

Cardiovascular Disease Admissions in Medical Wards of a Tertiary Hospital in North - Western Nigeria.

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Abstract:

Introduction: Cardiovascular disease (CVD) is a leading cause of death worldwide and has shown increase in its prevalence since the 19th century. The increase in prevalence was attributable to epidemiologic transition with westernization and changing life style patterns with resultant increase in the risk factors for cardiovascular diseases. This study was carried out to determine the pattern of cardiovascular disease admissions in Murtala Muhammad Specialist hospital, (MMSH) Kano, North – west Nigeria.

Methods: Methods: The study was retrospective covering the period from January 2013 to December 2015. Statistical Package for Social Sciences (SPSS) version 19 software was used to analyze data.

Results: Out of 4834 patients (males, 2526 and females, 2308) admitted in to the medical wards, 2,119 were recruited in to the study. Stroke (54.6%), congestive cardiac failure (CCF) 26.6% and hypertension (15.7%) were the most prevalent admitted CVDs.

Conclusion: Cardiovascular diseases contributed significantly to medical admissions with the elderly accounting for significant proportion. There is the need for planning to accommodate health problems with emphasis to primary preventive measures for cardiovascular diseases.

Key Words: Cardiovascular disease, Admissions, North – western Nigeria.

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I. Introduction

Cardiovascular diseases (CVDs) remain the leading cause of death and disability worldwide, with over 80% of the deaths occurring in the low and middle income countries.¹ Non-communicable diseases accounted for more than 36 million deaths in 2008, with CVDs responsible for 48% of these deaths. Although a large proportion of the deaths are preventable, they continue to rise mainly because preventive measures are inadequate. It has been projected that by the year 2030, about 23.6 million people will die from CVDs.¹ This is attributable to the worsening CVD risks profiles in the developing countries as a result of epidemiologic transition.¹ In sub-Saharan Africa, the prevalence of CVDs has reached near epidemic proportions with systemic hypertension being the most important risk factor.² There have been previous reports on the pattern of CVD admissions from hospitals in Nigeria, however, there is paucity of data from the North-western part of the country. It is with this background that this study is carried out in Murtala Muhammad Specialist hospital, a tertiary health institution in Kano state, Nigeria.

II. Methods

This retrospective descriptive study was conducted in MMSH, Kano, Nigeria between January 2013 to December 2015. 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 relevant information extracted. This includes age, sex, diagnosis, duration of hospital stay and outcome (discharged, death, referred or discharge against medical advice). Ethical approval was obtained from the institutions health research ethics committee. The data was analyzed using Statistical Package for Social Science (SPSS version 21.0). Continuous variables were presented as means \pm 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.

III. Results

Over the three year period, a total of 4902 patients were admitted in to the medical wards. Four thousand eight hundred and thirty four (4834) patients' records were however analyzed, 68 excluded due to incomplete records. There were 2526(52.3%) males and 2308(47.7%) females out of which 2,166(44.8%) were admitted in to the study. Of these, 1047(48.4%) were males and 1119(51.6%) giving a male to female ratio of 1:1.1. The age range of the patients was 14 to 105 years with the mean age of (Male = 48.33±17.75 years, Female = 44.49±18.35 years).The age distribution of the patients is shown in table 1.

Of the total medical admissions, cardiovascular diseases accounted for up to 2144(43.7%), while other non – communicable and communicable diseases accounted for 1140(46.3.6%). Among the cardiovascular diseases, stroke, congestive cardiac failure (CCF) and hypertension were the most prevalent accounting for 54.6%, 26.6% and 15.7% respectively. The details are as shown in table 2.

One thousand four hundred and twelve, 1412(65.2%) were discharged, 714(32.9%) died, 26(1.2) were discharged against medical advice and 14(0.7%) were referred to other facilities. Of the 714 that died, the majority of the deaths 471(65.9%) were patients with stroke. Figure 1 shows the distribution of the causes of death. The length of stay in the hospital ranged between 1 and 109 days with a mean of 11.33±9.74 days and median of 9 days.

IV. Discussion

The findings from this study showed that cardiovascular diseases are common in patients admitted in to the medical wards of Murtala Muhammad Specialist Hospital, Kano. CVDs accounted for 43.7% of the total admissions over the three year period that was studied. The highest proportion of patients admitted were elderly compared with young adults and middle aged. The increased risk for cardiovascular diseases, with ageing may account for more elderly admissions than other age groups. This similar observation has been previously documented.^{3,4} The slight female preponderance observed in our study, when compared with previous studies may be explained by the higher prevalence of congestive cardiac failure, in particular, peripartum cardiomyopathy among the female patients.^{5,6} However, stroke, which accounted for over 50% of the total cardiovascular admissions, is commoner among the male patients. This may be explained by the higher cardiovascular disease risk burden in the males.⁷ Compared with previous studies, we reported higher prevalence of CVD among medical admissions. This is in agreement with the previous WHO report, with continued rise in CVDs particularly in the low and middle income countries.¹ It has been projected that by year 2030, about 23.6 million will die from CVDs.¹ Most of the previous studies were conducted about a decade ago. Osuafor et al, Ansa et al and Osuji et al, in South – east Nigeria, reported 30.3% , 19.4% and 15% respectively.^{8,9,10} Lower prevalence were also observed by Amendezo et al, (8.2%) and Reitsma et al (16%).^{11,12} Stroke was the commonest cardiovascular disease warranting admission in the medical wards constituting 54.6% of total CVD admission. This is similar to findings from previous studies.^{13,14} The large number of patients admitted with stroke reflects on the increasing incidence and poor awareness of CVD risk factors particularly hypertension and diabetes mellitus. The delay in seeking treatment results in complications with resultant high mortality.¹¹ Congestive heart failure (CCF) ranked second with a prevalence of 26.6%. Majority were as a result of hypertension, followed by peripartum cardiomyopathy (PPCM), idiopathic dilated cardiomyopathy (DCM) and the rheumatic valvular heart disease. The high incidence of PPCM, among the females makes CCF commoner among the females in our study. The large number patients admitted for heart failure may be a reflection of poor awareness of risk factors and early symptoms of heart failure leading to delayed treatment. Heart failure is said to account for 3 – 7% of all admissions in Africa and is fast becoming a global disease due to the world wide increasing prevalence.^{15,16} Hypertension and related complications (other than stroke and heart failure) rank 3rd, accounting 15.7%. When however taken with stroke and heart failure, it becomes the commonest cause of cardiovascular admission, accounting for over 60%. Earlier studies in Nigeria had given rates of 32.3 to 36.9%.^{17,18} Rates of 34.1% and 22.4% were reported in Zambia and Tanzania, respectively. The higher rates of hypertension related admissions could be explained by the increasing prevalence of hypertension, with poor awareness and control rates. Osuji et al and Ahaneku et al had rates of 44.5%, much higher than the previous NCD report of 10%.^{19,20,21} Uncontrolled hypertension is associated with several complications such as heart failure, ischemic heart disease, stroke, chronic kidney disease and others.²² Furthermore, hypertension often co-exists with other cardiovascular disease risk factors thus increasing the risk of early death from cardiovascular causes by about three fold.²³

In conclusion, this study has shown that cardiovascular disease contributed significantly to medical admissions over the three periods, with the elderly accounting for a significant proportion. CVD admissions are associated with high mortality, stroke being the commonest. There is therefore the need to intensify primary preventive measures for CVD through lifestyle modification, early detection and treatment.

This study has some limitations. As record keeping is done manually, data collection was time consuming. There were also missing and incomplete data. Changes made in the diagnosis in the course of

hospital stay may not have been captured. There is also the possibility of misdiagnosis were gold standard instrument of diagnosis are not used.

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Table 1: Age and Sex distribution of the patients

Age group (years)	Frequency	Percent (%)
< 20	134	6.2
20 – 29	152	7.1
30 – 39	116	5.1
40 – 49	275	12.8
50 – 59	513	22.7
60 – 69	650	30.0
≥ 70	326	15.1
Total	2166	100

Table 2: Cardiovascular disease causes of admission.

Diagnosis	Male n (%)	Female n (%)	Total n (%)	p value
Stroke	631 (60.3)	553 (49.4)	1184 (54.7)	0.025*
Congestive Cardiac Failure	228 (21.8)	349 (31.2)	577 (26.6)	<0.001*
Hypertension	146 (13.9)	196 (17.5)	342 (15.7)	<0.001*
Corpulmonale	17 (1.6)	7 (0.6)	24 (1.1)	<0.001*
Myocardial Infarction	16 (1.5)	6 (0.5)	22 (1.0)	<0.001*
Pericardial diseases	8 (0.8)	8 (0.7)	16 (0.7)	0.96
Congenital heart disease	1 (0.09)	0	1 (0.005)	-

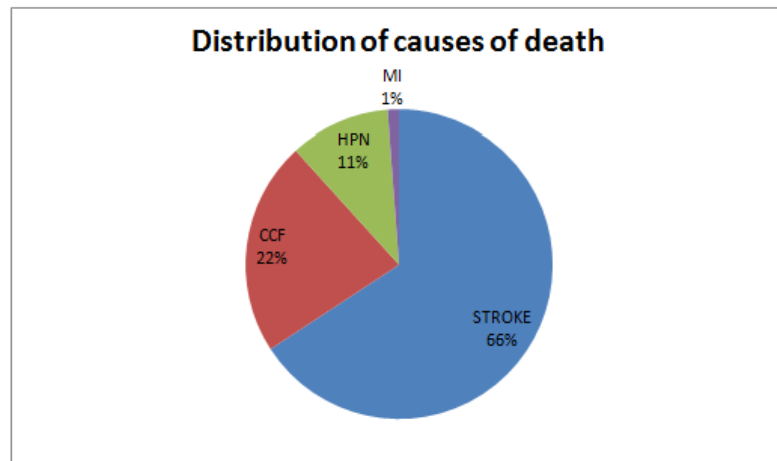


Figure 1: Pattern of distribution of death.

Key: CCF, congestive heart failure; HPN, hypertension; MI, myocardial infarction.

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