



## BREAST CANCER TRENDS IN A NIGERIAN POPULATION: AN ANALYSIS OF CANCER REGISTRY DATA

**AFOLAYAN ABIODUN FMCPATH\*, OLAOYE OLATUNDE FWACS\*\*,ADESINA MICHAEL FWACS\*\* AND SAIDU RAKIYA FMCOG\*\*\***

\*Ilorin cancer registry department of pathology university of Ilorin teaching hospital, Ilorin.

\*\*Department of Surgery, University of Ilorin Teaching Hospital Ilorin.

\*\*\*Department of Obsts. & Gynae, University of Ilorin Teaching Hospital Ilorin.

### ABSTRACT

**Background:** - Worldwide, breast cancer is the commonest cancer in women and characterized by regional variations and late clinical presentation in low and middle income countries including Nigeria.

**Objectives** – The purpose of this communication is to highlight the trends of breast cancer in a Nigerian population in a way to assess the effectiveness of various control measures including mammography instituted to control the disease.

**Materials and Methods** – Data on new cases of breast cancer registered annually at the cancer registry of the hospital over a period of 10-years were obtained and analyzed. Cancer reporting was voluntary hence data were collected by active search. Sources of information included pathology laboratories, clinics, and wards e.t.c. Information abstracted on both patients and cancer included age, sex, bases of diagnosis, incidence date, topography, (primary sites), and morphology among others. Breast cancer was coded as C50, using International Classification of Diseases 10<sup>th</sup> edition (ICD 10<sup>th</sup>) of World Health Organization.

**Results** – There were 568 new cases of breast cancer registered at the cancer registry during the 10-year period, comprising of 7(12.23%) males and 561(98.77%) females. The youngest patient aged 18 years while the oldest was 93 years and the peak age of incidence was the 5<sup>th</sup> decade. Incidence of breast cancer in male was low and occurred at a relatively older age group. We observed steady rise in cases of breast cancer at our centre.

**Conclusion** – The steady rise in breast cancer cases in the study population is an indication of inadequate or ineffective control measures to curtail the disease or due to diversion of global attention to HIV/AIDS and tuberculosis in the country. Therefore there is urgent need to step up activities through non-governmental agency to promote advocacy, national policy on training of personnel for clinical and self-breast examination, and nationwide screening program (mammography) in order to enhance early detection, control the upward trends and reduce the mortality rate of breast cancer.

**Keywords :** *Breast cancer, Trends, cancer registry.*

### INTRODUCTION

Cancer of the breast was the most common cancer in women, with an estimated 1.05 million new cases in the year 2000; and when both sexes were combined, was second to lung cancer (Parkin DM et al, 1999,

Farley J et al 2001, Parkin DM et al, 2001). In Eastern India, Kolkata, cancer of the breast was the most frequently reported cancer, accounting for 22.7% of cancers in women (Sen U et al, 2002). Also

in Tehran metropolis, breast cancer was the commonest among women(Mohaghehi et al, 2009). Breast cancer in African continent was characterized by regional variation as the incidence was 27% of cancers in North African countries (Algeria and Egypt) compared with 15% in sub-Saharan Africa (Parkin DM et al,2003)

In the North-Western geopolitical zone of Nigeria, cancer of the breast was second to cancer of the cervix, while at University College Hospital (UCH), Ibadan (situated in the South-Western geopolitical zone of Nigeria) it was the leading malignancy among women(Afolayan EAO, 2008, Ogunbiyi JO et al, 2010). At our Centre, located in the North-central geopolitical zone, breast cancer constituted 22.41% of new cancer cases registered in 5 years and accounted for 35.41% of all cancers in women (Afolayan EAO et al, 2012).

In developing or low income countries, breast cancer was characterized by late clinical presentation and in advance stage of the disease, when only chemotherapy and palliative care could be offered, and therefore associated with high mortality (Adeniji KA, 1999, Anyanwu SNC, 2006, Parkin DM et al, 2007). Unfortunately there is paucity of data and sparse literature review on the trends of breast cancer in Nigeria due to few existing cancer registries most of which are either hospital-based or pathology-based instead of the preferred population-based cancer registries. However, in low resource countries, hospital-based cancer registry has been serving as a fundamental source of information on cancer. Ilorin cancer registry, hospital-based, began active registration of cancer in 1997.

Therefore, the essence of this short communication is to illustrate the trends of breast cancer among women living within the North-central geopolitical zone of Nigeria in order to assess the effectiveness of the various measures including mammography instituted to control the disease and also to offer suggestions about some measures to put in place to control the disease and reduce its morbidity.

## MATERIAL AND METHODS

Data on both cancer and patients utilized for this study were obtained from Ilorin Hospital- based

Cancer registry which began cancer registration 1997. All new cases of malignant neoplasms diagnosed among the hospital patients and surgical specimens (from the neighboring hospitals) sent for histopathological diagnosis at the Centre and registered at the hospital based cancer registry over a period of ten years (2001-2010) were captured. Collection of data at the registry was by active search and sources of information included pathology, hematology, and chemical and immunology laboratories, clinics, surgical, medical, obstetrics and gynecology wards and medical record department. Data abstracted from both patients and cancers were identification number, name, age, sex, residential address and occupation. Other information (on cancer) were date of diagnosis (usually the date of clinical diagnosis), site of cancer (topography), cancer histology (morphology), source of information and basis of diagnosis as to whether by histology, Cytology, Clinical, imaging techniques (x-ray, ultrasound scan or Computer tomography) and autopsy. The first step at the registry is to match the incoming data against the register using 'Person Search' in the CanReg 4 software (Colman MP and Bieber CA, 1991) to check if the case has already been registered from another source or match it manually against the register using the index card arranged alphabetically by name to avoid double registration or duplication.

All malignant neoplasm diagnosed and or treated at the hospital were registered including melanoma and other skin cancers but excluding basal and squamous cell carcinoma of the skin. UIITH is a 445-bed capacity tertiary health institution with over hundred Hospital Consultants in various subspecialties including pathology. The hospital has the following cancer diagnostic facilities; pathology laboratories, histopathology, fine needle aspiration cytology and imaging (X-rays, ultra sound scans, CT scan and MRI) services. Other cancer management services offered by the hospital are surgery, chemotherapy and well organized palliative care

Coding of the primary sites of cancer was according to W.H.O, International Classification of Diseases 10th (ICD-10, Codes C00-C96) revision (WHO, 2000). The data were presented in tables and graph

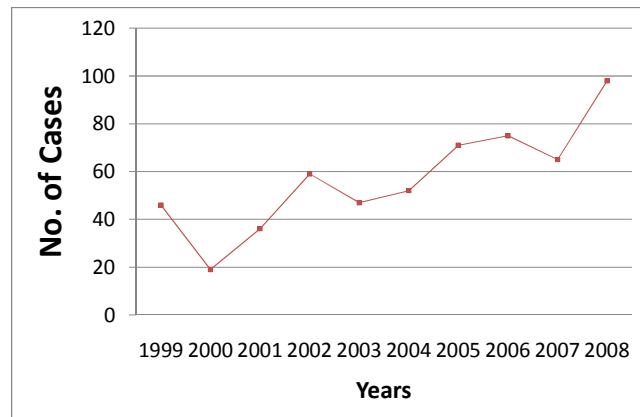
## RESULTS

Over a period of ten years, 1999-2008, 568 new cases of breast cancer were registered, comprising of 7 men and 541 women giving M:F ratio 1:77. Histology and cytology verification was 93.6% while unequivocal clinical diagnosis accounted for 6.4%. Infiltrating ductal cell carcinoma not otherwise stated (NOS) was the predominant histological type and accounted for 82.6% of the cases..

Table I shows the age distribution which ranges from 18-93 years. The youngest patient in this study was 18-year old girl; the oldest was 93 years, while the peak age of occurrence was the 5<sup>th</sup> decade (40-49 years) which accounted for more than 27.46% (156) of all the cases.

Figure1 shows yearly incidence and the trends of breast cancer cases registered at the registry graphically. There was steady rise in cases of breast cancer with 19 and 96 cases registered in 1999 and 2008 respectively.

**Figure 1: THE GRAPH SHOWING THE TRENDS OF BREAST CANCER IN A NIGERIAN POPULATION: ILORIN CANCER REGISTRY DATA**



## DISCUSSION

Globally, cancer is one of the common non-communicable diseases and one-third of it is preventable while another one-third are potentially curable if diagnosed early and the remaining one-third of cases are incurable but treated with palliative care in order to improve the quality of life (WHO,2000). Breast cancer belongs to the group of cancer that are potentially curable if diagnosed early, unfortunately in Nigeria, most cases presented during the late stage of the disease((Adeniji KA,1999, Anyanwu SNC, 2006).

In our previous study, breast cancer is on top of the list of cancers among females and the commonest cancer when both sexes are combined (Afolayan EAO et al, 2012).

In this study, 568 cases of breast cancer are registered over the period of ten-years representing approximately 57 cases per annum. This is at variant

to the report of an earlier study by Adeniji *et al* carried out in the same Centre, using surgical pathology registers, where 397 cases were registered over a period of 18-years giving annual rate of 22 cases of breast cancer (Adeniji KA et al, 1999). Whereas in the recently published data on cancer from population-based Ibadan cancer registry at UCH, Ogunbiyi JO *et al* reported 2225 new cases in breast cancer in 4 years giving annual incidence of 556 cases (Ogunbiyi JO et al, 2010). Thus, the disparity may be associated with improved diagnostic facilities (fine needle aspiration, USS, CT scan, and availability of manpower which hitherto that are not available before), apart from the use of hospital-based cancer registry data in this study which has a wider scope of sources of information (data) on cancer than the surgical pathology register. This also further demonstrates the justification for establishment of Population-Based Cancer Registry (PBCR) which covers a defined geopolitical area;

ensure completeness of data and generates more reliable and accurate data on cancer.

Breast cancer is low among males as M:F ratio is 1:80 which is similar to reports from other countries such as Finland, Norway and Philippine (Teppo L et al, 1992, Longmark F, 2007, Radaniel MTM et al,2008). However, this does not agree with the reports from Ibadan (in Southwestern Nigeria), Kenya and Uganda, where cancer occurs relatively more in men with M:F ratio ranging from 1:20 to 1:44(Parkin DM et al 2003,Parkin DM et al 2003,Ogunbiyi JO et al 2010).

The peak age of incidence of breast cancer in this study is the 5<sup>th</sup> decade, which supports the reports from Kenya and South Africa(Parkin DM et al, 2003Parkin DM et al 2003), but lower than reports from Norway and among the Philippines which have 6<sup>th</sup> and 8<sup>th</sup> decade respectively(Longmark F, 2007Radaniel MTM et al,2008). This may be related to the onset of aetiopathogenesis of breast cancer which have been found to include, early menarche, late menopause, late age at first birth, and other reproductive factors (Freddy S et al, 2008).

Similarly, this study shows that men at a relatively older age group, 60 years and above develop breast cancer, which corroborates reports from other

African and western countries (Teppo L et al, 1992, Parkin DM et al 2003,Thursfield V et al,2005, Ogunbiyi JO et al,2010).

We observe steady rise in incidence of breast cancer in this study with occasional drops which coincide with period of national or regional industrial unrest when public health facilities are curtailed. Figure I. This indicates that the existing control measures to slow down the pace of breast cancer are yet to yield any positive impact and deserve to be reviewed for better achievements. We postulate that with improvement in diagnostic facilities, availability of specialists or experts in oncology, advocacy, and adoption of Western life by African women, breast cancer morbidity will continue to rise as is being experienced in the Western world (Forbes JF, 1997). In conclusion, since breast cancer belongs to the group of cancers that are treatable if diagnosed early, non-declining incidence of breast cancer in this study indicates inadequate or ineffective control measure to stem its morbidity or is due to diversion of global attention to HIV/AIDS and tuberculosis. Therefore, there is the need to step up activities through NGOs, screening programs and trainings such as mammography, clinical and self- examination, to control the upward trends of breast cancer in the country.

**TABLE I: DISTRIBUTION OF BREAST CANCER BY AGE AT ILORIN CANCER REGISTRY (1998 - 2007)**

AGES	NUMBER OF CANCER (C50)	CASES/ BREAST	%
0 – 14	0		0
15 – 19	2		0.35
20 – 24	13		2.29
25 – 29	20		3.52
30 – 34	44		7.75
35 – 39	69		12.15
40 – 44	82		14.44
45 – 49	74		13.03

50 – 55	68	11.97
55- 59	54	9.51
60- 64	52	9.15
65+	78	13.73
Unknown	12	2.11
<b>Total</b>	<b>568</b>	<b>100</b>

## REFERENCES

- 1 Adeniji KA. Pathological Appraisal of Carcinoma of the female breast in Ilorin, Nigeria. The Nigerian Postgraduate medical journal. 1999; 6: 56-59
- 2 Afolayan EAO. Cancer in North Western region of Nigeria - an update analysis of Zaria cancer registry data. Western Nig. Jour. of Med. Sci. 2008; 1:37 – 43.
- 3 Afolayan EAO, Ibrahim OOK, Ayilara GT. Cancer Patterns In Ilorin: An Analysis Of Ilorin Cancer Registry Statistics. The TropicalJournal of Health Sciences. 2012; 9: 42-47
- 4 Anyanwu SNC Temporal Trends in Breast Cancer Presentation in the Third Wolrd UICC World Cancer Congress. Washington D C 2006
- 5 Coleman MP and Bieber CA. Cancer Registration Principles and Methods No 95 Lyon IACR Scientific Publication 1991. Appendix 4, CANREG: Cancer registration software for microcomputer; p. 267-274
- 6 Farley J, Bray F, Pisani P, Parkin DM et al GLOBOCAN 2000: Cancer incidence, Mortality and prevalence Worldwide. Version1.0.IARC Cancer Base No 5Lyon, France. IARC Press 2001.
- 7 Forbes J.F, The incidence of cancer: the global burden, public health consideration. SeminOncol. 1997; 24:20-35
- 8 Freddy Sitas, Perkin DM. Part II Cancer in Indigenous Africans – Causes and control. Cancer Oncol. 2008; 9:786-795
- 9 Longmark F. Cancer in Norway. Cancer incidence, mortality, survival and prevalence in Norway. Oslo. Cancer registry of Norway Institute of population – based cancer research 2007: 17–64.
- 10 Mohaghehi MA, Mosavi-Jarrahi A, Malekzadal R, Parkin M. Cancer incidence in Tehran metropolis: the first report from the Tehran population -based cancer registry 1998-2001. Arch Iran med.2009; 12: 15-23.
- 11 Ogunbiyi JO, Fabowale AO, Ladipo AA (eds). In Cancer incidence and top ten cancers in eleven local government areas in Ibadan, Nigeria and its environs, 2004 – 2008. Ibadan M. Alofe (Nig.)enterprises. 2010; 11 – 17
- 12 Parkin DM, Pisani P, Ferlay J: Global cancer statistics. C A Cancer J Clin 1999; 49: 33-6413 Parkin DM, Bray FI, Devesa. Cancer burden in the year 2000. The global picture. European Journal of Cancer 2001; 37: S17-S22
- 14 Parkin DM, Ferlay J, et al.153.Lyon. IARC scientific publication, 2003, Kenya; 3.4.15 p. 132-137
- 15 Parkin DM, Ferlayd, et al. Lyon IARC scientific publication, 2003, Tanzania3.4.14 p. 160-166.
- 16 Parkin DM, Ferlay J, et al.153.Lyon. IARC scientific publication, 2003, Uganda; 3.4.15 p. 167-179
- 17 Parkin DM, Ferlayd, et al. Lyon IARC scientific publication, 2003,South Africa; 3.5.4 p. 207-240.
- 18 Parkin DM, Ferlay J, et al.153.Lyon. IARC scientific publication, 2003, Breast cancer 4.2 p. 262-267.

- 19 Parkin DM , Sitas F, Chinrenje M, Stein I, Abratt R, et al Part I: Cancer in indigenous Africans-burden, distribution and trends. *Lancet Oncol.* 2007;9: 683-692.
- 20 Radaniel MTM, Laudico AV, Lumague MRM Mapua CA Patama T and Pukkala E. Cancer in the Philippines VolIX Part I Cancer incidence in 1998 -2002. Manila Philippine cancer society. 2008: 1-69.
- 21 Sen U, Sankarakarayanan R, Mandal S, Ramanakumar AV, Parkin DM, Siddiq M. Cancer in eastern India: the first report of the Kalkata cancer registry. *Int J. cancer.* 2002; 100:86-91.
- 22 World Health Organization, National cancer control programs, policies and management guidelines. WHO. CAN 1992; 1:11 – 20.
- 23 World Health Organization .International Classification of Diseases for oncology .3rd ed., Geneva W.H.O.2000.
- 24 World Health Organization .International Classification of Diseases for oncology .3rd ed., Geneva W.H.O.2000.