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Research Article

VALVULAR HEART DISEASES AND ITS IMPACT: AN ASSESSMENT AMONG PATIENTS ATTENDING A TERTIARY HOSPITAL IN KOLKATA

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ABSTRACT

Background: Valvular heart diseases (VHD) are an important cause of morbidity and mortality worldwide and rheumatic fever still continues to be a contributing factor to VHD in the developing nations like India. This enormous disease burden often translates into huge economic and social losses. **Aims:** This study was undertaken to identify the sociodemographic characteristics of the patients with VHD, to find the frequency of different types of valvular diseases and their etiologies and the effect of such diseases on daily living. **Materials and Methods:** A hospital based observational study was carried out among the patients with VHD attending Cardiothoracic and Vascular Surgery OPD from April, 2013 to Dec, 2013. Data collection was done using a predesigned and pretested schedule after taking informed consent. **Result:** Out of the 108 patients majority were males and resided in rural areas. Their mean age was 36.39 ± 13.88 . Mitral stenosis was found to be the commonest single valve lesion and most of the VHDs were of rheumatic origin. In 32.4% of the cases outdoor activities were completely restricted. Out of the 62 patients working outside, 40.2% were mostly absent from their workplace. **Conclusion:** Mitral stenosis of rheumatic origin was found to be the commonest type of valvular heart disease in this part. This study reveals that valvular heart disease of rheumatic origin still exists in our society. So preventive measures, diagnosis and management of valvular diseases should not be neglected and we need to provide preventive services in cases of rheumatic fever to reduce the development of VHD.

Keywords: Valvular heart diseases, rheumatic heart disease, impact assessment

INTRODUCTION

The epidemiology of valvular heart disease (VHD) has changed dramatically over the past 50 years in developed nations. Valvular heart diseases have a significant contribution to morbidity and mortality worldwide.^{1,2} While degenerative valvular diseases predominate in the developed nations, rheumatic fever and rheumatic heart disease still continues to be a major health care concern in the developing countries among both children and adults.³⁻⁶ VHD is still common and often requires intervention. In India, rheumatic fever is endemic and remains one of

the major causes of cardiovascular disease, accounting for nearly 25-45% of the acquired heart disease.^{7,8} Moreover, important changes have occurred regarding the presentation and treatment of the disease over recent years and there are very few surveys in the field of VHD as compared with other heart diseases.⁹ Doubt still persists regarding the generally perceived decline in the prevalence of RHD in India.¹⁰⁻¹² Inadequacy of hospital admission statistics and varying individual hospital admission

policies greatly influence the prevalence data obtained from these sources.⁷

Furthermore, research concerning the epidemiology, pathophysiology and clinical management of VHD is limited. Data regarding the contemporary prevalence and natural history of VHD are required to the economists and policy makers responsible for healthcare planning for allocation of resources to newer developments, such as percutaneous valve implantation and repair.^{13, 14}

This enormous disease burden translates into huge economic and social losses. The potential detrimental effect of valvular heart disease on the activities of daily living is unknown. These patients continue to suffer from the illness, their productivity is lost, and imposes an economical burden on their family and country. So, this study was undertaken to identify the socio-demographic characteristics of the patients with VHD, to find the frequency of different types of valvular diseases and their etiologies and the effect of such diseases on daily living.

MATERIALS AND METHODS

A hospital based observational study was carried out among the patients (n=108), age of the patients varied from 11 to 65 years of both sex with VHD attending Cardiothoracic and Vascular Surgery OPD from April, 2013 to Dec 2013. This is a tertiary medical college and hospital, catering to population referred from all over the state of West Bengal. The centre has cardiac catheterization laboratories and cardiac surgical facilities as well. The study population consisted of patients in whom VHD was ascertained by echocardiography or patients who had undergone any operation on a cardiac valve (percutaneous balloon commissurotomy, valve repair, valve replacement). Ethical clearance was obtained from the institutional ethics committee. The purpose of the study was briefed to the patients and their consent for participation was obtained. A pre-designed and pre-tested schedule consisting details regarding socio-demographic, clinical, echocardiographic characteristics, and treatment modalities was used for data collection. The effect of the disease was assessed by finding the difficulties in carrying out daily activities, participation in out-door activities, number of days absent from the workplace and monthly expenditure on the disease.

Statistical Analysis: Data were entered in MS Excel and results are presented as mean and standard deviation and percentages.

RESULTS

A total of 108 patients with valvular heart disease attended the Cardio Thoracic and Vascular Surgery OPD of the tertiary hospital during the period of data collection. The age of the patients varied from 11 to 65 years with most of the patients lying between 30 to 40 yrs of age. Only 4.6% belonged to geriatric age. Mean age of the patients was 36.39 ± 13.88 .

Majority of the patients with VHD were male (53.7%), belonged to Hinduism (60.2%) and attended the OPD from rural area (62%). Most of the patients with VHD completed middle school, but 15.7% were found to be illiterate. A high proportion of the male patients were farmers and almost all the females were engaged in household activities, 7.45 of the patients were found to be students. (Table 1).

The heart valves are responsible for the transport of blood from one chamber of the heart to another or to a great vessel. Abnormalities of the valves may be congenital like malformed leaflets or acquired like valvular stenosis (stiff valves) or valvular insufficiency (leaky valves) leading to regurgitation of blood. Out of 108 patients attending OPD, 65.7% were treated medically and the rest had undergone previous cardiac interventions. Among the patients undergoing medical treatment, 43.7% suffered from multiple valvular disease mostly of the left while right sided lesions were infrequent. Mitral stenosis was found to be the commonest type of single valve disease followed by mitral regurgitation. Valve replacement was done in 67.6% of the operated patients, whereas the rest underwent conservative surgery like CMV and TVMC (FIG; 1). The valvular heart diseases identified were predominantly of rheumatic origin. Degenerative and congenital causes were present in only 15% of the cases. The patients of VHD presented with shortness of breath, weakness or dizziness to carry out normal activities, chest discomfort, palpitations and pedal edema.

During the study, 36.1% of the patients were in NYHA (New York Heart Association)¹⁸ Cl I, 50.9% in Cl II and the rest in Cl III. Major co morbidities present among the cases were cardiovascular accidents, lower limb ischemia and myocardial infarction.

The impact of VHD on activities of daily living was also assessed among the patients. All the patients were able to carry out their daily indoor activities, but in 32.4% of the cases outdoor activities were completely restricted and 7.4% perform outdoor activities occasionally. Whether the disease had any effect on the occupation of the person was also asked for. This was not applicable for those engaged only in household activities. Out of the rest 40.3% mentioned that they were mostly absent from their workplace because of the disease.(Table-2)

Table 1: Socio-demographic profile of the valvular disease patients

Characteristics	Number	Percentage
AGE		
11 - 20	16	14.81
21 - 30	25	23.14
31 - 40	33	30.65
41 - 50	10	9.35
51 - 60	19	17.61
> 60	5	4.6
SEX		
Male	58	53.7
Female	50	46.3
RELIGION		
Hindu	65	60.2
Muslim	43	39.8
RESIDENCE		
Urban	41	38
Rural	67	62
EDUCATION		
Illiterate	17	15.7
Primary	7	6.5
Middle school	36	33.3
Secondary	10	9.3
High secondary	19	17.6
Graduate	19	17.6
OCCUPATION		
Farmer	19	17.6
Household activities	46	42.6
Industrial worker	7	6.5
Student	8	7.4
Skilled worker	4	3.7
Service	7	6.5
Others	17	15.7
Total	108	100

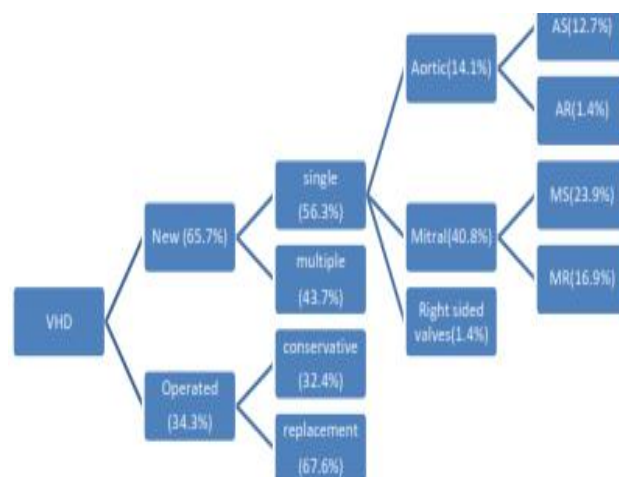


Fig1: Distribution of VHD patients attending the OPD

Table 2: Impact of VHD on daily living

Can perform outdoor activities	Number(108)	%
Yes	65	60.2
No	35	32.4
Occasional	8	7.4
Absence from work place	Number(62)	%
Mostly	25	40.3
Occasionally	7	11.3
No	30	48.4

DISCUSSION

Present study carried out in a tertiary hospital of Kolkata revealed that most of the valvular heart disease patients were in their 2nd, 3rd or 4th decade of life with a mean age of 36.4 years. The Euro Heart Survey⁹ carried out in a number of medical centres of Europe found the mean age for VHD patients to be 64± 14 yrs. This higher age group involvement in developed countries is because of the fact that the valvular diseases are mainly of degenerative origin while in our place they are commonly of rheumatic origin affecting the younger age groups. Mitral stenosis and regurgitation were found to be the commonest valvular disease in this study, whereas The Euro Heart Survey⁹ showed that AS was the most frequent type of single valvular disease followed by AR. The multiple valve disease was significant, whereas right sided lesion was infrequent in both the studies.

A community based study carried out among the nonagenarians of Leiden, The Netherlands revealed that the left sided valvular diseases were in high

proportions, mitral and aortic regurgitations being the commonest valvular disease and no patient had mitral stenosis.⁸ This discrepancy may be due to the fact that aortic and mitral stenosis are characterized by poor clinical tolerance and therefore may determine higher hospital attendance and higher prevalence of these heart disease in hospital based studies.

Rheumatic fever is still common in developing countries like India. This is supported by the fact that in 85% of cases the diseases were of rheumatic origin, whereas Euro Survey revealed that they were mostly degenerative. Trends in hospitalization of cardiac cases in Cuttack¹⁶, population survey done in the villages of Northern India¹⁷ and autopsy series from Mumbai¹⁸ also revealed that Rheumatic fever & RHD still contributes to a large number of cardiac cases in India. Diagnosis is done based on history, clinical features and Echocardiography.

The present study revealed that in 32.4% of the cases outdoor activities were completely restricted and 7.4% perform outdoor activities occasionally. Out of those engaged in various employment 40.3% mentioned that they mostly remain absent from their workplace because of the disease. However, the community based study carried out among the nonagenarians of Leiden; The Netherlands found no significant difference in daily activities between those having the disease and others. This may be because of the fact that they studied the population above 90 years who are engaged in very little daily activities because of their age.

This study reveals that VHD in India is mostly of rheumatic origin affecting the productive population of the country. So we need to continue early detection and treatment of rheumatic fever in the susceptible population to reduce the occurrence of valvular heart diseases.

There is need for carrying out a population based epidemiological study to derive the actual prevalence of different types of VHD and their effect on daily life because the selection of hospital may have introduced a selection bias.

CONCLUSION

Mitral stenosis of rheumatic origin was found to be the commonest type of valvular heart disease in this part. This study reveals that valvular heart disease of rheumatic origin still exists in our society. So preventive measures, diagnosis and management of

valvular diseases should not be neglected and we need to provide preventive services in cases of rheumatic fever to reduce the development of VHD.

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Conflict of interest: Nil

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