007–17
5. Steer AC, Kado J, Jenney AW, BatzloffM, WaqatirewaL, Mulholaand EK et al. Acute rheumatic fever and rheumatic heart disease in Fiji: prospective surveillance. Med J Aust 2009;190(3):133–5
6. Marijon E, Ou P, Celermajer DS, Ferreira B, Mocumbi AO, Jani D, *et al*. Prevalence of rheumatic heart disease detected by echocardiographic screening. N Engl J Med 2007;357(5):470–6
7. Saleh HK. Pattern of rheumatic heart disease in Southern Yemen. Saudi Med J 2007;28(1):108–13.
8. Faheem M, Hafizullah M, Gul A, Jan H, Khan AM. Pattern of valvular lesions in rheumatic heart disease. J Postgrad Med Inst 2007;21(2):99–103 .
9. Dajani AS. Rheumatic ferver. In: Braunwald E, Ziper DP, Libby P, editors. Heart disease, a textbook of cardiovascular medicine. 6th ed, Philadelphia: WB Saunders 2001.p. 2192.252
10. Aurakzai HA, Hameed S, Shahbaz A, Gohar S, Moqueet. Echocardiographic profile of rheumatic heart disease at a tertiary cardiac centre. J Ayub Med Coll Abbottabad 2009;21(3):122–6.

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