Original Article

Prevalence And Risk Factors Associated With Hypertension Among Adults In Benue South Senatorial District, Nigeria

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ABSTRACT

Despite the ease of diagnosing and treating hypertension, it remains a significant cause of significant morbidity and mortality. This study aimed to determine the prevalence and risk factors associated with hypertension among adults in Benue South senatorial district, Nigeria. The study was a cross sectional one using multistage sampling technique. Data on demography, risk factors for hypertension, blood pressure and anthropometric measurements were obtained using a structured interviewer-administered questionnaire. Statistical analysis was performed using the software IBM SPSS Statistics for Windows. The degree of significance of statistical difference was attributed to $P < 0.05$. Out of the three hundred and sixty-two subjects who took part in the study, 193 (53.3%) were males and the majority were farmers (n=153, 42.3%). 167 (46.1%) of the participants consumed alcohol while only 23.2 % (84) smoked cigarettes. The mean systolic and diastolic blood pressure recordings for the study population were 128.2±17.75 and 80.2±11.96 mmHg respectively. The body mass index of the participants ranged from 16.02 to 41.96 Kg/m^2 with a mean of 24.9±3.85 Kg/m^2. The prevalence of hypertension was 33.4%. More than half of the participants with hypertension (57.9%, n=70) knew they were hypertensive and 71.4% of them were on treatment for hypertension. The logistic regression analysis showed that age above 40 years (OR 4.8, 95%CI: 4.81-16.25, p = 0.000) and the male gender (OR 3.0, 95%CI: 1.40-6.56, p = 0.005) were associated with higher risk of developing hypertension. The prevalence of hypertension in Benue south senatorial district is high and the awareness of the disease is poor. Increasing age and the male gender are the significant risk factors for developing hypertension.

Keywords: Benue South, Hypertension, Prevalence

INTRODUCTION

Hypertension is a global public health problem and a leading cause of preventable morbidity and mortality.[1-3] Worldwide, hypertension is estimated to affect 33% of adults aged 30–79 years worldwide (age-standardized estimate).[4] About 7.5 million deaths or 12.8% of the total of all annual deaths worldwide occur due to high blood pressure.[5]

Nigeria has a relatively high prevalence of hypertension along with poor awareness and access to treatment.[3,6,7] The estimated age-adjusted prevalence of hypertension increased from 8.5% to 32.5% between 1995 and 2020[6]. The main risk factors for developing hypertension have been attributed to ingestion of poor-quality diets high in sodium and low in potassium, being overweight or obese, consumption of alcohol, use of tobacco and physical inactivity.[8,9]

Hypertension is a major risk factor for chronic heart disease, stroke, and coronary heart disease, heart failure, peripheral vascular disease, renal impairment, retinal hemorrhage, and visual impairment.[1] While subtle target-organ damage such as left-ventricular hypertrophy, microalbuminuria, and cognitive dysfunction takes place early in the course of hypertensive cardiovascular disease, the catastrophic events such as stroke, heart attack, renal failure, and dementia happen after long periods of uncontrolled hypertension.[2]

Hypertension has been described as the silent killer as it presents with almost no symptoms until catastrophic end organ damage occurs. Despite the significant morbidity and mortality associated with hypertension, it is relatively easy to diagnose. Studies have shown unequivocally that lowering blood pressure reduces the morbidity and mortality for hypertension of all degrees of severity and

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even in high-risk normotensive individuals.[1,2]

Studies have been done to document the prevalence and risk factors associated with hypertension in Nigeria. There is a dearth of data on hypertension and its risk factors in the south senatorial district of Benue State, Nigeria. As far as the authors are aware, there is no prior study on prevalence and risk factors of hypertension in the Senatorial District. Characterizing the profile of hypertension in the region will increase awareness of the disease and provide valuable information to help in public health policy formulation with the goal of mitigating the deleterious effects of the disease.

MATERIALS AND METHODS

Setting

Benue south senatorial district is the southernmost of Benue State in north central Nigeria. It is comprised of nine Local Government Areas (LGA) with an estimated population of 1,307,647 in the 2006 census.[10] The senatorial district is inhabited predominantly by the Idoma and Igede speaking people who are agrarian in nature.

Study design

The study was a cross sectional community-based study. It was carried out to determine the prevalence of hypertension and identify risk factors associated with the development of hypertension in adults 21 years and above in Benue south senatorial district. The study was conducted in October 2023.

Subjects

The study population comprised of adults 18 years or older residing within the study area. The sample size was calculated using the formula[11] - $n = Z^2P(1-P)/d^2$

Where:

n = sample size

Z = Z statistic for a level of confidence

P = expected proportion

d = precision.

A minimum sample size of 362 was arrived at using the prevalence of 38.1%[3] and 5% tolerable margin of error at 95% confidence interval.

Data collection:

A multistage sampling technique was used for the study. In the first stage, all the LGAs in Benue south senatorial district were listed and three were selected for the study by simple random sampling. In the second stage, three communities from each of the three selected LGAs were selected by random sampling. The third stage was the selection of respondents in the 3 selected communities. Mapping of the 3 selected communities was done and the list of households was used as the sampling frame. A systematic sampling technique was then used excluding the next two households following selection of the first. A household was comprised of persons who eat from the same table.

A structured interviewer-administered questionnaire was administered to all eligible respondents by trained research assistants. Sociodemographic data responses concerning participants' history of hypertension, alcohol consumption for more than 10 years and smoking were obtained. The participants' blood pressure and anthropometric measurements were taken.

Blood pressure readings were carried out using the Aneroid sphygmomanometer on the right arm after a 10-minute rest in the sitting position. The first and fifth phases of Korotkoff sounds were the systolic and diastolic blood pressures, respectively. An average of two readings was recorded. Blood pressure measurements were done by the same research assistants between the hours of 9 am and 11 am for the entire study.

A subject is said to be hypertensive when their systolic BP ≥ 140 mmHg and/or diastolic BP ≥90 mmHg or is on medications for control of hypertension[12]. Awareness of hypertension was defined as previous diagnosis of hypertension by a health worker while treatment of hypertension was defined as use of prescribed medications for management of hypertension.

The height of each participant was measured in meters with the aid of a tape measure. Measurements were done from heel to head crown with the unshod participant standing straight upright against a wall. The weight of each participant was measured in kilogram. It was done with the participants unshod with minimal clothing. Body mass index (BMI) was calculated for each patient by dividing their weight in Kg by the square of their height in meters.

Data analysis

Statistical analysis was performed using the software IBM SPSS Statistics for Windows, version 21.0 (Armonk, NY, USA: IBM Corp). Descriptive statistics were employed to display single-variable quantities using means and standard deviations for continuous variables or proportions for categorical variables unless otherwise stated. Logistic regression analysis was used to investigate risk factors of developing hypertension among participants. The degree of significance of statistical difference was attributed to a p-value of <0.05.

Ethical considerations

Participation in the study was voluntary and participants were at liberty to withdraw from the study at any point. Consent was sought following detailed explanation of the study with each person given an opportunity to have any doubts clarified. Participants diagnosed with high blood pressure were counseled and referred to the nearest health facility for treatment. Confidentiality was ensured throughout the study. Ethical approval for the study was obtained from the Health Research Ethics Committee of the Federal University of Health Sciences, Otukpo.

RESULTS

Characteristics of participants

Out of the three hundred and sixty-two participants who took part in the study, 193 (53.3%) were males, 163 (45%) only attained secondary school education and 182 (50.3%) were married. The predominant occupation among the study participants was farming (n=153, 42.3%). 167 (46,1%) of the participants consumed alcohol while only 23.2 % (84) smoked cigarettes. The mean age of the participants was of 41.0 ± 15.3 years with a peak age group incidence of 26 - 35 years (24.0%). The mean systolic and diastolic blood pressure recordings for the study population were 128.2±17.75 and 80.2±11.96 mmHg respectively. The body mass index of the participants ranged from 16.02 to 41.96 Kg/m^2 with a mean of 24.9±3.85 Kg/m^2. Table 1 shows the distribution of patients according to age groups and gender

Prevalence of hypertension

Hypertension was present in 121 of the study population giving a prevalence rate of 33.4%. More than half of the participants with hypertension (57.9%, n=70) knew they were hypertensives and 71.4% of them were on treatment for hypertension.

The logistic regression analysis showed that age above 40 years was associated with an increased risk of hypertension (OR 4.8, 95%CI: 4.81-16.25, p = 0.000) relative to persons less than 40 years of age. The male gender was associated with a three times higher risk of developing hypertension than the female gender (OR 3.0, 95%CI: 1.40-6.56, p = 0.005). In this study, obesity, smoking cigarettes and alcohol consumption were not significantly associated with development of hypertension (p>0.05).

Table 1: Distribution of patients according to their socio-demographic characteristics

Characteristics	Groups	Number	Percentage
Age (years)	18 – 25	64	17.7
	26 – 35	87	24.0
	36 – 45	74	20.4
	46 – 55	58	16.0
	56 – 65	57	15.7
	66 – 75	17	4.7
	76 – 85	5	1.4
Gender	M	193	53.3
	F	169	46.7
Formal education status	Nil	73	20.2
	Primary	69	19.1
	Secondary	163	45.0
	Tertiary	57	15.7
Occupation	Farming	183	42.3
	Business	98	27.1
	Students	56	15.5
	Civil service	48	13.3
	Retirees	4	1.1
	Unemployed	3	0.8

DISCUSSION

The major findings of our study were that 33.4% of adults in Benue south senatorial district aged 18 years and above were hypertensive. Out of the hypertensive subjects, 57.9% were aware of their status, 71.4% were receiving treatment.

The prevalence of hypertension in this study correlates with findings in similar studies done to characterize hypertension.[3, 13] While some studies have reported lower rates,[14,15] the relatively high prevalence rate of hypertension noted in Benue south senatorial district in this study aligns with a rising trend noted in low- and middle-income countries despite an either steady or declining rate in high-income countries.[16] Increasingly westernized diets, poor awareness of hypertension and inadequate access to health care have been put forward to explain this trend.[3,6,7]

This study showed males were predominantly affected by hypertension. This finding is similar to others that showed that men suffer more from hypertension compared to women of the same age.[1,17] Men younger than 65 consistently have higher levels of hypertension compared to women of the same age group.[18] This gender differences in hypertension is thought to occur due to biological factors which include sex hormones, chromosomal differences, and other biological sex differences that are protective against hypertension in women.[18] Beyond 65 years of age, these protective features wane out and the gender difference in rates of hypertension disappear.

The awareness of hypertension among the study population was poor (19.3%). The finding is similar to most other studies that showed low levels of awareness of hypertension among many populations.[19,20,21] Hypertension has been called the silent killer as it hardly gives symptoms unless end-organ damage has occurred. Unawareness of the disease prevents the patients from seeking appropriate health care in the form of lifestyle modification and antihypertensive therapy. A possible way to improve awareness of hypertension is to encourage regular hospital visits. Older subjects have been reported to be more aware of their hypertensive status, while young adults tend to have particularly low hypertension awareness rates. This is because younger individuals tend to be healthier and are less likely to see doctors frequently, reducing the likelihood of appropriate knowledge of their blood pressure status.[18]

The study showed an increase in rate of occurrence of hypertension with age. This is in concordance with a number of studies that have demonstrated that the prevalence of hypertension substantially increases with age and that older age is a robust independent risk factor for hypertension.[22,23] As people generally live longer with improving quality of life, the population of the elderly is expected to increase.[24] A higher prevalence of hypertension is expected.

Hypertension with advancing age has been attributed to age-related vascular changes.[25] Hypertension is a modifiable risk for some cardiovascular diseases. Identifying it in this sub-population and controlling it will go a long way in improving the overall quality of life.

There was no positive correlation between smoking and regular alcohol consumption in this study. This is in contradistinction to studies that showed an association between the two risk factors to development of hypertension.[14,26,27] A study in Cameroun revealed that regular alcohol consumption for more than ten years tripled the risk of developing hypertension.[14] The contribution of smoking in the study area may require further studies to determine its contribution to development of hypertension. It is known that volume of alcohol consumed and cigarettes smoked are key indices in the causation predisposition to development of hypertension. It is likely that the amounts of these substances do not exceed the critical levels to cause disease.

The study showed that the male gender conferred a three-time greater risk of developing hypertension than the female. This finding is similar to those of other studies.[28,29,30]

CONCLUSION

The prevalence of hypertension in Benue south senatorial district is high and the awareness of the disease is poor. Increasing age and the male gender are the significant risk factors for developing hypertension. The non-modifiable nature of the risk factors in this study implies that even if an individual maintains a healthy lifestyle, they may still be at risk of developing hypertension. This places screening for the disease central in its management. Regular blood pressure checks, especially in high-risk members of the community, will ensure early detection of disease and institution of therapy. Equally, increasing level of awareness of hypertension in the community encourages people to get their blood pressure levels measured and seek care if needed.

RECOMMENDATIONS

The high prevalence of hypertension in Benue south

senatorial district calls for a structured approach to awareness creation, screening and treatment of uncomplicated hypertension by Primary Health Care (PHC) centers. These are usually the first port of call for most of these patients. Measuring the blood pressures of all patients who present to the PHCs may act as an effective screening method. Regular community awareness campaigns will be an added advantage. Training and retraining of Community Health Officers in diagnosis, preliminary treatment and identification of complications of hypertension will help in early identification, treatment and reduction of morbidity and mortality from the disease. Strengthening these centers by ensuring equipment availability, medication access, and trained staff will go a long way in the management of hypertension.

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Conflicts of Interest

There is no conflict of interest to declare in this study.

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