Heart Failure Admissions in Medical Wards of a Nigerian Tertiary Hospital.

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ABSTRACT
Introduction: Heart failure is a major clinical problem in the world, and is recognized as a contributor to cardiovascular disease burden in Africa. Previous study on the pattern and prevalence of heart failure among medical admissions in Kano was carried out about a decade ago. This study determined the prevalence, pattern and mortality rate of heart failure among patients admitted in to medical wards of Murtala Muhammad Specialist Hospital (MMSH) Kano, a tertiary hospital in North- Western Nigeria.

Methods: It was a retrospective, descriptive study. The admission and discharge registers of the medical wards from January 2016 to December 2016 were reviewed and analyzed using Statistical Package for Social Sciences (SPSS) version 19 software.

Results: A total of 1651 patients were admitted in to the Medical ward within the study period out of which 268(16.2%) were admissions due to heart failure. Their age ranged 15 to 85 years (mean ± SD, 49.28±11.25 years). Hypertensive heart disease was the commonest cause, accounting for (43.7%), followed by peripartum cardiomyopathy (38.9%) and dilated cardiomyopathy (6.3%).

Conclusion: Our data show high prevalence of heart failure among patients admitted in to medical wards of MMSH, Kano. HHD, PPCM, and DCM were the main etiologies. There is therefore the need for strategies for the prevention, management of systemic hypertension in order to prevent its complications. There is also the need to carry out to further studies to understand PPCM and reasons for the rising incidence.

Keywords: Heart failure, Pattern, Mortality, Medical admissions, Kano.

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I. Introduction

Heart failure is a chronic condition characterized by inability of the heart to pump adequate blood to meet the demands of the body and/ or doing so at increased filling pressures. It is a serious and major clinical problem worldwide, affecting approximately 5 million Americans and 0.4 – 2% of the general European population.

It has been recognized as a contributor to cardiovascular disease burden in Africa, and an important cause of hospital admission.

Available data suggests that the etiologies of heart failure in Africa differ from those in the Western world. The most common underlying cause of heart failure in high – income countries is coronary artery disease. In sub – Saharan Africa, the predominant causes are hypertensive heart disease, rheumatic heart disease and cardiomyopathies.

Previous studies in Africa have revealed a hospital admission rate of 3 – 7% which is similar to rate of developed countries of Western Europe and America.

The aims of the present study were to determine the prevalence, pattern and mortality rate of heart failure among patients admitted in to medical wards of MMSH Kano, a tertiary hospital in North- Western Nigeria.

II. Methods

This retrospective descriptive study was conducted in MMSH, Kano, Nigeria between January 2016 to December 2016. MMSH is a tertiary health institution established in 1928 and the largest Government owned hospital in Northern Nigeria. It is located within Kano metropolis, and is highly accessible to patients as no fees are charged for consultation and admission. It does not only serve the people of Kano State, but also neighboring states.
Admission and discharge records of the stated period were retrieved, and patients with clinical diagnosis of congestive heart failure (CCF) were identified. Information on socio-demographic and clinical parameters was extracted.

Heart failure was defined according to the recommendations of the European Society of Cardiology. A patient was considered to have hypertensive heart failure on the basis of self-reported history of hypertension and or use of blood pressure (BP) lowering medications, documented BP of ≥140/90mmHg or echocardiographic evidence of hypertensive heart disease. Peripartum Cardiomyopathy (PPCM) was diagnosed based on the temporal relation of heart failure to last pregnancy and delivery as proposed in the European Society of Cardiology (ESC) working group on PPCM guidelines. Dilated cardiomyopathy was defined by the presence of dilated left ventricle (with or without dilatation of the other three chambers) with global systolic dysfunction. Rheumatic heart disease was diagnosed using World Heart Federation criteria.

Cor pulmonale was said to be present when there is dilated and hypertrophied right ventricle and Doppler evidence of pulmonary hypertension.

Ethical approval was obtained from the institutions health research ethics committee.

III. Data Analysis

Data was analyzed using Statistical Package for Social Science (SPSS version 21.0). Continuous variables were presented as means ± standard deviation. Qualitative variables were expressed as proportions and percentages. Comparisons of categorical variables were performed using chi – square test. A P value of <0.05 was considered as statistically significant.

IV. Results

Out of the 1651 patients admitted within the study period, 268(16.2%) patients had diagnosis of heart failure. The mean age of the subjects was 49.28±11.25 years, with 93(34.7%) of the study population being males and 175(65.3%) females, with aM: F ratio of 1:2. The commonest cause of heart failure identified was hypertension in 117(43.7%) followed by peripartum cardiomyopathy (PPCM) 107(38.9%) and idiopathic dilated cardiomyopathy (DCM) 16(6.3%). Among the females however, PPCM was the commonest cause accounting for 107(62.5%), followed by hypertension 50(28.6%) and RHD 9(5.1%). Table 1 describes the age and sex distribution of the causes of heart failure.

Forty two of the patients died while on admission, 29(69%) females and 13(31%) males. This constituted a mortality rate of 15.7%. Table 2 describes the death distribution among the causes of heart failure.

V. Discussion

This study has assessed the aetiology and mortality rate of heart failure among admitted patients with heart failure.

The patients in this study were relatively young with a mean age of 49.28±11.25 years, similar to what was obtained in a previous study in same region, and in Accra, Ghana, on patients admitted with heart failure. It is however in contrast to what was reported in Europe and US, with higher mean ages. It is known that cardiovascular diseases occur a decade or two earlier in non-western countries than Western countries.

The commonest aetiology of heart failure was hypertensive heart disease, a finding similar to other studies in Nigeria. Most patients are not aware of being hypertensive and even when diagnosis has been made, treatment is either not optimal or completely inadequate. Cardiac complications remain the commonest complication of long standing hypertension in developing countries. In comparison, the prevalence of hypertensive heart disease was significantly higher in males compared to females (P = 0.03). This may be the reflection of higher prevalence of systemic hypertension among males compared to females.

Peripartum cardiomyopathy constituted the second most frequent aetiology of heart failure seen in this study, accounting for 38.9%, and the commonest aetiology among females, accounting for more than half of cases (61.1%). This disorder has been recognized as an important cause of heart failure in Northern Nigeria particularly Zaria, Sokoto, Katsina and Kano. A previous study in Kano reported a lower prevalence of 31.4% among heart failure admitted patients. The higher prevalence in this study may be explained by the availability of the echocardiographic service in our center where due to very cheap services, patients from low socioeconomic status patronize. A similar high prevalence of up to 60% was reported in Sokoto State, among heart failure admitted patients. The prevalence is however lower in other parts of the world. In South Africa, it was reported to be 1: 1000 live births, while in Haiti it was found to be 1: 300 live births.

In the present study, patients with PPCM were found to be younger compared to other female patients (28.0±12.4 years vs 42.4±11.3years). This is in keeping with previous reports in Kano and Sokoto. Patients from Zaria, South Africa and Haiti were however older than our patients, with the mean age of the South African and Haiti patients being 31.6±6.6 years and 31.8±8.1 years respectively. Left ventricular thrombus
LVT) was found in 12(14.9%) of the patients and 5(40.9%) had stroke. Previous studies Kano and Sokoto reported LVT rates of 60% and 12.3% respectively.20,29

Other important causes of heart failure include dilated cardiomyopathy, rheumatic heart disease, pericardial diseases and cor pulmonale, in agreement with earlier studies in Nigeria and other parts of Africa.21,27,33,34 The lower prevalence of rheumatic heart disease (5.2%), when compared with earlier studies may be attributed to the modest improvement in health care delivery system and improved sanitation in this region.35,36

Forty two patients (15.7%) died while on admission, 29(69%) females and 13(31%) males, with statistically significant gender difference (P= >0.001). This could be explained by the high prevalence of PPCM among the women, which is associated with high mortality. Some previous reports however show higher mortality in men with heart failure than women.20,57

Our study has a number of limitations. Being a retrospective study, there were missing data and incomplete medical records. In addition, there is lack of facilities for coronary angiography as well as postmortem evidence on deaths.

VI. Conclusion

The commonest aetiology of heart failure among all patients and males was hypertensive heart disease. Peripartum cardiomyopathy and rheumatic heart disease were the commonest causes of heart failure among females, while coronary artery is a rare cause of heart failure in this population.

AUTHORS’ CONTRIBUTIONS:

SH conceived the study, participated in the study design, data acquisition and drafted the manuscript. UA Participated in the study design, statistical analysis and supervision of the manuscript writing. JAU Participated in the study design, data collection and supervision of the manuscript writing.

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References


Topic: Heart Failure Admissions In Medical Wards Of A Nigerian Tertiary Hospital.


Table 1: Age and Sex distribution of the causes of heart failure.

<table>
<thead>
<tr>
<th>Aetiology of Heart failure</th>
<th>Mean age</th>
<th>M</th>
<th>F</th>
<th>Total</th>
<th>%</th>
<th>Sex difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHD</td>
<td>52.0±11.9</td>
<td>67</td>
<td>50</td>
<td>117</td>
<td>43.7</td>
<td>38.9</td>
</tr>
<tr>
<td>PPCM</td>
<td>28.0±12.4</td>
<td></td>
<td></td>
<td>107</td>
<td>107</td>
<td>38.6</td>
</tr>
<tr>
<td>DCM</td>
<td>47.4±6.50</td>
<td>16</td>
<td>12</td>
<td>4</td>
<td>6.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>RHD</td>
<td>27.9±11.1</td>
<td>5</td>
<td>4</td>
<td>914</td>
<td>5.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Cor Pulmonale42.8±7.90</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>2</td>
<td>2.8</td>
<td>0.001</td>
</tr>
<tr>
<td>PCD</td>
<td>29.2±9.6</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>2.4</td>
<td>0.96</td>
</tr>
</tbody>
</table>

Key: HHD, hypertensive heart disease; PPCM, peripartum cardiomyopathy; DCM, dilated cardiomyopathy; RHD, rheumatic heart disease; PCD, pericardial disease.

Table 2: Distribution of death among the causes of heart failure.

<table>
<thead>
<tr>
<th>Aetiology of heart failure</th>
<th>No of death (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertensive heart disease</td>
<td>12</td>
<td>28.6</td>
</tr>
<tr>
<td>Peripartum cardiomyopathy</td>
<td>28</td>
<td>66.6</td>
</tr>
<tr>
<td>Dilated cardiomyopathy</td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>Rheumatic Heart disease 1</td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>CorPulmonale 1</td>
<td></td>
<td>2.4</td>
</tr>
</tbody>
</table>

*Saidu Hadiza. “Heart Failure Admissions in Medical Wards of a Nigerian Tertiary Hospital.” IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 16.10 (2017): 63-66