Original Article

Common Geriatric Morbidity from Communicable Diseases in a Rural Hospital in Eastern Nigeria

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ABSTRACT

BACKGROUND: The geriatric health, wellness and illness states in Nigeria are largely influenced by communicable diseases.

Objective: This study was aimed at describing the pattern of common geriatric morbidity from communicable diseases in a rural hospital in Eastern Nigeria.

METHODS: This study was a descriptive hospital-based study carried out from June 2008 to June 2010 on geriatric patients at St Vincent De Paul Hospital, Amurie-Omanze, a rural Mission General Hospital in Imo state. The data collected included age, sex and diagnoses made.

RESULTS: Eight hundred and seventy two patients out of a total patient population of 9885 were 65 years and above. The geriatric patients' constituted 8.8% of total patients' population. Out of these, 530 (60.8%) had communicable diseases consisting of 235 males and 295 females with a male to female ratio of 1: 1.3. The top five communicable diseases were malaria (67.1%), skin infections (43.6%), urinary tract infections (36.0%), intestinal helminthiasis (20.6%) and gastroenteritis(17.9%).

CONCLUSION: This study shows that geriatric patients suffer acute and chronic communicable diseases with the commonest being malaria, skin infections, urinary tract infections and neglected tropical disease such as ascariasis and hookworm infestation. Effective measures are needed to control the scourge of communicable diseases which are largely preventable among the elderly patients particularly in rural Nigeria.

KEY WORDS: Communicable diseases, morbidity, geriatrics, rural Nigeria, hospital.

INTRODUCTION

Aging is a natural phenomenon that has gerontological, biological and sociological dimensions with positive and negative impact on geriatric wellness and health[1]. It involves interplay of genetic, biological, environmental and psycho-social factors[2]. There is no definite clinical marker of geriatric patients. However, World Health Organization (WHO) arbitrarily fixed chronologic age of 65 years and above as geriatric age group[3]. Many studies have shown the clinical relevance of regarding patients who are 65 years and above as geriatric patients[3]. Globally, there is emerging increase in the population of elder citizens[4].

Aging, though perceived as a natural phenomenon can be of primary or secondary nature[1]. Primary aging occurs over time while secondary aging occurs as a result of illness, diseases and trauma and may be premature or accelerated[1]. Among the health problems associated with secondary aging include communicable diseases, non-communicable diseases, accident, trauma and injuries.

One of the most striking achievements of medical science during the 20th century has been the remarkable gains in human life expectancy[2,5]. The gains in life expectancy are attributed to many causes but one of the major contributors has been reduced morbidity and mortality from communicable diseases. The health gains from improved control and prevention of communicable diseases have not been equitably distributed between the developed and developing regions of the world. Approximately 43% of deaths from communicable diseases occur in developing countries as compared with 1% in developed countries[6]. This disparity is clearly illustrated by the marked differences in life expectancy between persons in developing countries and those in developed countries. In developed world, parallel increases in human life expectancy have occurred in most developed countries where average life expectancy now approaches 80 years in many locations[6].

In developing countries, geriatric health is predominantly influenced by the burden of communicable diseases that negatively impact on their life span, life expectancy and greatly influence their ability to optimize the potential for longevity, healthy and fulfilled life. As a leading cause of morbidity in developing countries, communicable diseases have hardly been conquered. In fact, one might consider the 1990s as an era of reawakening, when emerging and re-emerging infectious diseases were recognized as a major health problem particularly in the developing countries[7].

The study of the geriatric communicable diseases in a rural Nigeria secondary health institution will help to identify the common communicable diseases of this special population of senior citizens for consultation and comparative purposes. It is therefore envisaged that this study would stimulate the need to accelerate the development of geriatric medical programmes in the country particularly among the elder citizens who are living in resource-poor rural areas of Nigeria. The

researchers therefore sought to study the pattern of morbidity from communicable diseases among the geriatric patients in the rural environment of Imo state, in Eastern Nigeria.

MATERIALS AND METHODS

This study was a descriptive hospital-based study carried out from June 2008 to June 2010 on geriatric patients at St Vincent De Paul Hospital, Amurie-Omanze, a rural Mission General Hospital in Imo state South-Eastern Nigeria. The hospital renders twenty four hours service daily including public holidays to the community and its environs.

The clinical records of the geriatric patients who presented each day to the hospital were collected and entered into a data collection schedule sheet. The geriatric patients who needed highly specialized diagnostic investigations and care were referred out and excluded from the study. Sample size estimation was determined using the formula[8] for estimating minimum sample size for descriptive studies when studying proportions with entire population size of less than 10,000 using estimated population size of 600 geriatric patients based on the previous annual geriatric patients hospital attendance records. The estimated minimum sample size assuming 50% expected variance in estimating the proportion of the geriatric patients attending the hospital gave final minimum sample size estimate of 234 geriatric patients. However, selected sample size of 530 geriatric patients was used based on the duration of the study. Relevant laboratory and radio-diagnostic investigative studies not available in the study centre were done at Federal Medical Centre, Owerri, Imo State University Teaching Hospital, Orlu, and Hi-tech Laboratory, Owerri. The age, sex and diagnoses made were extracted daily from the clinic records and entered in the data collection schedule sheet.

The authors defined geriatric patients as those aged 65 years and above[3] while communicable diseases was defined as an illness due to a specific infectious agent or its toxic products which arises through the transmission of that agent or its products from a reservoir to a susceptible host either directly as from an infected person or animal or indirectly through an intermediate plant or animal host, vector or the inanimate environment, examples are malaria, skin infections, respiratory tract infections, tuberculosis, etc[9].

Statistics: The results generated were analysed using Statistical Package for Social Sciences version 13.0, Chicago for the calculation of mean, frequencies and percentages.

RESULTS

Eight hundred and seventy two patients out of a total patient population of 9885 were 65 years and above. The geriatric patients constituted 8.8% of total patients' population. The age ranged from 65 years to 98 years with mean age of 74.3±2.4 years for all patients. The mean age of the males and females were 72.4±1.6 years and 78.1±1.5 years respectively. Out of the eight hundred and seventy two geriatric patients, 530 (60.8%) had communicable diseases consisting of 235 males and 295 females with a male to female ratio of 1: 1.3 (Table 1).

Table 1. Age and sex distribution of geriatric patients with communicable diseases

Age(tears)	sex	
	Male(%)	Female(%)
65-74	120(51.1)	141(47.8)
75-84	97(41.3)	119(40.3)
=85	18(7.6)	35(11.9)
Total	**235(100.0)**	**295(100.0)**

Table 2: *Common geriatric communicable diseases (CD).

Diagnosis	Frequency	Percentage (%)
Malaria	356	67.1
Skin infections	231	43.6
Urinary tract infections	191	36.0
Intestinal helminthiasis	109	20.6
Gastroenteritis	95	17.9
Eye infections	72	13.6
Ear infections	55	10.4
HIV/AIDS	1	2.1
Viral hepatitis	10	1.9
Tuberculosis	8	1.5
Lobar/broncho pneumonia	8	1.5

*Multiple diagnoses were recorded for some patients.
*Percentages represent proportion of the geriatric Population ``with Cds.

The top five communicable diseases were malaria (67.1%), skin infections (43.6%), urinary tract infections (36.0%), intestinal helminthiasis (20.6%) and gastroenteritis (17.9%) (Table 2). Of the top 15 geriatric health problems, the five top communicable diseases ; malaria, skin infections, urinary tract infections, intestinal helminthiasis and gastroenteritis ranked first, second, fourth , sixth and eight respectively (Table 3).

Table 3: *Top 15 geriatric morbidity (CDs, NCDs, accident, trauma and injuries).

Diagnosis	Frequency	Percentage (%)
Malaria	356	40.8
Skin infections	231	26.5
Hypertension	192	22.0
Urinary tract infections	191	21.9
Arthropathies	126	14.4
Intestinal helminthiasis	109	12.5
Dyspepsia	99	11.4
Gastroenteritis	95	10.9
Eye infections	72	8.3
Ear infections	55	6.3
Hyperactive airway disorder	32	3.7

Bite and sting injuries	28	3.2
Diabetes mellitus	25	2.9
Bladder outlet obstruction	24	2.8
Hernias	18	2.1

* Some patients have multiple diagnoses.
*Percentages represent proportion of the geriatric patients
 (N=872).

The 231 (43.6%) cases of skin infections were made up of 155 (29.2%) fungal, 63 (11.9%) bacterial, 11 (2.1%) viral and 2 (0.4%) parasitic (scabies) infections. Of the 191 (36.0%) cases of urinary tract infections, 123 (23.2%) were symptomatic, 37 (7.0%) asymptomatic and 31 (5.8%) were catheter-associated. There were 109 (20.6%) cases of intestinal helminthiasis made up of 78 (71.6%) *Ascaris lumbricoides* and 31 (28.4%) hookworm infestations.

DISCUSSION

This study was part of a larger study on common geriatric morbidity in the study centre and showed that communicable diseases contributed 60.8% of the total geriatric health problems, non-communicable diseases accounted for 32.8% while 6.4% resulted from accidents, trauma and injuries. The three most common (Top three) causes of geriatric morbidity from communicable diseases in this study were malaria (67.1%), skin infections (43.6%) and urinary tract infections (36.0%). This pattern of communicable diseases is similar to what has been reported in other age groups in Nigeria but differs in varying proportions and settings[10,11]. However, these studies have buttressed the fact that infectious diseases still remain the foremost and leading cause of morbidity in all age groups in Nigeria[9-11].

The commonest cause of geriatric morbidity from communicable disease in this study was malaria. This is similar to the commonest cause of morbidity from communicable disease reported in other age groups in Imo state[10,11]. Accordingly, malaria infection accounts for over 60% of outpatients' visits in Nigerian hospitals[12] and about half of adult Nigerians experience at least one episode of malaria attack per year[13]. Although, geriatric patients in Nigeria are not regarded as special group at risk of malaria infection but they are still vulnerable to the morbidity from malaria infection[12,13]. Malaria infection causes variations in the wellness and health of geriatric patients which may result in the impairment of their activities of daily living or otherwise pose a threat to their longevity and aliveness. Malaria infection has remained as significant health problem in the present century in Nigeria as they were in the early 1900s in the developed countries. Apart from being an important cause of geriatric morbidity, malaria exerts significant socio-economic burden for the affected families in developing countries[14,15]. Federal Government of Nigeria is committed to the global effort in reducing the burden of malaria infection by 50% by this present year 2010[16]. Despite years of formulation and implementation of malaria control programmes such as Roll Back Malaria Initiative, the impact of programme targets in general and malaria morbidity specifically have been below expectation especially in most rural Nigerian communities where majority of these elderly citizens live.

Through the activities of WHO, UNICEF, other UN agencies and ministry of health of different countries there has been a remarkable reduction of morbidity from malaria globally[16,17]. However, despite these gains and outstanding achievements in malaria control in developed countries, majority of morbidity from communicable diseases in Nigeria is attributed to malaria infection[10-13].

The Roll Back Malaria Initiative is aimed at building human and institutional resources and supports to fight the scourge of malaria infection, elderly persons are important recipients of health information (message) and sources of motivation for the family members concerning health matters such as treatment and prevention of malaria infection. Geriatric health education and promotion on malaria control should be important part of geriatric malaria management in holoendemic rural Nigeria especially those experiencing some forms of inequality in accessibility, availability and affordability of healthcare services.

The second common cause of geriatric morbidity from communicable diseases was skin infections. The commonest skin infection was fungal. Generally, several factors could predispose the elderly persons to skin infections in the tropics[18]. These include hot humid weather, poor personal, family and environmental hygiene, high household overcrowding and interpersonal contact, poor access to water and living condition, poor skin hygiene, skin injuries such as insect bites and the use of second hand clothes, contaminated and adulterated skin care products. Specifically, the geriatric skin infection could be a reflection of age-related skin changes[19] and immune senescence[20]. Accordingly, the single most obvious indication of aging is the appearance of the skin which tends to dry out, wrinkle and have propensity to tear and blister[19]. The skin becomes increasingly susceptible to environmental stress and distress especially from infectious agents. More so, age-related decline of immune system compromise the body defence against external insults and internal immunologic surveillance in the skin with resultant increase susceptibility to infectious agents[19,20]. In addition, geriatric skin infection could be a reflection of occupation or might be encountered in everyday life as a

proxy predictor of environmental hygiene standards[18]. Most of the geriatric patients who had fungal infections were those who engaged in farming as a primary occupation and retirees who engaged in farming as a secondary occupation to augment poor and irregular pensions. Geriatric skin infections may compromise the integrity and aesthesis of the skin, cause discomfort and pain and increase the healing time of wounds. However, perfect integrity of the skin and careful attention to personal and environmental hygiene prevent the development of most skin infections despite the age-related dermatological changes[18]. It is therefore important that skin infections be properly treated and prevented among the geriatric population in rural Nigeria.

The third most common cause of geriatric morbidity from communicable disease was urinary tract infections. Urinary tract infection has been documented as a common problem in the elderly persons[21]. However, diagnosis, treatment and prevention can often be complex because clinical manifestations may be atypical and sometimes present with features ascribed to other diseases with resultant effect that most cases go unnoticed, undiagnosed and probably not managed. Although diagnostic and therapeutic approaches to geriatric urinary tract infections are determined by gender-specific anatomic differences, presence of medical devices and prior antimicrobial exposures[21,22], urinary tract infections considerably increase morbidity in elderly patients who are already weakened by malaria and other concurrent and intercurrent infections and infestations. Despite the geriatric anatomic and pathophysiologic predisposition to urinary tract infections, the age-related urinary[21] and immune[20] system changes are contributory. Awareness and careful attention to this geriatric health problem is needed and maintaining a high index of suspicion is vital.

This study more importantly demonstrated neglected tropical diseases such as Ascariasis and hookworm infestation as a component of geriatric morbidity from communicable diseases, ranking fourth in the order with its public health and clinical practice implications for family health(maternal and child health)[23-27]. Various studies on intestinal helminthiasis revealed a high prevalence among children[23-25]. While these studies explored intestinal helminthic infestation in children who bear the medical burden of intestinal helminthic infestations[23-25]. However, this present study revealed that geriatric patients are probably depots of intestinal worms. Although intestinal worms may promote compromised health in their geriatric hosts, worms also may cause symptoms often blamed on other medical conditions. Despite the direct contribution to population morbidity by intestinal helminthic infections, they also exert effects on other important infections which share a similar global distribution such as malaria, HIV and tuberculosis[28-30].

The finding of this study has implications for maternal and child health in the study area. The relationship between nutritional status of children and intestinal helminthiasis were reported in Naraguta, a periurban village in Jos, Nigeria[23], Gyawana, Adamawa , Nigeria[24] and Bangladesh[25]. In Vom, plateau state, Nigeria, intestinal helminthic infestations was associated with low haematocrit level among pregnant women attending antenatal clinic[26] and albendazole therapy in pregnancy reportedly reduced decline in haemoglobin concentration in Sierra Leone[27]. Similarly, high prevalence of intestinal helminthic infection was reported in rural communities of Ijebu, Ogun state, South-Western, Nigeria[31]. This study and other studies have shown that intestinal helminthic infections are still public health problems in Nigerian communities. The burden of intestinal helminthic infections is not just dependent on climate as a tropical disease but mainly related to the incidence of poverty, a mirror of socio-economic status, a reflection of environmental sanitary practice and an indicator of the presence or lack of health awareness and education in a given community. Intestinal helminthic assessment should therefore be an important part of geriatric medical evaluation in endemic communities. Improved access to treatment, intensity of ongoing exposure and other demographic variables are important factors which may influence local prevalence. The elder citizens are more likely to have personal, domestic and environmental sanitary practice problems especially when their activities of daily living are undermined by diseases, illnesses and disabilities. This finding therefore underscores the need to consider intestinal helminthic infections as an important and neglected contributor to geriatric morbidity. It highlights the need for improved personal and family hygiene and suggests the implications for periodic use of antihelminthics for elderly patients in endemic rural communities in order to break the chain of transmission among family and community members.

STUDY IMPLICATIONS
Morbidity pattern from communicable diseases have been changing in both developed and developing countries due to medical interventions, socio-economic development and demographic changes. Although, as individuals age they are more likely to suffer from disease, illness and disability due to decrease in anatomic and physiologic reserve. The decline in physiologic reserve makes the elderly persons more vulnerable to pathogenic insults and assaults. The knowledge of these facts is crucial and critical for optimal care of geriatric patients by physicians in Nigeria particularly in rural communities where majority of these senior citizens live. However, this study showcased neglected tropical diseases (ascariasis and hookworm infestation) as a component of geriatric communicable disease spectrum with its public health and clinical practice importance to family health. This study therefore highlights the pattern

of the existing health problem due to the communicable diseases among the elderly patients in the study area with a view to alerting health care providers and health policy makers of the trend of communicable diseases in the environment.

CONCLUSION

This study shows that geriatric patients suffer acute and chronic communicable diseases with the commonest being malaria, skin infections, urinary tract infections and neglected tropical disease(ascariasis and hookworm infestation). Effective measures are needed to control the scourge of communicable diseases which are largely preventable among the elderly patients particularly in rural Nigeria. This will enable geriatric patients in rural Nigeria benefit from reduced morbidity from infectious diseases reportedly observed among their counterparts in developed countries.

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