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RHEUMATIC HEART DISEASES

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ABSTRACT... Objectives: To determine the frequency of rheumatic heart diseases in a hospital based study in Peshawar. **Design:** A cross sectional observational. **Setting:** Cardiology department, Lady-Reading Hospital Peshawar. **Period:** From July 2005 to July 2006. **Method:** Relevant in formations were recorded from patients and treatment chart of the patients, on a questionnaire designed in accordance with the objectives of the study. **Results:** A total of 88 patients with established diagnosis of rheumatic hear diseases (RHD) were randomly selected. Out of total 70.45% were females and 29.54% males, with males to females ratio of 1:2.38. The age range of the patients was from 8 years to 64 years with mean age of 47 years. The mode of age was 35 years. The frequency of rheumatic heart diseases was: Mitral Stenosis 13.63%, Mitral Regurgitation 60.22%, Mitral Stenosis /Mitral Regurgitation 21.59%, Aortic Stenosis/Aortic Regurgitation 2.27%, Aortic Stenosis 1.13% and Tricuspid Valve Stenosis 1.13%. We observed that RHD were more common in lower social class people (42.04%) with income less than 5000/month. **Conclusion:** In our setup RHD are more common in female gender and especially in the younger age. Mitral Stenosis was recorded as major type of RHD in our patients.

Key words: Frequency of RHD, hospital based study, Peshawar.

INTRODUCTION

Rheumatic heart disease is a condition in which permanent damage to heart valves is caused by rheumatic fever. The heart valve is damaged by a disease process that generally begins with a strep throat caused by streptococcus A bacteria, that may eventually cause rheumatic fever. Rheumatic fever, an inflammatory disease, can affect many connective tissues, especially in the heart, joints, skin, or brain. Acute rheumatic fever follows 0.3% of cases of group "A" beta-hemolytic streptococcal pharyngitis in children. As many as 39% of patients with acute rheumatic fever may develop varying degrees of pancarditis with associated valve insufficiency, heart failure, pericarditis, and even death[1]. A recent study from Malawi reported that out of the 3908 new Malawian patients included in the 5-y period register, 34% had valvular heart disease (mainly rheumatic heart disease (RHD)[2] that reflects its high magnitude. In another study form Nigeria, five hundred and fifty eight (19.8%) of the 2875 medical admissions were patients with cardiovascular diseases. And out of these 6% were RHD patients[3].

In a world health trial, a total of 1,433,710 schoolchildren were screened and 3135 cases of rheumatic fever/rheumatic heart disease (RF/RHD) were found, giving a prevalence of 2.2 per 1000 (higher in the African

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and Eastern Mediterranean regions)[4].In Pakistan the prevalence of RHD is (5.7/1000). Females were significantly more likely to be affected. Nearly all people with RHD, including most of those who know their diagnosis, do not receive the benefit of potentially life saving secondary prevention measures[5].

Present study was designed as to determine the frequency of rheumatic heart diseases in a hospital-based study in Peshawar.

METHODS

A cross sectional observational study was conducted in cardiology department, lady-reading hospital Peshawar, from July 2005 to July 2006. A total of 88 patients with established diagnosis of rheumatic hear diseases (RHD) were randomly selected.

Inclusion criteria were all patients with established diagnosis of RHD, irrespective of age and sex, admitted in Cardiology department of Lady Reading Hospital (LRH) Peshawar.

Exclusion criteria were patients with other types of heart diseases, including coronary artery diseases, cardiomyopathies, congestive cardiac failure, ventricular hypertrophies, and arrhythmias of all types etc. only patients with RHD were studied.

A detailed history of patients was taken with the help of a pre-designed questionnaire, prepared in accordance with the objectives of this study. Duration and family history were also recorded from every patient. Questioner also contained information regarding age, sex, address, and occupation of patients.

In present studies the socioeconomic status of the respondents has been defined on the bases of per capita income[6].

Diagnosis was further confirmed on echocadiogram. Nearly all patients had echo pictures that were part of our study. Figure No-1 shows an echocardiogram, parasternal long-axis view of systolic mitral insufficiency jet observed with rheumatic heart disease.

Finally statistical analysis was performed on the questionnaires collected.

Fig-1. Echocardiogram: Parasternal long-axis view demonstrating the typical systolic mitral insufficiency jet observed with rheumatic heart disease (blue jet extending from the left ventricle into the left atrium). The jet is typically directed to the lateral and posterior wall. (LV=left ventricle; LA=left atrium; Ao=aorta; RV=right ventricle). Source: Thomas k chin, MD. Associate Professor in Pediatrics, Chief of Pediatric Cardiology, University of Tennessee College of Medicine;, Department of Pediatric Cardiology, Le Bonheur Children's Hospital & St Jude Children's Research Hospital, USA.

RESULTS

Age range: The age range of the patients was from 8 years to 64 years with mean age of 45 years. The mode of age was 30 years. (Table No I).

Sex: Out of total 70.45% were females and 29.54% males, with males to female's ratio of 1:2.38.

The age effect on RHD is equal for male and female as

p-value is 0.22.

Frequency of RHD: The frequency of rheumatic heart diseases was: Mitral Stenosis 13.63%, Mitral Regurgitation 60.22%, Mitral Stenosis /Mitral Regurgitation 21.59%, Aortic Stenosis/Aortic Regurgitation 2.27%, Aortic Stenosis 1.13% and Tricuspid Valve Stenosis 1.13%. (Table No II).

Social status and RHD: We observed that RHD were more common in lower social class people (42.04%) with income less than 5000/month for both male and female with p-value 0.538. (Table No III).

Table No-I. Age range of patients with RHD. (N = 88)

Age range	Study group (n=88)	Male subgroup (n=26)	Female subgroup (n=62)	p-value
8-20 years	4 (4.54%)	1 (3.84%)	3 (4.83%)	0.220
21-40 years	53 (60.22%)	15 (57.69%)	38 (71.69%)	
41-60 years	25 (28.40%)	6 (23.07%)	19 (30.64%)	
More than 60 years	6 (6.81%)	4 (15.38%)	2 (3.22%)	

Table No-II. Frequency of Rheumatic Heart Diseases. (N = 88)

Type of rheumatic heart disease	Study group (n=88)	Male subgroup (n=26)	Female subgroup (n=62)
Mitral regurgitation	53 (60.22%)	18 (69.23%)	35 (56.45%)
Mitral stenosis	12 (13.63%)	4 (15.38%)	8 (12.90%)
Mitral stenosis + mitral regurgitation	19 (21.59%)	2 (7.69%)	17 (27.41%)
Aortic stenosis + aortic regurgitation	2 (2.27%)	2 (7.69%)	0
Aortic stenosis	1 (1.13%)	0	1 (1.61%)
Tricuspid valve stenosis	1 (1.13%)	0	1 (1.61%)

Table-III. Social status of patients with RHD (N = 88)

Social class of patients	Study group (n=88)	Male subgroup (n=26)	Female subgroup (n=62)	P-value
Upper social class (with income more than 20,000/month)	23 (26.13%)	5 (19.23%)	18 (29.03%)	0.538
Middle class (with income 5-20,000/month)	28 (31.18%)	08 (30.76%)	20 (32.25%)	
Lower class (with income less than 5000/month)	37 (42.04%)	13 (50.00%)	24 (38.70%)	

DISCUSSION

Rheumatic fever and rheumatic heart diseases is principally a disease of childhood, with a median age of 10 years, although it also occurs in adults (20% of cases)[5]. In present study the age range of the patients was from 8 years to 64 years with mean age of 45 years. The mode of age was 30 years. Rheumatic fever occurs in equal numbers in males and females, but the

prognosis is worse for females than for males. We observed that 70.45% of our patients were females and 29.54% males, with males to female's ratio of 1: 2.4. a study from yemen reported males to female ration in RHD as 383 (47.6%) males and 422 (52.4%) females (age range, 4-70 years; mean age, 28.6 +/- 14.5)[7]. Ikse so[8] reported 957 (38%) valvular diseases patients. There were 529 males and 428 females, with an age range of 6 months to 89 years. One hundred and forty-eight (16%) of them presented in the first two decades of life. Mitral valve diseases accounted for 654 (68%), aortic valve diseases 233 (25%), tricuspid valve diseases 51 (5%) and pulmonary valve diseases 19 (2%) of the cases. In our patients mitral regurge was recorded in 60.22% and mitral stenosis in another 13.6% cases. Sani MU et AL[9] Mitral regurgitation as the commonest echocardiographic diagnosis present in (38.0%) and thirty-six (27.9%) patients had mixed mitral valve disease. In mitral stenosis there is progressive fibrosis, ie, thickening and calcification of the valve, takes place over time, resulting in enlargement of the left atrium and formation of mural thrombi in that chamber. The stenotic valve is funnel-shaped, with a "fish mouth" resemblance[10].

Aortic stenosis from chronic rheumatic heart disease typically is associated with aortic insufficiency. The valve commissaries and cusps become adherent and fused, and the valve orifice becomes small with a round or triangular shape. In present study Aortic Stenosis combined with Aortic Regurgitation recorded in 2.27% cases and Aortic Stenosis alone in 1.13%. Rheumatic heart disease is still the most common underlying heart lesion. Mortality is still high and aortic valve involvement in particular, carried poor prognosis. Of 10 patients with aortic valve involvement, there were three deaths (30%)[11]. We observed that RHD were more common in lower social class people (42.04%) with income less than 5000/month Previously reported epidemiological data also confirms that rheumatic fever preferentially affects young subjects of both sexes and is more common among Melanesians and Polynesians, probably because of their lower socio-economic status[12].

CONCLUSION

Rheumatic heart disease is still the most common underlying heart lesion. In our setup RHD are more common in female gender and especially in the younger age. Mitral regurge was recorded as major type of valvular disease in our patients.

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