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Age And Food Preferences in Breast Cancer Patients Before Undergoing Chemotherapy Treatment in Nigeria

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Abstract:- Breast cancer is one of the terminal ailments which occur mostly in women at any stage after puberty in every country with increasing rate in later life. The aim of the study is to assess the age and food preference before undergoing chemotherapy treatment in Nigeria. The study was longitudinal which focused on information on socioeconomic variables in order to obtain the age of the respondent and food preferences before chemotherapy treatment (cases and control). The results were analyzed and presented using descriptive statistics, cases and control respondents were compared using multivariate analysis. The results revealed there was no significant difference in the age of cases and control. The cases group consumed higher mean of 3 meals per day than the control group, while higher percentage of cases reported food preferences before treatment than the control group. But there was no significant difference in food preferences between the two groups before treatment (p = 0.50). This study demonstrates that food preferences may be related to the underlying diseases. When favorite foods no longer taste pleasing, patients may decrease food intake altogether, leading to subsequent weight loss. Chemotherapy treatment had been used in managing breast cancer and adequate nutrition is necessary to minimize nutritional deficiencies before the treatment is applied.

I. INTRODUCTION

Breast cancer is the commonest type of cancer among women throughout the world. The incident of breast cancer increases with factors such as being a woman, and family history in the developed countries. Breast cancer has been reported to be the second leading cause of cancer deaths among women.

The American Cancer Society estimated that about 281,850 new cases of invasive breast cancer and 51,400 ductal cercinoma in situ (DCIS) will be diagnosed in women in the United State, with 43,250 women death from breast cancer in 2022 (1).

In Africa, breast cancer caused 74,072 death and 168,690 cases were estimated to have occurred in 2018. Black women have high rate/chance of developing breast cancer before the age of 40 than white women (1)

Africa commonly had the highest age standardized breast cancer mortality rate globally, with the highest incidence rate recorded within sub-sahara, Africa (2).

In Nigeria, the age hospital incidence of the disease is 42.6years (3). The major risk factors of developing a breast cancer in women are that of gender and which cannot be changed other/age risk such as family history of the diseases and this accounts for the variation we have in incidence over the world.

Early age at onset of menard has been associated with an increased risk of breast cancer in Nigeria as well as in other parts of the world (4)

Individual nutritional status and dietary habit may also play great significant role; alcohol consumption and life style are some of the other risk factors that have been recognized (4). Early detection and treatment have been effective in preventing death and managing quality of life in many individual cases (5)

The treatment of breast cancer is multidimensional. This includes the use of sugary, hormonal, chemotherapy and radiotherapy treatment. Chemotherapy is an important and effective tool in the treatment of the ailment, it is used as adjuvant or neoadjuvant treatment or therapeutic modality. Chemotherapy for breast uses drugs to target and destroy the cancer cell or slow their growth (5)

Indications and appropriate modality for use depends on the stage of the cancer. (5). Chemotherapy affects people differently; some have few sides' effect, while others may react to the drug seriously. Chemotherapy side effects also vary based on the kind of drug and duration. The major common side effect of chemotherapy includes: fatigue, gastrol intestine issues like diarhea or constipation, hairloss/brittlenail and loss of appetite/nausea and vomiting or mouthsour.

One of the major causes of nutritional deficiency and weight loss during treatment is loss of appetite for food as a result of change in the taste bud and mouth sour.

II. METHODOLOGY

The study was concluded at the oncology clinic of the University College Hospital, Ibadan, during clinic hour. Breast cancer patients were assessed as the respondents of which those on chemotherapy constituted the cases group, while those patients that are not on chemotherapy were the controls. Estimated sample size of 50 respondents, comprising two-sample comparison of proportions obtained for each population is 25.

A structured questionnaire was designed and administered during the clinic period while the patients were waiting to see doctors. The basic information obtained are the socio-economic data (age, education, income and gender), anthropometric data (weight, height, baseline/current) diagnostic data stage of cancer, (1,2,3 and 4), chemotherapy treatment, (food intake before/during course of treatment) food preferences and aversion, food intake, overall effect of chemotherapy treatment on food intake, duration of treatment, and overall quality of life.The data were arranged and coded for computer analysis for categorization of variables, frequency distributions, and multivariable analysis, using Stata 8.0 software. (21)

III. RESULTS

Dietary pattern issues were experienced consistently among breast cancer patients. These were expressed by age, gender, cases and control. (6)

Table 1, showed the mean age were (48.0 ± 2.15 for cases vs 44.2 ± 2.75 for control, p = 0.28). Breast cancer patients were less likely to report weight loss. They are more likely to gain weight, showing they exhibit more of over nutrition than under nutrition. This is evident in Table 2, where they consumed 3meal/day (84% for cases vs 72% for control, p = 0.62). Breast cancer patients consumed more in-between meal (80% in control group vs 76.0% in the cases group; p = 0.50). Table 3, in terms of food consumed, ranging from snacks/pastries, with (15.8% for cases vs 35.0% for control, p = 0.61), fruits with (31.6% for cases vs 25% for control, p = 0.61), biscuits with (36.8% for cases vs 25% control, p = 0.61), other foods (15.8% for cases vs 15.0%) for control, p= 0.61) Table 4.

TABLE 1: Age of cases and Control

Age	Cases		Controls		P – value
	Mean	SD	Mean	SD	
	48.0	2.15	44.2	2.75	0.28

TABLE 2: Number of Main Meal Consume by cases and Control

Meal/Day	Cases		Controls		P – value
	No	%	No	%	
2	1	4.0	3	12.0	0.62
3	21	84.0	18	72.0	
4	3	12.0	4	16.0	

TABLE 3: In-between meal case and control

In-between Meal	Cases		Controls		P – value
	No	%	No	%	
1 (Y)	19	76.0	20	80.0	0.50
2 (N)	6	24.0	5	20.0	

TABLE 4: Foods consumed (cases and control)

Food	Cases		Controls		P – value
	No	%	No	%	
Snacks/Pastries	3	15.8	7	35.0	0.61
Fruits	6	31.6	5	25.0	
Biscuit	7	36.8	5	25.0	
Others	3	15.8	3	15.0	

Table 5, showed the food preference level of the breast cancer patients with Yes (68.0% for cases vs 64% for control; p = 0.50) and No (32.0% for cases vs 36.0% for control; p = 0.50)

This food preference level was the reflection of the influence the breast cancer patients had on the type of food they consumed; of which the frequency of consumption is shown in Table 6.

The top 2 preferred foods were eba (cassava meal) (9.09%), rice (9.09%). The others were pounded yam (4.55%) beans pudding (4.55%), corn meal (4.55%), beans soup (4.55%), cassava meal (4.55%) cocoyam (4.55%), okra (4.55%), and cassava paste (4.09%).

The length of chemotherapy treatment in cases is 6-months of which 25 breast cancer patients were observed with the main value (3.32 ± 1.68). The control group were exempted from treatment at this level.

TABLE 5: Food Preferences in Cases and Control

Food Preference	Cases		Controls		P – value
	No	%	No	%	
1 (Y)	17	68.0	16	64.0	0.50
2 (N)	8	32.0	9	36.0	

TABLE 6: Types of Food specified by cases and control

Food specified	Frequency	Percentage	Cumulative
Eba	2	9.09	9.09
Pounded Yam	1	4.55	13.64
Beans pudding	1	4.55	18.18
Rice	2	9.09	27.72
Corn Meal	1	4.55	59.09
Beans Soup	1	4.55	63.64
Cassava meal	4	4.55	63.64
Cocoyam	1	4.55	86.36
Okra	1	4.55	90.91
Cassava paste	2	4.09	100.00

TABLE 7: Length of Chemotherapy treatment in cases

Variable	OBS	Mean	SD	Min	Max
Length of Chemotherapy (in months)	25	3.32	1.676305	1	6

Dietary changes that were exhibited by the patient include change in appetite, changes in frequency of eating, change in thirst, change in frequency of drinking fluids, increased or decreased taste sensitivities-bitter, metallic, salty, sour, sweet and increased sensitivity to various aromas (6).

Recent studies showed a broad range of nutritional risk, during cancer treatment of 1453 outpatients (7). This study revealed there was no difference in meal consumption pattern of cases and controls before treatment with chemotherapy drugs (p = 0.62)

Table 9: Breast Cancer stage in cases and control

Stage	Cases		Controls		P – value
	No	%	No	%	
1	0	0.0	1	4.0	0.10
2	0	0.0	4	16.0	
3	13	52.0	13	52.0	0.10
4	12	48.0	7	28.0	

The study table showed that majority of cases and controls present in the clinic with advanced breast cancer, (48% of case vs 28% of control) are in stage four, (52% of cases and 52% of control; p = 0.10) are in stage three, none of cases present between the two groups.

There was also no difference in the types of in between meals reported by cases and controls (p = 0.61). More so, the study showed the preferences for certain foods before treatment, where no significant different in food preferences was observed in both groups (p = 0.50).

IV. DISCUSSION

Dietary changes among breast cancer patients before undergoing chemotherapy treatment, decreased appetite was more common than increased appetite, as a result of vomiting. A similar study, showed younger patients are more likely to experience nutritional issues than older patients. (6), including eating less frequently. This study then mean age that is more of average for the cases and controls and the level at which energy food and drinking fluids will be more needed.

Previous research showed that dietary changes were associated with other treatment-related side effects (8, 9-12). Patients with decreased energy levels before treatment were also more likely to report dietary changes, including decreased appetite during treatment, (6). Many of the breast cancer patients preferred cassava meal because it is a high calorie food, over consumption can be problematic for those more likely to gain weight. This study has both strengths and limitations. It captures data of diverse sample of 50 patients on the age, dietary changes, and food preferences of chemotherapy treatment. Data of breast cancer patients could not be examined or documented. We attempted to temporarily address this by asking about the changes and preferences before the beginning of the treatment.

Furthermore, it is possible that when patients identified foods they preferred, they selected foods that they should eat given their desire to eat healthier after being diagnosed with breast cancer. Adequate nutrition is difficult to obtain with breast cancer. The limitation in treatment, as it affects or alters their sense of smell and taste decreasing both the desire to eat

and the enjoyment of eating which can lead to weight loss and nutritional deficiencies (8).

These findings can be used for (13) reporting nutritional concerns (14) supporting the need for nutritional counseling (15) informing patients' possible nutritional issues given their profile (16) referring breast cancer patients to resources to address their issues (17) nutritional interventions (18) mitigating increased sensitivity to metallic taste and chemosensory alterations (19) maintaining or increasing energy levels (e.g. energy dense, high protein foods) (19) handling common side efforts (e.g dry mouth, constipation, diarrhea, nausea, fatigue).

There is association between food preferences and breast cancer treatment (chemotherapy) and the nutrition is complex and differs for each patient, supporting the need for tailored interventions rather than a non-size-fits-all approach. The food preferences of individual patient has been found to change the course of treatment, in foods and tastes that are well tolerated in one patient and not tolerated in another (20). This study present data that can be used by clinicians and care providers to understand the changes in breast cancer patients that can affect food intake.

Further research is to test the effectiveness of food preferences in chemotherapy treatment of breast cancer patients, (2) the extent to which the food preferences can improve the quality of life of the breast cancer patients.

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