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Multi-morbidity and Complications amongst Hypertensive patients attending the Family Medicine Clinic of a Tertiary Hospital in south south Nigeria

[1] Gyuse AN, [2] Ndebbio UJ, [3] Adat PE, [4] Nformi K, [5] Udonwa NE

[1, 5] Department of Family Medicine, Faculty of Medicine & Dentistry, University of Calabar, Nigeria
[2, 3, 4] Department of Family Medicine, University of Calabar Teaching Hospital, Calabar, Nigeria

Abstract
Background: There are about 26% of adults worldwide with hypertension. Multi-morbidity among hypertensives have implications on disease prognosis and treatment outcomes. This study was to establish the complications & co-morbidities that hypertensive patients in our environment experience.
Methodology: This was a descriptive study of 216 patients at the GOPC of UCTH, Calabar recruited using systematic random sampling. A structured questionnaire was used and required examinations were also done. Data was analyzed using the SPSS 18.0 software. The results were expressed as frequencies, proportions and percentages. The study was approved by the HREC of UCTH, Calabar.
Results: Most of the respondents had some form of education and were mostly civil servants or traders. Most of the respondents had been hypertensive for between 2-4 years (94, 43.5%) followed by those with hypertension for less than two years (64, 29.6%). Sixty-eight (31.5%) respondents had other complications out of which forty-one (60.3%) had co-morbidities made of Diabetes (33, 48.5%) and Dyslipidaemia (8, 11.8%). There were nine respondents (13.2%) of the respondents with more than one co-morbidity.
Conclusion: Multi-morbidity is common among persons with hypertension and other chronic diseases. Early diagnosis and management can improve patient outcomes, quality of life and patient satisfaction.

Keywords: Multi-morbidity, Hypertension, Complications, UCTH, Patients, south Nigeria

1. Introduction

There were nearly one billion people (or ~26% of the adult population) of the world with hypertension as at the year 2000 [1]. In Europe hypertension occurs in about 30-45% of people as of 2013 [2], while in 1995 it was estimated that 43 million people in the United States had hypertension or were taking antihypertensive medication representing about 24% of the adult United States population [1, 3].

Worldwide, cardiovascular disease are a major cause of disability and premature death [1, 3, 4]. It has also been documented by the World Health Organization (WHO) that hypertension or high blood pressure, is the leading cause of cardiovascular mortality and is the most important preventable risk factor for premature death worldwide [1, 3, 5].

Hypertension as a disease carries a high risk of complications such as heart failure, ischaemic heart diseases like myocardial infarction, strokes and renal failure [3, 4, 6] When these occur, the patient is faced with taking more medications along financial strain on the family resources. Expense and stress to a dangerous disease.

Multi-morbidity (co-morbidity) in Hypertension, is the presence of one or more additional disorders (or diseases) occurring along with Hypertension. The effect of such additional disorders or diseases may affect the management of the hypertension as this additional disorder is not limited to organic conditions only but may be behavioral or mental in origin like cognitive impairment and dementia [6].

The complications and co-morbid conditions have implications for the prognosis and therapy of hypertension when the interrelation of the disease, age and drug metabolism is taken into account [7]. This also affects the patients' quality of life and limit their capacity to contribute to productivity of their family, community and country [8, 9].

This study was to establish the complications & co-morbidities that hypertensive patients in our environment experience.

2. Subjects and Methods

The study was carried out in the GOPC of the University of Calabar Teaching Hospital, located in Calabar Municipality. First contact care is given to patients in an unselected manner in this clinics with a 'walk in policy'.

The city of Calabar is the capital of Cross River State, in the Niger Delta region of Nigeria. It is a fast growing city with a population of about 371,022 made up to 186,607 males and 184,415 females [10].

The catchment area of Hospital includes the entire Cross River State, the western part of the Republic of Cameroon and neigbouring states of Benue, Ebonyi, Abia and Akwa Ibom states. The major ethnic groups in Calabar are the Efiks, Efut and Quas. There are also a very significant number of Ibibios, Annangs and Igbos from neighbouring states and other Nigerian ethnic groups. The University of Calabar Teaching Hospital is the only tertiary health institution in Cross River State. It is made up of various specialties, subspecialties and administrative units with a bed capacity of 1000. It offers Residency training in various specialties including Family Medicine.

This was a hospital based descriptive cross-sectional study. The participants were adult hypertensive patients attending the General Outpatient Clinic of UCTH, Calabar who met the

inclusion criteria and gave their consent.

The sample size for the study was calculated using the Statistical Package for Social Sciences (SPSS) 18.0 software with 95% confidence level and error margin of 5% (0.05) and the proportion in the target population estimated to have the desired characteristics (Hypertensive patients) estimated from the age-adjusted prevalence of 2 14.5% [11]. Based on these, the calculated sample size was 196 subjects, however 10% percent of the calculated sample estimate was added to account for attrition, errors and omissions. Consequently, the total sample size used in this study was 216 subjects.

Systematic random sampling method was used in recruiting subjects with a sample interval of 2 which meant that every other eligible subject who gave consent was selected for the study.

A structured questionnaire was developed and used to assess patients that presented at the General Outpatient Clinic of the UCTH. The questionnaire consisted of the patients socio-demographic data, history of co-morbidities like diabetes, heart diseases, malignancies, other related hypertensive information and hypertensive complications. The respondents had their routine care for Hypertension which included blood pressure, pulse, along with height and weight for BMI estimation.

Data generated was analyzed using the Statistical Package for Social Sciences (SPSS) 18.0 software. The results were expressed as frequencies, proportions, percentages and some llustrated using graphs and pie charts.

The study was approved by the Health Research Ethics Committee of the University of Calabar Teaching Hospital (UCTH).

3. Results

A total of 216 hypertensive patients who met the inclusion criteria and gave consent were recruited and participated in the study out of which there were one hundred and fifty females and sixty-six males giving a female: male ratio of 2.3:1. Sixty-eight (31.5%) of the respondents had other co-morbidities while other details of the findings are presented in the tables that follow.

Table 1 shows the socio-demographic characteristics of studied hypertensive patients. Majority 149 (69%) of the subjects were married while 52(24.1%) were widowed. In terms of occupation 88 (40.7%) of the respondents were civil servants which was closely followed by trading 73(33.8%) while there were 29 (13.4%) subjects engaged in farimng. Most of the respondents had some form of education with Primary education (64, 29.6%), secondary (57, 26.4%) and tertiary education (55, 25.5%) while those without any formal education were the least in number (40, 18.5%).

Most of the respondents had been living with hypertension for between 2-4 years (94, 43.5%) this was followed by those who had been living with the illness for less than 2 years (64, 29.6%). Twenty-nine respondents (13.4%) had been living with the illness for between 4-6 years while the rest had lied with the illness for more than 8 years.

Table 1: Socio-demographic characteristics of recruited hypertensive patients (N=216)

Variables	Frequency(n)	Percentage (%)
Sex		
Male	66	30.6
Female	150	69.4
Marital status		
Single	10	4.6
Married	149	69.0
Divorced	5	2.3
Widowed	52	24.1
Occupation		
Trading	73	33.8
Farming	27	12.5
Student	2	0.9
Civil servant	88	40.7
Other specify	26	12.1
Education		
No Education	40	18.5
Primary	64	29.6
Secondary	57	26.4
Tertiary	55	25.5
Duration of Hypertension		
6 month -2years	64	29.6
>2-4 years	94	43.5
>4-6 years	29	13.4
>6-8 years	16	7.4
>8-10years	13	6.1
Religion		
Christian	209	96.8
Muslim	5	2.3
Traditional African	2	0.9
Tribe/Race		
Efik	53	24.5
Efut	7	3.2
Qua	9	4.2
Ibibio	74	34.3
Igbo	23	10.6
Yoruba	1	0.5
Hausa	1	0.5
Others	48	22.2

There population was made of a mix of several Nigerian ethnic groups with majority of them Ibibio (74, 34.3%), followed by Calabar by ethnic groups of Efik, Efut and qua (69, 31.9%) and a substantial number of Ibo (23, 10.6%) and other ethnic groups in Nigeria.

Table 2 shows hypertensive respondents with complications and/or co-morbidities. Sixty eight respondents (n=216, 31.5%) had complications, co-morbidities or a combination of both. These were made of twenty-two males (32%) and forty-six females (67.6%). Of these sixty-eight respondents, twenty-five (36.7%) of them were found to have no complications with nine (13.2%) having cerebrovascular disease (CVD) while sixteen (23.5%) had congestive cardiac failure (CCF).

Table 2: Distribution of hypertensive subjects with complications and co-morbidities (n=68)

Variables	Frequency	Percentage (%)
Sex distribution of patients with complications and co-morbidities		
Male	22	32.4
Female	46	67.6
Complications		
CVd	9	13.2
CCF	16	23.5
No complications	43	63.3
Co-morbidities		
DM	33	48.5
DYSL	8	11.8
CA BREAST	2	2.9
No co-morbidity	25	36.8
Co-morbidities and complications		
CCF+DM	4	5.9
CVD+CCF	2	2.9
CVD+DM	2	2.9
DYSL+DM	1	1.5
Others	59	86.8

Forty three respondents (63.1%) had co-morbidities only with Diabetes mellitus (DM) having 33 (48.5%) respondents followed by dyslipidaemia (DYSL) with 8 (11.7%) respondents and a few with cancer of the breast (CA) with just 2 (2.9%) respondents. There were nine subjects with complications and co-morbidities out of which 4 (5.8%) had CCF+DM, two (2.9%) each had CVA+CCF and CVA+DM each, while there was only one (1.4%) subject with DYSL+DM.

Discussion

Hypertension is a known risk factor for leading causes of death like heart diseases and stroke [12]. This has been documented in studies in the United States and Nigeria [12-14]. It can result in complications when not properly treated. Identifying these hypertension complications and preventing them can go a long way in not just improving the health related quality of life of patients affected, but will also reduce morbidity and mortality from the condition.

Our study recruited more females than males. This was similar to studies conducted in Abuja, Nigeria and USA where more women seek medical care than men, accounted for by the fact that conditions like pregnancy and taking children for their hospital visits increases their chances of hospital visits compared to men [12, 15]. This thus exposes them to the health care setting which over time account for the high visits. Similar sex distribution was found in Florida, USA with a high number of African American [12].

In this study most of the respondents had some form of education. This is to be expected as the study area was exposed very early to western education and good as this could have positive impact on the health seeking behaviour of patients. It is a documented fact that education is associated with greater health care awareness that may improve health seeking behaviour and adherence to medications [16]. In another study in Austria aimed at investigating the association between educational level and self-reported chronic diseases and health behavior in both sexes, it was discovered that in both men and women lower educational levels were associated with unfavorable health behaviors, overweight and higher cardiovascular risk [15, 17].

The study showed that 63.3% had no complications or co-morbidities while sixty-eight (31.5%) had complications and other morbidities associated with hypertension. This included congestive cardiac failure (23.5%) and cardiovascular disease (13.2%). This is similar to the finding in Abuja Nigeria among newly diagnosed hypertensives. [12] Similarly a study in Kumasi, Ghana among patients attending a cardiac clinic showed high prevalence of heart failure. The study also found that ypertension, rheumatic heart disease and cardiomyopathy were the main etiologies of heart failure in these patients [18]. In another study among ICU patients high blood pressure complications were found to include heart attacks and cerebrovascular accidents among others [19]. It is also to be noted that congestive cardiac failure is an important cardiovascular event that is increasing in incidence and prevalence worldwide and in Africa it is the commonest and severe complication of hypertension and cardiomyopathy [18].

Even though studies have shown that the above complications are significantly lower in women, especially in those who have not undergone menopause, our study showed otherwise. This may be due to the higher turnout of women seeking medical attention in general, and the fact that there were more women represented in our study. Similarly, a review of CVD admissions in some tertiary hospitals in south West Nigeria revealed that women accounted for 52.5% of cases, with a male to female ratio of 1: 1.1. In this study, CVD accounted for 4.5% of medical admission and 1.3% of total hospital admission. Stroke occurrences increased with age, as almost half (49.5%) of the cases were aged ≥70 years and majority (84.2%) of them were in low socioeconomic class with hypertension been the predominant risk factor for stroke [20].

Despite the challenges associated with controlling hypertension, the achievement of blood pressure goals is possible, and most importantly, lowering blood pressure significantly reduces the risk of death due to heart disease and stroke, the development of other debilitating conditions, and the cost associated with advanced medical care [15, 17].

The study found that the commonest co-morbidities were Diabetes mellitus (48.5%) and dyslipidaemias (11.8%) of those with co-morbidities and complications. This is collaborated by other studies which also found these to be common co-morbid conditions associated with hypertension [12, 14]. Other co-morbid conditions include coronary artery disease, congestive heart failure, cerebrovascular disease and diabetes with attendant increase in use of antihypertensives [17]. Again the findings in this study are in keeping with reports from other parts of Nigeria where total cholesterol, LDL-C, TG and Atherogenic Index were found to be high among hypertensive patients [15, 21, 22]. It is known that raised blood cholesterol increases the risk of heart disease and stroke, [20] and that globally, one third of ischaemic heart disease is attributable to high cholesterol [13].

Multi-morbidity is a common presentation among persons with hypertension and other chronic diseases. Early diagnosis and management of these conditions can improve patient outcomes, quality of life and patient satisfaction.

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