ORIGINAL ARTICLE

Some emerging issues in medical admission pattern in the tropics

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Abstract

Background: There is a changing pattern in terms of medical admissions worldwide with an alarming increase in the prevalence of noncommunicable diseases, especially in the tropics over the last decade. The aim of this study was to describe the pattern of medical admission and highlight emerging issues of noncommunicable diseases in a Nigerian University Teaching Hospital.

Materials and Methods: A retrospective review of medical admission at the Ladoke Akintola University of Technology Teaching Hospital, Osogbo, South Western Nigeria, over a 3 years period (January 2005 to December 2007). Data were retrieved from the medical records of all medical admission over the study period.

Results: During the study period, 1786 patients were admitted into the medical wards. This consisted of 1089 males (61.0%) and 697 females (39.0%). Their ages ranged from 14 to 96 years with mean ages of 51 ± 16.89 years. Subjects ≥60 years of age accounted for 27.3% and 29.8% of total males and female admissions which were the largest age group. Noncommunicable diseases were responsible for 47.99% of total medical admissions. The indications for admission in order of frequency include cerebrovascular accidents 239 (13.4%), diabetes mellitus 194 (10.9%), tuberculosis 151 (8.5%), and chronic kidney disease 116 (6.5%). Hypertension was the underlying risk factor in majority of patients with CVD and CKD.

Conclusion: Noncommunicable disease accounted for a significant number of admissions over 3 year duration. The elderly accounted for a major age group admitted for medical diseases. Therefore, preventive strategies against noncommunicable disease and effective geriatric care are advocated.

Key words: Cardiovascular disease, noncommunicable disease, tropics

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Introduction

The pattern of medical diseases varies from different regions of the world. A changing pattern toward noncommunicable disease has been documented in various papers based on epidemiological predictions and observational data.[1-3] The preponderance of chronic noncommunicable disease in various hospitals across developing countries especially Nigeria have been documented.[4-8] Noncommunicable diseases include hypertension and hypertension disorders, diabetes mellitus, malignancies, cerebrovascular diseases, coronary heart disease, congestive heart failure, and chronic kidney disease.

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In the past, infectious disease accounted for most of the morbidities and mortality among medical admission facilities across Africa.[9] However, as a result of the epidemiologic transition, chronic diseases especially cardiovascular diseases including stroke, hypertension, and diabetes are attaining prevalence of heightened proportion.[1,10,11] It has been suggested that developing nations including Africa will account for the major part of the increase in cardiovascular disease prevalence worldwide.[3] Therefore, the aim of this study was to

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describe the pattern and burden of medical admissions in a tertiary health care facility in a capital city in South Western Nigeria and to compare it with that from other part of the country. The study also described the changes in pattern of medical admissions noted over the years as noncommunicable disease continues to be a major reason for medical admissions in our hospitals. Also include as part of the aim the need to compare the findings with past results of such studies so that the trend is noted over the years. You may also have as your objective, a comparison of noncommunicable and communicable diseases in terms of morbidity and mortality

It also highlights emerging issues in medical admissions in the tropics such as the changing demographics, the alarming increase in cardiovascular diseases, and the need to strengthen the poor secondary health care facilities and enhanced qualitative training of specialists to combat the emerging trend of noncommunicable diseases.

Materials and Methods

A retrospective study of the demographics and admission pattern of patients in the medical wards of the Ladoke Akintola University of Technology Hospital (LAUTECH) over a 3 year period from January 2005 to December 2007 was conducted. LAUTECH Teaching Hospital, Osogbo, is a 200 bed hospital which provides tertiary and specialized care to close to 10 million people in South Western and parts of the North Central region in Nigeria. There are five other tertiary hospitals within a 150 km radius, while there are eight other general hospitals (secondary health care facilities) within a 1–25 km radius. Case files of all patients admitted into the male and female medical wards of the LAUTECH Teaching Hospital, Osogbo, were included in the data analysis.

The patients case notes were retrieved, biodata including age, gender, final diagnosis (as made by the managing specialist), and the final outcome were entered into a precoded spreadsheet and data were analyzed with the aid of the Statistical Package for Social Sciences (SPSS Inc, Chicago, III Version 11.0). Qualitative data were expressed as frequency and percentages, while quantitative data were summarized as means±standard deviation.

Results

A total of 1786 patient were admitted into the male and female medical wards from 1st January 2005 to 31st December 2007. They consist of 1089 males (61.0%) and 697 females (39.0%). Adult subjects (>60 years) accounted for the largest percentage of admission among both the male and females, accounting for 29.8% of total female admission and 27.3% of total male admission [Figure 1].

Among male patients admitted during the study period the pattern of medical admissions included cerebrovascular disease, 132 (12.1%), diabetes mellitus, 109 (10.0%), tuberculosis, 98 (9.0%), chronic kidney disease majority of which were secondary to hypertension, chronic glomerulonephritis, and diabetes mellitus, 81 (7.4%), and hypertensive disorders including severe (malignant) hypertension and hypertensive encephalopathy, 75 (6.9%). Among females, cerebrovascular disease accounted for 107 (15.4%), diabetes mellitus accounted for 85 (12.2%), congestive cardiac failure accounted for 60 (8.6%), tuberculosis accounted for 53 (7.6%), and hypertensive disorders accounted for 45 (6.5%), as shown in Table 1. Other medical disorders responsible for medical admissions included tetanus, peptic ulcer disease, acute renal failure, septicaemia, meningitis, chronic obstructive pulmonary

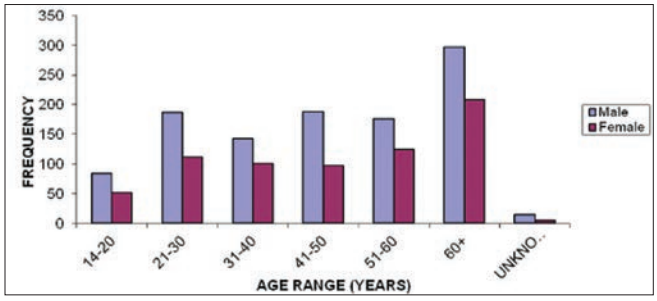

Figure 1: Age distribution of medical admission into LTH 2005-2007

Table 1: Pattern of medical disorders among medical admission in LTH between 2005 and 2007

Diagnosis	Male (%)	Female (%)	*P* value
Cerebrovascular accidents	132 (12.1)	107 (15.4)	>0.05
Diabetes mellitus	109 (10.0)	85 (12.2)	>0.05
Tuberculosis	98 (9.0)	53 (7.6)	>0.05
Chronic kidney disease	81 (7.4)	35 (5.0)	<0.05*
Hypertensive disorders	75 (6.9)	45 (6.5)	>0.05
Congestive cardiac failure	64 (5.9)	60 (8.6)	<0.05*
Chronic liver disease	52 (4.8)	14 (2.0)	<0.05*
Tetanus	35 (3.2)	9 (1.3)	<0.05*
Peptic ulcer disease/upper GI bleeding	25 (2.3)	31 (4.4)	<0.05*
Acute renal failure	42 (3.9)	27 (3.9)	>0.05
Septicaemia	50 (4.6)	57 (8.2)	<0.05*
Meningitis	25 (2.3)	6 (0.9)	<0.05*
Malignancies	51 (4.7)	13 (1.9)	<0.05
Pneumonia	30 (2.8)	19 (2.7)	>0.05
Immunosuppression	27 (2.5)	20 (2.9)	>0.05
Severe anemia	21 (1.9)	5 (0.7)	<0.05
Chronic obstructive pulmonary disease	28 (2.6)	8 (1.1)	<0.05
Seizure disorder	13 (1.1)	9 (1.3)	>0.05
Others	131 (18.8)	94 (13.5)	<0.05
Total	1089	697	

LTH = Ladoke Akintola University of Technology Teaching Hospital

Table 2: Pattern of outcome of medical admission in LTH 2005-2007

Outcome	Male (%)	Female (%)
Discharged	586 (53.8)	347 (49.8)
Discharged against medical advice	75 (6.9)	55 (7.9)
Death	233 (21.4)	139 (19.9)
Referred	22 (2.0)	24 (3.7)
Unknown	173 (15.9)	132 (18.9)
Total	1089	697

LTH = Ladoke Akintola University of Technology Teaching Hospital

disease, and seizure disorder. During the period under review, there were 372 deaths recorded accounting for total fatality rate of 21.4% of total male admissions and 19.9% of total female admissions. 75 males (6.9%) and 55 (7.9%) of females discharged themselves against medical advice [Table 2]. Communicable diseases including cerebrovascular (most of disease whom had hypertension as a major cardiovascular risk factor) diabetes mellitus, hypertension disorders (including severe/malignant hypertension and hypertensive encephalopathy), heart failure, and malignancies were responsible for a significant proportion (47.99%) of total medical admission over the study period.

Discussion

This study documents the pattern of medical admissions at our hospital over a 3 year period. It showed that chronic noncommunicable diseases such as cerebrovascular accidents, hypertensive disorders, diabetes mellitus, and chronic kidney diseases accounted for a significant portion of the medical admission profile. This study agrees with similar studies in Nigeria and elsewhere which have also documented the emergence of noncommunicable disease over the last decade.[4-8] Tuberculosis was the commonest reason for medical admission due to communicable disease during the study period.

The continuous but consistent transition toward endemicity of chronic noncommunicable disease appears inevitable, considering the fact that there are anecdotal evidences to support that infective and communicable disease were major causes of morbidities and mortalities in the 1970s.[3] This may be connected with the increasing prevalence of cardiovascular risk factors such as hypertension, diabetes mellitus, and dyslipidaemia. It is also likely to be related to increasing urbanization, reduced physical activity, and the epidemic boom of obesity especially in the developing world. However, as a result of several factors including increasing prevalence of hypertension, obesity, westernized diet, and continuous changing lifestyle, noncommunicable diseases especially cardiovascular diseases are already becoming highly prevalent.

This study highlights the fact that communicable diseases is increasingly continuing to be a major reason for medical admission in developing countries like Nigeria. Another important information this study provided was the fact that the highest proportion of individuals admitted into the medical ward were >60 years of age. There is therefore necessity in formulating policy to integrate geriatric care into medical care in developing nations like Nigeria. Cardiovascular disease is responsible for one-third of global death and it is a leading contributor to the global disease burden. It presently has higher mortalities in developing countries than developed ones.[3] Reports from other developing countries have also revealed a changing pattern of medical disorders with respect to noncommunicable diseases. WHO has suggested that up to 80% of the expected rise in cardiovascular disease burden worldwide by the year 2020 may actually come from developing countries.[11-15] This calls for urgent action including initiation of preventive strategies and appropriate treatment of secondary prevention of chronic debilitating complication usually associated with the presence of cardiovascular disease.

It should be noted that the cardiovascular disease burden rest essentially on the increased prevalence of cardiovascular risk factors and the increased tendency for these factors to cluster together. These cardiovascular risk factors include hypertension, obesity, diabetes, (impaired glucose tolerance), dyslipidaemia, reduced activity, and lack of exercise. Concerted effort at combating these risk factors has been shown to lead to reduction in cardiovascular disease burden.

Most of our patients had hypertension as the primary etiology, especially in cases of cerebrovascular accidents, congestive cardiac failure, and chronic kidney disease and it is a known fact that hypertension is the commonest risk factor for these diseases in Africa especially in Nigeria.[16-18] Diabetes was also an associated underlying pathology in many of our patients with cerebrovascular disease and chronic kidney disease. This was in agreement with similar study done in Lagos where diabetic-related admissions constituted significant proportion of total medical admissions in Lagos. It was responsible for 15% of all medical admission over a 12 month period and in Lagos and 11.3% of total medical admission over an 11 year period.[19,20] Chronic kidney diseases were mostly related to hypertension and diabetes mellitus in a significant proportion of our study population and was also common during this period. This is not unexpected in view of the fact that the hospital is one of the major referral centres for kidney disease in the South Western part of the country as it provides specialist care by way of renal replacement therapy to close to 6 million people.

Strategies to cope with increasing burden of noncommunicable disease include effective and integrated control of cardiovascular risk factors such as hypertension and diabetes

mellitus. This involve early detection, adequate treatment and control of blood pressure and blood sugar with reduction of target organ damage, and long-term complications. It also includes identification and treatment of lipid disorders, control of obesity, dietary advice, increasing physical activity, and appropriate treatment of cardiovascular risk factors. These has been shown in developed economies to significantly reduce the burden of cardiovascular diseases.[11,12]

The high number of other cases seen during this period suggests that with better funding and motivation of the workforce, other eight general hospitals around a 1–25 km radius could equally have manage these cases successfully.

It was also observed that a large percentage of the admissions were elderly (>60 years of age). This is an agreement with other studies that have shown that elderly people account for a significant proportion of medical admission disease burden even in developed countries.[21,22] Average life expectancy has increased remarkably in the last decades. This is therefore a need for appropriate geriatric care for the population. This is due to a variety of factors, it is known that many risk factors for cardiovascular disease are more prevalent in the elderly,[20] the elderly patients also constitute a significant proportion of in-patient medical admission and lastly the rising number of the elderly in our population

In conclusion, noncommunicable disease account for a significant proportion of medical admission over a 3 year period with the elderly accounting for a significant age group admitted. There is thus a need for intensification of primary preventive strategies for cardiovascular and other noncommunicable disease. The capacity of secondary health facilities should also be strengthened to accommodate less severe medical cases thereby easing pressures off tertiary institutions with limited number of specialized personnel. Lastly, a wholistic care for the elderly in the population is advocated.

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