

## GERIATRIC ADMISSIONS IN A DEVELOPING COUNTRY: EXPERIENCE FROM A TERTIARY CENTRE IN NIGERIA

**Background:** The aging populations in developing countries have brought a demographic and an epidemiological transition, affecting the impact of chronic diseases on the health status of the population.

**Objective:** To review the pattern of geriatric admissions in the medical wards of the University of Port Harcourt Teaching Hospital (UPTH).

**Method:** Medical records of all geriatric patients aged  $\geq 60$  years admitted in the medical wards between June 2002 and May 2006 were retrieved and reviewed retrospectively.

**Results:** 2736 admissions to the adult medical wards over the period were reported. Among these, 1122 (41%) were geriatric patients aged  $\geq 60$  years. The most common geriatric illnesses were cardiovascular diseases, 622 (43.7%), infections, 268 (18.8%) and endocrine diseases, 220 (15.4%). Malignancies, renal diseases and hematological diseases were few, being responsible for 53 (3.7%) 48 (3.4%) and 35 (2.5%) of medical admissions respectively. Only 1.5% of the patients spent more than 30 days in the hospital. More than half (56.4%) of the patients spent 1–2 weeks, while 33.3% of patients spent less than a week in hospital. Of the total geriatric patients seen, 70.6% recovered and were discharged home, 26.7% died and 2.5% left against medical advice.

**Conclusion:** Elderly patients constitute a high proportion of in-patient medical admissions. Chronic diseases were responsible for the majority of morbidity and mortality in the elderly patients. (*Ethn Dis.* 2009;19:359–362)

**Key Words:** Geriatric Admissions, Developing Countries, Tertiary Centre, Nigeria

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### INTRODUCTION

The developing world is experiencing an aging population with its attendant increase in the burden of chronic diseases.<sup>1</sup> It is projected that the total geriatric population (aged  $>60$  years) worldwide will rise from 605 million in the year 2002 to 1.2 billion in 2025.<sup>2</sup> Similarly, the population of elderly persons may double in sub-Saharan Africa (SSA) between 2000 and 2030.<sup>1</sup> This demographic change has profound implications for a country like Nigeria, which is the most populous country in SSA. It is compounded by the HIV/AIDS pandemic, which has led to increased prevalence of infectious diseases (especially in the young). We are now witnessing a double burden of disease for the developing world: the unfinished agenda of infectious diseases and the emerging agenda of chronic diseases resulting from lifestyle changes.<sup>3</sup> In a country where there is no structured or organized social welfare system, the care of the elderly is left for their progeny. The escalating cost of education, high housing and food costs, other demands of urbanization and, at times, unemployment, have affected the income levels of these care givers, leaving little financial resources for looking after the health and well being of most old parents. Geriatric morbidity is on the rise, as reflected by the hospital admission rates in recent times in some developing countries.<sup>4</sup> Furthermore, the persistence of poverty in developing countries, combined with aging, poses a formidable challenge because the majority of old people receive little special support.<sup>5</sup> Thus, geriatric care

requires an in-depth study of the epidemiology profile and type of geriatric morbidities and mortalities for a teaching hospital in a developing country. Our study, with an overall goal to reduce the morbidity and mortality rate among the elderly, aims to identify the geriatric profile of admissions from medical causes in our catchment area.

### METHODS

#### Setting

The University of Port Harcourt, Teaching Hospital (UPTH) is a tertiary health institution situated in Port Harcourt, capital of Rivers State of Nigeria. It serves as a referral center for Rivers State and the neighboring states of Bayelsa, Abia, Delta, Imo and Akwa-Ibom. It has 500 beds among the various specialties with 60 in-patient beds for adult medical admissions (30 beds for males and 30 for females).

#### Patients

The case notes of all geriatric patients aged  $\geq 60$  years admitted to the medical ward between June 2002 and May 2006 were collected from the medical records and reviewed. Patients without an adequate clinical record were excluded from the study. The principal diagnosis for each patient had been coded in the case notes in accordance with the International Statistical Classification of Disease, Injuries and Death (ICSD).<sup>6</sup> The definite diagnoses were made after patients had been investigated. Where a causal relationship existed between two diagnoses, the effect was taken as the definite diagnosis. Data

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**Table 1.** Distribution of geriatric patients as per diagnosis, age and sex

Diagnosis	60–69 yrs	70–79 yrs	80–89 yrs	90–99 yrs	100 & above	Male	Female	Total
Cardiovascular diseases	325	201	84	9	3	290	332	622
Nervous system diseases	26	22	8	3	-	32	28	60
Endocrine diseases	128	67	23	2	-	120	100	220
Renal diseases	27	15	6	-	-	35	13	48
Gastrointestinal diseases	37	15	11	2	-	35	30	65
Malignancies	29	19	5	-	-	32	21	53
Respiratory diseases	13	6	6	-	-	15	10	25
Infections	141	74	41	11	-	135	133	268
Haematological Diseases	18	12	4	1	-	15	20	35
Musculoskeletal Diseases	2	3	1	-	-	2	4	6
Miscellaneous	14	6	2	-	-	17	5	22

Miscellaneous – unknown cause (2), benign prostatic hypertrophy (15), drug induced rash (1) umbilical hernia (1), rhinitis (2), utero-vaginal prolapse (1).

extracted included age, sex, diagnosis, length of hospital stay and outcome.

## RESULTS

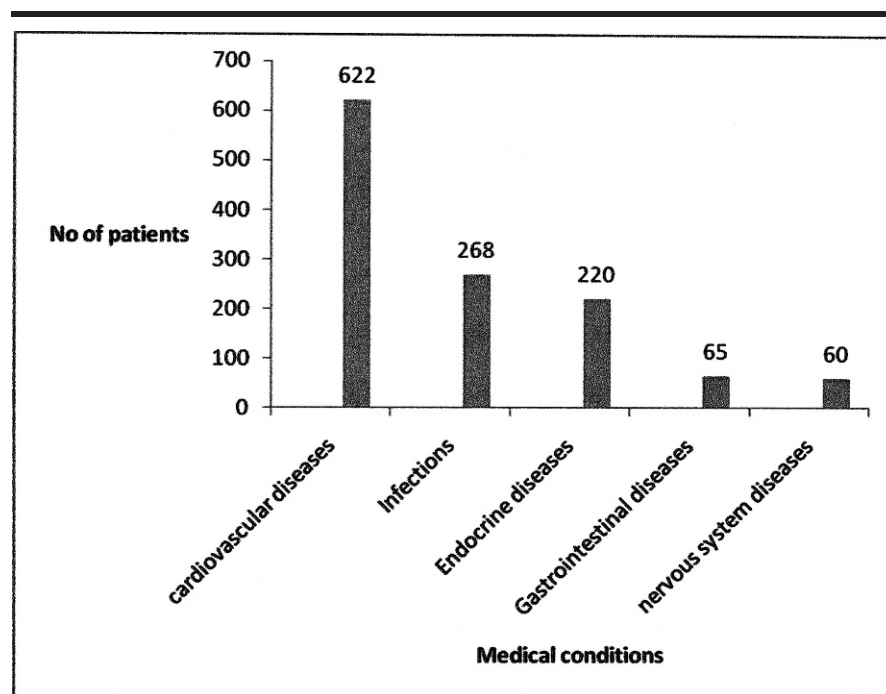
Over the five-year period, 2736 patients were admitted into the medical wards with 1122 (41.2%) being geriatric admissions. There were 552 males and 570 females. Their ages ranged from 60 years to 100 years. The mean age was  $69.6 \pm 8.2$  years and the mode was 60 years. Six hundred (53.5%) patients were in the 60–69 age group and 3 (0.3%) were in the  $\geq 100$  age group.

Analysis according to systems, showed that 622 (43.7%) geriatric admissions were due to cardiovascular diseases (CVD), of which 297 (47.4%) was attributable to stroke. Infections accounted for 268 (18.8%) geriatric admissions. Of the infections, tuberculosis was responsible for 60 (22.4%) cases. Out of this number, 49 (81.7%) had pulmonary tuberculosis (PTB) while 11 (18.3%) had extra-pulmonary tuberculosis. Ten (20.4%) patients with PTB had co-infection with human immunodeficiency virus (HIV). The remaining 16 patients who were HIV positive had no evidence of tuberculosis. Type 2 diabetes mellitus was the main endocrine disorder encountered in this series and was responsible for 218 cases (15.3%) of geriatric admissions, while

thyrotoxicosis accounted for the remaining 2 (0.1%) cases. Diseases of the nervous system accounted for 60 (4.2%) geriatric cases while malignancies, renal diseases and hematological diseases were responsible for 53 (3.7%), 48 (3.4%), and 35 (2.5%) conditions respectively.

Table 1 shows the distribution of geriatric patients as per sex, age, and disease pattern. Two hundred and sixty five (23.6%) patients had 2 conditions while 39 (3.5%) patients had 3 conditions. Figure 1 shows the 6 main causes

of geriatric admissions. Analysis of the length of stay in hospital prior to discharge or death showed that 343 (30.6%) patients stayed for less than one week. A large proportion of the patients, 569, (50.7%) were hospitalized between 2–3 weeks, while 191 (17%) of patients were admitted for between 4–8 weeks. The remaining 19 (1.7%) patients spent more than 8 weeks in the hospital. Of the total number of patients, 792 (70.6%) were discharged, while 300 (26.7%) died.

**Fig 1.** Six most frequent indications for geriatric admission at UPTH

## DISCUSSION

The natural process of aging starts at 60 years old, for most individuals.<sup>7</sup> In this study, we found that more than half of the elderly in-patients were in the 60–69 year age group. The smallest age group was the >90 years age group. This may be a reflection of the general population trend. Females outnumber males in this study. Although this was not statistically significant, it may be attributed to their longer life expectancy.<sup>8</sup>

This study shows that cardiovascular diseases were the most common cause of geriatric morbidity in the medical wards, accounting for 43.7% of geriatric admissions. Other major causes of admissions were infections and type 2 diabetes mellitus. Renal disorder, liver disorder, respiratory disorder and musculoskeletal disorder were few, being responsible for 2.9%, 2%, 1.5% and 0.4%, respectively, of geriatric admissions. Other researchers have also reported that cardiovascular diseases are the most common causes of geriatric admissions.<sup>4</sup> Previous hospital and community-based studies have shown that hypertension is the main cause of cardiovascular diseases in Nigeria.<sup>7,9</sup> Thus, more attention should be paid to hypertension detection and control at the community level if the incidence of CVD and its attendant morbidity and mortality events are to be reduced.

Type 2 diabetes mellitus was a major cause of admission in the elderly in this study and is emerging as a new health problem. This may be due to adoption of Western lifestyles in most urban areas in sub-Saharan Africa.<sup>10</sup> An aging population, together with rapid urbanization, will lead to an increase in the prevalence of diabetes such that by the year 2030 the majority of the world's diabetic population will be living in the developing countries.<sup>11</sup> By 2030 the prevalence of diabetes mellitus is expected to double from 171 million

(2.8% of world population) in 2000.<sup>11</sup> From all these, the most important demographic change in diabetic prevalence across the world appears to be the increase in the proportion of people older than 65 years.<sup>11</sup> Thus, the increasing incidence of diabetes mellitus in the sub-Saharan region can be reduced by lifestyle modifications such as weight reduction, regular exercises, and avoidance of refined carbohydrates.

According to the World Health Organization, the worldwide disease burden for the elderly were ischemic heart disease, chronic obstructive airway disease, respiratory infections, carditis, diabetes mellitus, tuberculosis, cancer and chronic liver diseases.<sup>12</sup> Chronic obstructive airway disease and respiratory infections were not major causes of hospital admission in our cohort of patients. The low frequency of chronic obstructive pulmonary disease among our patients contrasts with the findings of Olubuyide et-al<sup>7</sup> in Ibadan, Western Nigeria and needs further elucidation. With modern chemotherapy, most respiratory infections are amenable to outpatient management so that the number of admissions due to respiratory infections may give little indication of their frequencies.

Infections still form a major cause of hospital admission among the elderly. This reflects the poor state of our environment, leading to poor housing, over-crowding and malnutrition.<sup>13</sup> Human immunodeficiency virus infection was found in a significant number of the elderly admissions and may be a reflection of HIV pandemic in sub-Saharan Africa.<sup>14</sup> Liver diseases, especially primary liver cell carcinoma and cirrhosis, also constitute a significant cause of hospital admission among the elderly, being responsible for 49(4.4%) of admissions. This may be due to the high prevalence of viral hepatitis, contamination of food by aflatoxin, and the common practice of herbal consumption by the general population.<sup>13</sup> There is need to incorporate hepatitis vaccina-

tion in the immunization schedule of the populace to avoid the progression of hepatitis B to liver cell carcinoma in later life.<sup>15</sup> Another disorder in this cohort was chronic renal failure (CRF), which was documented in 44(3.9%) of the patients. Both hypertension and diabetes mellitus are common risk factors for CRF and the control of these conditions may result in a reduction of the prevalence of CRF. The majority (56%) of the geriatric cases were hospitalized for 7–28 days. This contrasts with Vijaya's research in India,<sup>4</sup> where majority of the geriatric patients spent less than a week. Conditions for which patients had short hospital stays (less than a week) were diabetes emergencies such as hypoglycemia and hyperglycemic non-ketotic coma and other conditions such as pneumonia, bronchial asthma and upper gastro intestinal bleeding. These were acute medical emergencies and the patients recovered as soon as they were stabilized, thereby necessitating early discharge.

The discharge rate of 70.6% in this study is lower than that of some centers in India that had discharge rates of 90.4% and 81.6%, respectively.<sup>4</sup> The higher mortality rate recorded in this study when compared with those centers in India might be due to reluctance of most patients in Nigeria to go to the hospital unless they are seriously sick.

## CONCLUSION

The elderly patients constitute a significant proportion of in-patient medical admission. Chronic diseases, with their various complications, were responsible for the majority of the morbidity and mortality events in the elderly. Most of these conditions have well-established relationships to systemic hypertension, thereby necessitating its prevention, early detection and prompt treatment.

## RECOMMENDATION

In Nigeria, the life expectancy has increased from 37 years in 1960 to about 50 years currently.<sup>8</sup> With this increase in life expectancy, the elderly population may be on the rise. The federal and state governments should provide health insurance coverage for the elderly. Teaching hospitals in the country should have dedicated geriatric wards, staffed with trained gerontologists and geriatric nurses. This will make such hospitals more geriatric friendly. More infrastructural facilities for geriatric out-patient departments, and counseling should be provided. There is need to open a stroke registry and dedicated stroke management center at UPTH since it is the most common cause of geriatric hospital admission.

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