ASTUDY ON CARDIOVASCULAR DISEASE PATTERN OF ADMITTED CASES IN NEWLY EMERGED NATIONAL HEART CENTRE

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ABSTRACT

Cardiovascular disease is one of the global leading causes of death . Although in developed countries overall cardiovascular death is declining due to long term decline of rheumatic heart disease (RHD), cerebro vascular and hypertensive heart disease, heart disease is still the leading cause of death. In developing countries prevalence of coronary heart disease (CHD) is in increasing trend and cardiovascular disease pattern is changing. Cardiovascular disease pattern of this region is revealed in this study. Total 300 study subjects, admitted from May 2000 to April 2001, 174 (58%) male and 126 (42%) female and age ranged from 5 to 83 years were analyzed retrospectively. Proportionate distribution of all admitted cases was calculated and arranged in according with sequence order.

Rheumatic heart disease was found the commonest, which constituted 27.3%, followed by coronary heart disease (21.7%) and hypertension (20.7%) respectively. Chronic obstructive pulmonary disease (COPD) with cor pulmonale (7.7%) was fourth in sequence order then respectively came diabetes mellitus (DM) coexisted with CHD or hypertension, dilated cardiomyopathy (DCM), cardiac arrhythmia without organic heart disease, congenital heart disease, infective endocarditis, rheumatic fever, pericardial effusion etc. Readmission rate within one year was 12.3% and mortality rate was 2.7%. Conclusion: Rheumatic heart disease is the commonest heart disease followed by coronary heart disease and hypertension. COPD with cor pulmonale, diabetes coexisted with CHD or hypertension, DCM and cardiac arrhythmia without organic heart disease are also common heart diseases.

Key Words: Cardiovascular diseases, Disease pattern.

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INTRODUCTION

Cardiovascular disease is one of the top killer diseases and is problematic for both developed and developing countries. Prevention and treatment of heart disease is becoming an essential and increasing global concern. In developed countries, although mortality trend from total cardiovascular disease has been downward since about 1940, with long term declines for the three cardiovascular disease subgroups; rheumatic, cerebro vascular and hypertensive diseases since the mid 1960s,¹ heart disease is still the leading cause of death followed by cancer.^{2,3} Increasing trend of cardiovascular disease morbidity and mortality and changing pattern of cardiovascular disease have been reported in some developing countries.⁴ Hence, the study of prevalence and changing proportion in the disease pattern of cardiovascular diseases is becoming an essential concernment.

Shahid Gangalal National Heart Centre is newly emerged leading national hospital for the management and research of cardiovascular diseases.⁵ Previous well-documented studies on the disease pattern of cardiovascular disease in Nepal are not available. The aim of this study is to investigate the disease pattern of admitted cardiovascular disease cases within one year in this National Heart Centre and to speculate the future concern of the nation for the management of cardiovascular diseases on the basis of investigation outcome.

METHODS

Disease pattern of total 300 cases, who were admitted from May 2000 to April 2001, was retrospectively investigated from the hospital admission book. The age of study subjects ranged from 5 to 83 years, which included 174(58%) male patients and 126(42%) female patients.

Proportionate distribution of the disease pattern of admitted cases in National Heart Centre was calculated. Total number of RHD cases associated with mitral stenosis (MS) was identified and mean age of rheumatic MS cases was calculated to compare with previous studies on rheumatic MS carried out in Nepal.^{6,7} Readmission and mortality rate within one year was calculated and disease associated with hospital death was identified from the hospital admission book.

RESULTS

Total 300 cases 174(58%) male and 126(42%) female patients age ranged from 5 to 83 years were admitted within one year. The number of RHD cases was the highest. RHD constituted the highest in proportion (27.3%) followed by CHD (21.7%) and hypertension (20.7%). Disease pattern of admitted cases with patient numbers and percentage in sequence order are demonstrated in the table I.

Total 82 RHD cases age ranged from 8 to 71 years, 31(37.8%) male patients and 51(62.2%) female patients, were admitted. Out of 82 cases 54(65.9%) RHD cases were associated with MS. Among 54 MS patients 35(64.8%) were female patients and 19(35.2%) were male patients. Mean age of MS patients was 37.8 ± 13.6 years.

Quite significant number (7.7%) of COPD with cor pulmonale cases were also admitted. The number of diabetic cases coexisted with hypertension or CHD was also not very small, that possessed almost 4% of total admitted cases. Number of cardiac arrhythmia without any organic heart diseases was 9, which was 3% in the proportion of total admitted cardiovascular cases and 7th in sequence order. Total 8 cases of congenital heart diseases, which ranked 8th in sequence order, were admitted that contained 4

Table I: Pattern of admitted cardiovascular diseases with patient numbers and percentages in sequence order

COPD = chronic obstructive pulmonary disease

DM = diabetes mellitus

CHD = coronary heart disease

**** Cardiac arrhythmia without organic heart disease***

atrial septal defect (ASD) cases, 2 ventricular septal defect (VSD) cases and 2 patent ductus arteriosus (PDA) cases. Seven infective endocarditis cases were identified, 5 with RHD, 1 with VSD and 1 with unknown organic heart disease.

Readmission rate within 1 year was 12.3%. Total 8 mortality cases, that stood 2.7% of all admitted cases, were identified from the hospital registry. Five RHD cases, 1 pulmonary tuberculosis with pulmonary hypertension, 1 hypertensive heart disease with chronic heart failure and 1 infective endocarditis cases were associated with mortality.

DISCUSSION

In both developed and developing countries cardiovascular disease mortality is top in the rank of mortality related diseases.^{2,3,4} So global awareness upon cardiovascular diseases is increasing day by day. Although disease pattern of cardiovascular disease is changing in developed countries due to the improvement of living standard, advent of more sophisticated technologies for the diagnosis and treatment and better management, cardiovascular disease is still the leading cause of death,^{2,3} on the other hand, in developing countries prevalence and mortality of cardiovascular disease is in increasing trend.⁴ Recently Chen and coworkers⁸ have reported increasing percentage of heart diseases among medical inpatient, after retrospective study of heart diseases in forty years. This study is carried out in newly emerged national heart centre, where previous well documented studies on the prevalence and disease pattern of cardiovascular diseases are not available, which implements some important practical aspects. This study will be helpful to understand recent cardiovascular disease pattern in developing country like Nepal and to document inpatient disease pattern of heart diseases for the future comparative studies.

Rheumatic heart disease is found the commonest heart disease in this study. Rheumatic fever and RHD are the commonest problems of developing countries,^{9,10} whereas in affluent developed countries prevalence of rheumatic heart disease has declined sharply.¹¹ Rheumatic fever and RHD are common in underdeveloped, deprived and depressed areas of the world.¹⁰ This study obviously reflects the RHD as the commonest heart disease among all cardiovascular diseases. Rheumatic mitral stenosis is the commonest among all RHD. In this study two third of total RHD cases was found associated with rheumatic mitral stenosis. The

mean age of mitral stenosis patients in this study is slightly higher than those previous consecutive studies carried out in this country by Karki et al⁷ and Limbu et al.⁶ This discrepancy is mainly due to number of first admission cases in this newly emerged national heart centre were enrolled in this study, who were previously admitted and treated in other hospitals, whereas in previous study⁶ the mean age of first admission due to symptomatic rheumatic mitral stenosis was calculated. Sex distribution of this study nearly accord with previous studies carried out in this country.^{6,7,12}

Coronary heart disease is detected as the second commonest heart disease from this study. Increasing trend of CHD in hospital admitted cases was reported some ten years back in this city,¹³ whereas CHD is the leading cause of death in adults in developed countries.¹⁴ Recently CHD is also reported as the commonest heart disease in some developing countries.⁸ Most common coronary presentations are angina and myocardial infarction, which leads for the hospital admission. Prevalence of CHD in this country is not reported previously. It is obvious from the study that CHD is one of the commonest heart diseases among all cardiovascular diseases.

Prevalence of hypertension, especially among adults and elderly population is common. It is reported up to 24 percent in some developed countries¹⁵ and in developing countries the prevalence varies from 3 percent to 27 percent in rural and urban areas.^{16,17} Hypertension is one of the risk factors of CHD and it closely associates with CHD. Twenty percent admitted cases, third commonest cause of hospital admission, are hypertensive patients according to the data analysis of this investigation. Some ten years back in one retrospective study carried out in this city Acharya et al¹⁸ had reported hypertension as the commonest cause of hospital admission among all

cardiovascular diseases. Isolated hypertension can be managed in out patient follow-ups, so we speculate the percentage of inpatient hypertensive cases among all cardiovascular diseases will be decline in future.

This investigation shows; RHD, CHD and hypertension are three commonest heart diseases, which constitute 70 percent of all admitted cardiovascular diseases. COPD with cor pulmonale is the 4th commonest disease, which makes 8 percent of total admitted cases in this study, while in previous one study¹⁸ cor pulmonale was reported as second commonest cause of hospital admission among all cardiovascular diseases. Coronary heart disease or hypertension coexisted with diabetes, dilated cardiomyopathy, cardiac arrhythmia without organic heart disease, congenital heart disease and infective endocarditis possess 15 percent of total admitted cardiovascular cases according to the result of this study. About 1 percent admitted cases all young adults, age < 18 years are rheumatic fever cases. Hospital admission due to rheumatic fever is not very uncommon. Previous in one study it was reported 0.34 percent of admitted rheumatic fever cases among all admitted medical cases,¹⁹ while in this study 1.3 percent of admitted rheumatic fever cases are calculated among cardiovascular disease only.

During the period of data collection, this newly emerged national heart centre had not provided coronary care unit and cardiothoracic surgery facilities that limited the admission of acute myocardial infarction cases and some heart diseases which needed surgical treatment. However previous well documented studies on the prevalence and admission rate of acute myocardial infarction in this region is unknown. We speculate, the percentage of CHD will be increase after admission of acute myocardial infarction cases in coronary care unit. Better outpatient management of

hypertension, stable CHD and heart failure will accumulate more inpatient congestive heart failure cases in future. No trend of decline in RHD can be predicted due to lack of recent comparative studies on the prevalence of RHD, which comes first in the sequence order of this study.

Finally, this study provides the picturesque view of the disease pattern of cardiovascular diseases. Rheumatic heart disease is the commonest heart disease. Coronary heart disease and hypertension are also major heart diseases. COPD with cor pulmonale, diabetes coexisted with hypertension or CHD, dilated cardiomyopathy and cardiac arrhythmia without organic heart disease are also common cardiovascular diseases. The overall findings of this study reflect the cardiovascular disease pattern of this region.

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