EFFECT OF PLANT SOURCE DIETARY INTAKE ON BLOOD PRESSURE OF ADULTS IN BAYELSA STATE

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ABSTRACT

The study looked at effect of plant source dietary intake on blood pressure of adults in Bayelsa State. Two research questions were used for the study. The study was conducted in Opolo Government Hospital Yenagoa, Bayelsa State. Opolo is among 31 communities in Yenagoa LGA that has a population of 353,344 as at 2006 census exercise conducted by National Population Commission. A total of 160 questionnaires were distributed in the hospital to HBP patients that were purposefully selected whose consents were obtained and are between the age of 19 -59 years. Validated questionnaires were distributed to literate patients to collect data on the socio-economic status and food habits of HBP patients. Descriptive statistics was used to calculate percentages, frequency, mean, and standard deviations of independent variables (univariate). The study revealed that majority of participants were found to have their hypertension diagnosed by a medical person at either a hospital or health centre, and were taking oral antihypertensive drugs regularly in order to control their blood pressure under regular supervision of health personnel. The study also revealed that increased consumption of fruit/vegetables can cause a decline in BP. Previous research has shown an inverse relationship between vegetable consumption and hypertension. A diet rich in fruits, vegetables, low-fat dairy products, fibre and minerals produces a potent antihypertensive effect. Amongst others, it was recommended that fruits and vegetables consumption along with physical activity should be encouraged and promoted, while sugar and fat consumption should be discouraged.

Keywords: Plant Source, Dietary and Blood Pressure

INTRODUCTION

The increased prevalence of hypertension in developing countries is of great concern. According to World Health Organization (WHO, 2003), there was an estimated 972 million people with hypertension in the year 2000, 65% lived in developing countries with the number predicted to grow to 1.5 billion by 2025. The most devastating health problem of developing countries is non-communicable diseases (Onwubere and Ike, 2000). This is partly attributed to change in traditional diets from plant source, lifestyles coupled with poor health facilities and infrastructures in our health care systems and low level of awareness about health risk factors. Given the rapidity with which traditional plant source diet and lifestyles are changing in many developing countries, it is not surprising that chronic heart diseases are emerging as major epidemics (WHO, 2008).

Poor dietary habit and alcoholic among the adults in rural areas cannot be overemphasized. The increased prevalence of obesity in developing countries also indicates that physical inactivity is an increasing problem in those countries as well. Blood pressure is elevated by a factor that increase blood volume, heart rates and resistance to blood flow. Blood pressure is measured when the heart contracts and ejects blood into the aorta (systolic blood pressure) and while the heart muscles are relaxing between beats (diastolic blood pressure). According to Ike and Onwubere (2003), high blood pressure (hypertension) is a medical condition in which blood pressure is chromatically elevated.

According to WHO (2002) criteria, the systolic blood pressure (SBP) of a person equals 140mmHg or more and diastolic blood pressure (DBP) 90mmHg or above is considered a case of hypertension. It is diagnosed by measuring the blood pressure by mercury sphygmomanometer. Hypertension is the most important risk factor of cardiovascular diseases (Opadijo and Akande, 2003). Trends have drastically changed in recent years, there are epidemiological and demographic transition taking place in developing countries with declining rate of communicable diseases and increasing rate of non-communicable disease. Studies have shown that there have been significant decline in physical activity among adults in the world. According to World Health Organization report of 2002, an estimated 1.9 million deaths are attributed to physical inactivity worldwide. Unhealthy diets from plant source are another risk factor of many chronic diseases. Increasing consumption in foods rich in fats and sugar (calories) are primary reasons for growing epidemics of obesity globally which is also a major factor for the development of hypertension and other serious health problems like diabetes mellitus and heart diseases.

Statement of the Problem

The prevalence of high blood pressure among adults in Opolo is high and is of great concern that needs appropriate intervention plans. This may be attributed to change in traditional plant/animal source diets and lifestyle coupled with poor health facilities. The prevalence may also be associated with low level of awareness about its risk factors, especially unhealthy eating habit, sedentary lifestyle and obesity. Its prevalence is recorded at about 20% of the adult patients admitted in the hospital. The consequences of HBP are perhaps unknown to the populace living within Opolo. High blood pressure is an important and a risk

factor of many diseases (WHO, 2008). If blood pressure is not kept under control within the normal range, it may lead to several hazardous complications such as co-genitive heart failure, stroke, and multi organ failure.

Literature Review

The related literature of this study was reviewed under the following sub-headings:

1. Effect of changing trend in food consumption.
2. Food consumption pattern and lifestyle of hypertensive patients.

Effect of Changing Trend in Food Consumption

Consumption of fast foods or processed foods is increasing every day and is one of the reasons for obesity and subsequent prevalence of high blood pressure (Opadijo and Akande, 2003). Fast foods are known to be high in saturated fats with low level of vitamins unlike the unprocessed foods. Below are the list of variety and moderation in food consumption:

- *Salt*: eating too much salt can increase blood pressure and is often bad for the heart and kidneys.
- *Saturated fats*: saturated fat can put extra strain on the heart and circulatory system which only serve to increase blood pressure.
- *Protein*: Meats, Beans and diary
- *Fats:* Oily fish, nuts and meat.
- *Carbohydrates:* Pasta, rice, potato, and so on.

Food Consumption Pattern and Life Style of Hypertensive Patients

Increasing consumption of food from plant/animal source is rich in saturated fats; sugary food and alcohol (calories) are primary reasons for a growing epidemic of obesity globally which is a major factor for the development of hypertension. People in developing countries as Nigeria are adopting a western lifestyle; urbanization, industrialization and technological advancement have led to the change in traditional diets and active lifestyle; all play important role behind the increasing prevalence of hypertension. The current diets that are affecting the human system adversely are fast foods, already processed and packaged foods, canned energy drinks or soft drinks (Opadijo and Akande, 2003). These are foods people consume in excess due to flavor and taste and since they are rich in saturated fats and low in vitamins.

Purpose of the Study

The study looked at effect of plant source dietary intake on blood pressure of adults in Bayelsa State. Specifically, the study sought to:

1. Obtain the mean blood pressure by gender.
1. Determine the influence of dietary habits on plant/animal source on blood pressure.

Research Questions

The following research questions guided the study:

2. What is the mean blood pressure by gender?
3. What is the influence of dietary habits on plant/animal source on blood pressure?

METHODS

This section was summarized under the following;

- Area of the study
- Sample selection
- Method of Data Collection
- Validity of Instruments and
- Statistical Analysis

Area of the study

The study was conducted in Opolo Government hospital Yenagoa, Bayelsa State. Opolo is among 31 communities in Yenagoa LGA that has a population of 353,344 as at 2006 census exercise conducted by National Population Commission. The socio-economic life of the people are farming and trading.

Sample selection

A cross sectional design was used on the study group of hypertensive patients (HBP) aged 19-59 years. A total of 230 HBP patients came for a checkup in the hospital (127 female and 103 male) during the period of data collection and were subjected to screening to avoid complications such as stroke and other cardiovascular diseases. Finally 146 patients (81 female and 65 male) were purposefully selected from the units. A total of 160 questionnaires were distributed in the hospital to HBP patients that were purposefully selected whose consents were obtained and are between the age of 19 -59 years. Oral interview was also conducted on the illiterate participants.

Method of Data Collection

Validated questionnaires were distributed to literate patients to collect data on the socio-economic status and food habits of HBP patients. The questionnaires were designed clearly with information on occupation, age, educational qualification, monthly income, number of children in the household, food habits such as skipping of meals, consumption of fruit and vegetables, intake of alcohol, food preference, working conditions, general lifestyle, diabetes, marital status and parental history of hypertension.

Validity of Instruments

Standardization and pre-testing of the instruments for the study were carried out for the study group to avoid ambiguities and ascertain the reliability and validity of the instrument.

Statistical Analysis

Collected data were subjected to analysis after grouping, tabulating and editing according to their categories for computation. Descriptive statistics was used to calculate percentages, frequency, mean, and standard deviations of independent variables (univariate).

RESULTS

Research Question 1

What is the mean blood pressure by gender?

Blood Pressure Measurements

The blood pressures of participants are presented in table 1. Systolic Blood Pressure (SBP) of participants involved in this study ranges from 140 to 190mmHg. The minimum SBP recorded was 140mmHg, while the maximum was 190mmHg. The mean value of SBP was 148.3mmHg with standard deviation 11.43 of 146 , 103 (70.54%) participants were found to have their SBP below 150mmHg. Out of 81 females (74%) were below 150mmHg, whereas of 65 males (66%) had their SBP below 150mmHg, and of all participants 43 (29.46%) above 150mmHg. Whereas, the minimum Diastolic Blood Pressure (DBP) of participants involved in this study was 90mmHg and the maximum was 112mmHg. The mean values of DBP were 95.42mmHg with standard deviation ±5.20.

Table 1: ***The Percentage and mean values of systolic and Diatolic Blood Pressure of Adults Males and Females.***

Blood Pressure (mm/Hg)	Male		Female		Total	
	n	%	n	%	N	%
SBP/DBP 140-150/90-99 (grade 1 HBP)	43	66.15	60	74.07	103	70.54
160-179/100-109 (grade 2 HBP)	15	23.07	16	19.75	31	21.23
>180/>110 (grade 3 HBP)	7	10.76	5	6.17	12	8.22
Mean SBP	151.78		152.3		152.08	
S D SBP	±11.98		±11.09		±11.43	
Means DBP	94.86		95.90		95.32	
S D DBP	±5.29		±5.13		±5.20	

Research Question 2

What is the influence of dietary habits on plant/animal source on blood pressure?

Dietary Habits

Salty Food

Out of 65 male and 81 female, 64% male and 61% female consume salty food moderately whereas 18% male and 17% female consume too much salty foods. Among all participants, 26 (17.80%) reported not consuming salty food very much, 80 (54.79%) were consuming moderately while 40(27.39%) did not like salty foods. See table 2 below.

Fatty Food

Majority of participants like fatty foods but the female show more interest than the male in the proportion of 51% (female) against 41% (male). For moderate consumption, the proportion of male and female could be expressed as 34% and 35% respectively. From the findings, out of 146 participants involved in the study, 69 (47.26%) reported consuming fatty food very much, 51 (34.93%) reported moderate consumption of fatty food in their diets while 26 (17.80%) reported moderate consumption of fatty food in their diets while 26 (17.80%) do not like fatty food. See table 2 below.

Sugary Food

Majority of participants like consuming sugary food very much, almost equal percentages of male (46%) and female (49%) like sugary food very much while 30% male against 43% female like sugary food moderately. Among all participant 70 (47.94%) were consuming very much. 55 (37.67%) consumed moderately whereas 21 (14.38%) do not like sugary food. See table 2 below.

Fruit/Vegetable

From table 2, it was revealed that out of 65 males and 81 females in the study, 83% male and 82% female during the past month were taking fruits/vegetables. Out of this only 26% male and 27% female were consuming fruits/vegetables regularly. Also, of all participants, 39 (26.71%) reported regular fruit/vegetable consumption during the past months; 82 (56.16%) consumed fruits/vegetable moderately while only 25 (17.12%) do not consume fruit/vegetable in their diet. See table 2 below.

Table 2: The percentage dietary habits on plant/animal source of food of adult male and female

Diets	Male		Female		Total	
	n	%	n	%	N	%
Salty Foods						
Like very much (3)	12	18.46	14	17.28	26	17.80
Like moderately(2)	30	64.15	50	61.72	80	54.79
Do not like (1)	23	35.38	17	20.98	40	27.39
Sub Total	65	100.0	81	100.0	146	100.0
Fatty Foods						
Like very much (3)	27	41.53	42	51.85	69	47.26
Like moderately(2)	23	35.38	28	34.56	41	28.08
Do not like (1)	15	23.07	11	13.58	26	17.80
Sub Total	65	100.0	81	100.0	146	100.0
Sugary Foods						
Like very much (3)	30	46.15	40	49.38	70	47.94
Like moderately(2)	20	30.76	35	43.20	55	37.67
Do not like (1)	15	23.01	6	7.40	21	14.38
Sub Total	65	100.0	81	100.0	146	100.0
Fruits/vegetable						
Like very much (3)	77	26.15	22	27.16	39	26.71
Like moderately(2)	37	56.92	45	55.55	82	56.16
Do not like (1)	11	16.92	14	17.28	25	17.12
Sub Total	65	100.0	81	100.0	146	100.0

DISCUSSION OF THE STUDY

The discussion of the study was summarized based on the following sub-headings:

- ***Prevalence of Hypertension***: The increase of hypertension is a major health problem in developing countries like Nigeria. The study revealed that majority of participants were found to have their hypertension diagnosed by a medical person at either a hospital or health centre, and were taking oral antihypertensive drugs regularly in order to control their blood pressure under regular supervision of health personnel. The study showed that out of 146 participants, only 30 reported no history of hypertension in their family members although 62 participants do not know their parental HBP status.

- ***Dietary Habits***: Unhealthy diet is a principal modification risk factor of hypertension. Foods rich in calories and fat are risk factors of hypertension. Studies have also shown that there is a positive association between BP and salt intake. Increased salt intake can cause a significant increase in blood pressure. This work was not consistence with the previous studies since it found salt and BP relationship insignificant. This might be due to doctors' advice on the effects of salt consumption. The study also revealed that increased consumption of fruit/vegetables can cause a decline in BP. Previous research has shown an inverse relationship between vegetable consumption and hypertension. A diet rich in fruits, vegetables, low-fat dairy products, fibre and minerals produces a potent antihypertensive effect (Opadijo and Akande, 2005).

CONCLUSION

This study has shown that consumption of unhealthy diets is evident in hypertensive patients in Bayelsa State. The nature and extent of physical activity of hypertensive patients and their dietary habits were not effective and satisfactory. A high percentage of participants were found to consume unhealthy diets.

RECOMMENDATIONS

Based on the findings from the study, the following recommendations were made:

- An unhealthy diet is a principal modifiable risk factor of hypertension. That is excess consumption of fatty and sugary food from plant/animal source contributes to the development of hypertension.
- Fruits and vegetables consumption along with physical activity should be encouraged and promoted, while sugar and fat consumption, should be discouraged.
- Blood pressure screening program for early detection and effective management of hypertensive patients should be organized in order to prevent later complications associated with hypertension.

REFERENCES

Ike, S.O. and Onwubere, B.J.C. (2000). Prevalence of hypertension and its complications Amongst Medical Admissions at University of Nigeria Teaching Hospital, Enugu. *Nigerian Journal of Medicine, Vol. 3 No 1*

Ike, S.O. and Onwubere, B.J.C. (2003). Prevalence of hypertension and its complications Nigeria. *Nigerian Journal of Medicine, Vol. 5 No 3.*

Opadijo, O.G, Omotoso, A.B.O, Akande, A.A (2003) Relation of Electrocardiographic left Ventricular Hypertrophy to Blood Pressure, Body Mass Index, serum lipids and Blood Sugar levels in Adult Nigerians, *African Journal of Medicine and Medical Sciences, 32(4), 395-207*

World Health Organization, (2003). World Health Organization (WHO)/*International society of Hypertension (ISH) Statement on Management of Hypertension Journal Hypertension, 21, 1983-1992.*

World Health Organization, (2003). Diet, Nutrition and the Prevention of Chronic Diseases, Report of a Joint WHO/FAO Expert Consultation. *WHO Technical Report Series No. 916 World Health Organization: Geneva, 2003.*

World Health Organization, (2002). World Health Report 2002: Reducing risks, Promoting Health Life. *World Health Organization conference: Geneva, 2002.*

World Health Organization, (2008). Prospects of Research on Non-Communicable Diseases in the African Sub region *http://www/afro.who.int/dpm/rpc/publications/pdf (12) May, 2014.*