

Original Research Article

Prevalence of Cancer in a Tertiary Health Facility in South-South NigeriaOnwusah D.O^{*1}, Korubo GJ¹¹Department of Clinical Pharmacy and Management

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Abstract: Cancer remains a major public health problem with significant morbidity and mortality worldwide including Nigeria. This study assessed prevalence of cancer among patients managed at the Hematology/Oncology clinics of a tertiary care hospital in South-South Nigeria. This observational, cross-sectional retrospective study, reviewed a ten-year medical records of cancer patients managed at a tertiary care hospital in South-South, Nigeria. It was conducted from November 2015 to February 2016 after ethical approval was granted by the institutional ethical committee. The patients' medical records files were consecutively selected. Seven hundred and eighty two (782) eligible cancer patients' medical records were reviewed. Thirty different cancer types were observed. The most prevalent cancers in rank order include breast cancer 260 (33.2%), prostate cancer 202 (26.2%), cervical cancer 48(6.1%), liver cancer 57(7.3%). Overall, cancer was more prevalent in females 456 (58.3%) than in males 328(41.7%). In females, breast cancer was the most common cancer, while in males prostate cancer was the most common cancer 202 (25.8%). Overall, patients in the age-group of 61 to 70years were most commonly affected 153 (19.6%) by cancer. In general, cancer affected more females than males. However, breast cancer was the most prevalent; this is followed by prostate cancer. In female patients, breast cancer was more common, while prostate cancer was more common among males. Patients within the age- group of 61 and 70 years. However, breast cancer affected majority of the patients within the age-group of 41 and 50 years. Thus, this study has provided information on the demand for cancer care services as well as information needed for cancer policy and planning in Nigeria.

Keywords: morbidity, mortality, breast cancer, prostate cancer

INTRODUCTION

Globally, cancer is a major cause of morbidity and mortality. In 2012, an estimated 14.1 million new cancer cases and 8.2 million deaths occurred compared to the estimates in 2008 which had 12.7 million new cases and 7.6 million deaths respectively. In the same year, cancer prevalence worldwide was about 32.5 million people who were still alive. It represents the second most common cause of mortality constituting about 12% of all deaths after cardiovascular disease, killing more people than HIV/AIDS, Tuberculosis and Malaria. It constitutes an enormous burden particularly in the developing countries. However, cancers of the lung, female breast, colorectal and stomach made up over 40% of all cases diagnosed in 2012. Lung cancer was the most common cancer (16.7% of all new cases) in men while breast cancer was the most common cancer diagnosed in women (25.2% of all new cases in

women). Over 50% of all cancer deaths each year are due to lung, stomach, liver, colorectal and female breast cancers [1-5].

Most common cancers reported in Nigeria in descending order of frequency include breast, cervix, prostate, colorectal, liver cancer and Non-Hodgkin's Lymphoma. There are indications that the incidence of cancer in Nigeria is on the increase, with female cancers leading, based on data derived from different parts of the country. This increase has been attributed to lifestyle change and poor awareness about risk factors [6]. In Nigerian men, the most common cancers include cancers of the prostate, liver and lymphomas [7-8], while in Nigerian women, cancers of the cervix and breasts are commonest with minimal regional variation [9].

As the incidence and prevalence of certain cancers continue increasing in Nigeria [10-11], the need to assess the prevalence of cancer becomes imperative, particularly in South-South Nigeria, where data on cancer prevalence are sparse. Moreover, it is important to conduct research on prevalence of diseases such as cancer to help establish its prevalence and predict the expected incidence to aid the planning of rational detection and treatment strategies [12]. This study therefore aimed to assess the prevalence of cancer among patients attending the Hematology/Oncology clinics of the University Of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Nigeria.

MATERIALS AND METHODS

Study design and setting

This was an observational, cross-sectional retrospective review of the medical records of cancer patients managed at the Hematology/Oncology clinics of the University of Port Harcourt Teaching Hospital (UPTH), a tertiary care hospital in Port Harcourt, Rivers State, Nigeria.

The study setting, University of Port Harcourt Teaching Hospital is a tertiary care hospital in Rivers state, Nigeria. Rivers state is located in the Niger-Delta region of the South-South geopolitical zone of Nigeria, an oil rich region with many industrial and incessant crude oil exploratory activities which place people living there at high risk of cancer [13].

Study sample

The study sample were 782 adult cancer patients, aged 18 years and above who presented over a ten year period of January 2005 to December 2014, and received treatment for different types of cancers at the Hematology/Oncology clinics of the University of Port Harcourt Teaching Hospital (UPTH), Rivers State, Nigeria.

Ethical consideration

Ethical approval to conduct this study which is part of a major study, was granted by the University of Port Harcourt Teaching Hospital Ethical committee and the Research Ethics Group of the Centre for Medical Research and Training, College of Health Sciences, University of Port Harcourt, Nigeria..

The medical records of cancer patients aged 18years and above, and who received chemotherapy at the Hematology/Oncology clinics for treatment of any type of cancer, and met the inclusion criteria were included in this study.

Data collection

The medical records of eligible cancer patients who received treatment at the cancer clinics over a ten-year period of January 2005 to December 2014 were included in this study. The medical records of 782 cancer patients’ were consecutively selected. The study was conducted from November 2015 to February 2016, after ethical approval to conduct the study was obtained. The patients’ records were reviewed to obtain necessary patient information. A structured proforma was used for data collection. Information retrieved included patients gender, age and types of cancer diagnosed at the hospital.

Data Analysis

Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) version 20 (IBM Corporation, Chicago, IL, USA) for descriptive statistics such as frequency and percentages.

RESULTS

Table 1: Gender-wise distribution of patients

A total of 782 patients’ medical records were reviewed and analyzed. Overall, the results of this study indicated that cancer was more common in females 456 (58.3%) than in males 326(41.7.0%).

Table 2: Age-wise distribution of patients

The results indicated that a few (3.6%) of the patients were between 18-20years of age, 9.6% were between 21-30years; 14.3% were in the age range of 31- 40years; 18.5% were in the age range of 41-50years; 18.2% were in the age range of 51-60years; 19.6% were in the age range of 61-70years; 13.3% were between 71-80years while 2.9% were above 80years.

Moreover, majority (19.6%) of the patients affected by cancer, were within the age group of 61-70years, while the age-group least affected (3.6%) by cancer were between 18-20years.

Table 1: Gender-wise distribution of patients

Gender	Frequency	Percentage (%)
Males	326	41.7
Females	456	58.3
TOTAL	782	100

Table 2: Age-wise distribution of patients

Age group (years)	18-20	21-30	31-40	41-50	51-60	61-70	71-80	> 80	Total
Frequency	28	75	112	145	142	153	104	23	782
Percentage (%)	3.6	9.6	14.3	18.5	18.2	19.6	13.3	2.9	100

Table 3: Cancer types by patients' gender and age

S/N	Cancer type By Site	Gender M/F	Age (years)								Total Total (%)
			18-20	21-30	31-40	41-50	51-60	61-70	71-80	>80	
1.	Breast cancer	2/258	17	29	69	53	35	38	18	1	260 (33.2)
2.	Prostate cancer	202/0	0	1	3	15	39	71	55	18	202 (26.2)
3.	Liver cancer	24/33	0	6	5	17	12	11	6	0	57 (7.3)
4.	Cervical cancer	0/48	0	9	7	13	11	4	3	0	47 (6.1)
5.	Ovarian cancer	0/21	0	4	1	6	6	4	0	0	20 (2.6)
6.	Genital tract cancer	6/14	1	3	2	6	0	3	3	2	20 (2.6)
7.	Colon cancer	11/8	0	1	1	5	8	2	1	1	19 (2.4)
8.	Non-Hodgkin's Lymphoma	8/7	1	3	2	2	5	1	1	0	15 (1.9)
9.	Pancreatic cancer	9/5	0	1	1	4	5	1	2	0	14 (1.8)
10.	Parotid cancer	10/3	0	6	3	1	1	2	0	0	13(1.6)
11.	Hodgkin's Lymphoma	6/6	2	4	4	0	1	1	0	0	12 (1.5)
12.	Gastric cancer	6/5	0	0	2	2	0	4	3	0	11(1.4)
13.	Chronic Myeloid Leukemia	5/5	2	2	4	1	1	0	0	0	10 (1.3)
14.	Multiple myeloma	6/3	0	0	0	1	3	3	2	0	9 (1.1)
15.	Melanoma	2/6	0	0	3	0	2	0	2	1	8 (1.0)
16.	Lung cancer	4/3	1	0	0	1	2	2	1	0	7 (0.9)
17.	Soft tissue sarcoma	¾	1	0	1	3	0	0	2	0	7 (0.9)
18.	Acute Lymphocytic Leukemia	2/5	2	1	1	1	2	0	0	0	7 (0.9)
19.	Lymphoproliferative disease	4/3	0	4	0	2	0	1	0	0	7(0.9)
20.	Endometrial cancer	0/6	0	0	0	3	2	0	1	0	6 (0.8)
21.	Bladder cancer	4/1	0	0	2	1	1	0	1	0	5(0.6)
22.	Renal cancer	3/2	0	1	0	1	1	1	1	0	5(0.6)
23.	Anal cancer	3/2	0	0	0	3	0	1	1	0	5(0.6)
24.	Chronic Lymphocytic Leukemia	1/3	0	0	0	0	2	2	0	0	4(0.5)
25.	Testicular cancer	3/0	0	0	1	0	1	0	1	0	3(0.4)
26.	Hemangioma	½	1	1	0	0	0	1	0	0	3(0.4)
27.	Esophageal cancer	2/0	0	0	0	2	0	0	0	0	2(0.3)
28.	Myeloproliferative disease	0/2	0	0	0	1	1	0	0	0	2(0.3)
29.	Thyroid cancer	1/0	0	0	0	0	1	0	0	0	1(0.1)
30.	Pituitary cancer	0/1	0	0	0	1	0	0	0	0	1(0.1)
	TOTAL	326/ 456	28	75	112	145	142	153	104	23	782 (100%)

Table 3: Cancer types by patients' gender and age

Altogether, 30 different types of cancer were observed in this study. Seven hundred and eighty two (782) patients were treated for 30 types of cancer. These cancers included breast cancer, prostate cancer, liver cancer, cervical cancer, ovarian cancer, genital tract cancer, colon cancer, pancreatic cancer, Non Hodgkin's lymphoma, parotid cancer, Hodgkin's lymphoma as well as esophageal cancer, testicular cancer, thyroid

cancer, endometrial cancer, bladder cancer, gastric cancer, renal cancer, soft tissue sarcoma, anal cancer, myeloproliferative disease, lung cancer, chronic myeloid leukemia, melanoma, acute lymphocytic leukemia, lymphoproliferative disease, hemangioma, multiple myeloma, pituitary cancer and chronic lymphocytic leukemia. Among these cancers, the most frequent cancer in patients who presented for treatment was breast cancer with a frequency of 260 patients

(33.2%), while thyroid cancer and pituitary cancer were the least prevalent 1(1.3%) each.

The findings showed that in females, breast cancer was the most common cancer with a frequency of 260 (33.2%), while prostate cancer was the most common cancer in males with a frequency of 202(26.2%). Thyroid cancer and pituitary cancer were the least prevalent cancers with a frequency of 1(0.1%) each.

Moreover, majority 69 (26.5%) of the patients affected by breast cancer were between the age group of 41-50years, while patients who were least affected 1(0.4%) by breast cancer were > 80years.

However, in this study, the most prevalent cancers in rank order include breast cancer 260 (33.2%), prostate cancer 202 (25.8%), liver cancer (7.3%) and cervical cancer 47 (6.1%).

DISCUSSION

Cancer affects both patients and their families including patients' caregivers both physically and psychologically [14]. In this study, seven hundred and eighty two (782) eligible cancer patients' medical records were reviewed retrospectively. The most prevalent cancers in this study in rank order include breast cancer 260 (33.2), prostate cancer 202 (26.2%), cervical cancer 48(6.1%), liver cancer 57(7.3%). Overall, it was observed in this study that cancer was more common in females 456 (58.30%) than in males 328(41.7%); this higher prevalence of cancer in females may be due to the involvement of their reproductive organs which include the cervix, ovaries and endometrium, and the breast. Together, on the average, these cancers constituted 42.8% of all cancers in this study, while cancers of the male reproductive organs (prostate cancer and testicular cancer), accounted for 26.2% of all cancers in this study. This finding is consistent with the study by Bajracharya *et al.*; in 2006 [15], in which females were observed to be more susceptible to cancer than males.

Overall the age-group of patients most commonly affected by cancer in this study were between 61 to 70 years and these patients made up 153 (19.6%) of all patients in this study. This finding is in contrast to that of the studies [3, 16-18], where majority of the patients affected by cancer were in the age group of 40 to 60years.

Altogether, 30 different types of cancers were observed in this study. The results showed that in

females, breast cancer was the most common cancer 258 (32.9%); this finding is similar to other studies [19-21], where breast cancer was the commonest cancer among females. Prostate cancer was the most common cancer in males 202 (25.8%) in the present study. This finding is not in line with the study by Pentareddy *et al.*; [21], where lung cancer and head and neck cancer were the most common cancers.

Limitations of the Study

This study is a retrospective review of hospital based records of patients on the prevalence of cancer among adult cancer patients.

The hospital records of patients' management in the hospital were dependent on information derived from the hospital based cancer registry (HBCR). Although, HBCR give an indication of the demand for cancer care services and other information necessary for policy and planning; are recognized as an integral part of hospital cancer control programs and have an indispensable role in a country's health care delivery system, they do not provide measures of the occurrence of cancer in a defined population due to the fact that it is not possible for each hospital to define their catchment populations, that is the populations from which all the cases arise. Nonetheless, HBCR are fundamental sources of information in limited resource regions where population based cancer registries are lacking [10, 22].

Consequently, the results of this study may not be generalizable to the general population of cancer patients in Nigeria. Nevertheless, the results of this study are generalizable only to the population of patients studied and should be therefore be interpreted with caution.

CONCLUSION

In general, thirty different types of cancer were observed in this study. However, cancer affected more females than males. Overall, in this study, breast cancer was the most prevalent cancer; this is followed by prostate cancer, while thyroid cancer and pituitary cancer were the least prevalent cancers. Furthermore, among female patients, breast cancer was the most prevalent cancer while prostate cancer was more common among males. Generally, cancer was more common in patients within the age group of 61 and 70 years. Majority of the male patients affected by prostate cancer were within this age group of 61-70years. However, breast cancer affected majority of the patients within the age-group of 41 and 50 years.

Thus, this study has provided information on the demand for cancer care services as well as information needed for cancer policy and planning in Nigeria.

REFERENCES

1. Ferlay J S, Ervik M D, Eser S M. GLOBOCAN 2012 v 1.0, Cancer incidence and mortality worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer.
2. Bray F, Ren JS, Masuyer E, Ferlay J. Global estimates of cancer prevalence for 27 sites in the adult population in 2008. *International journal of cancer*. 2013 Mar 1; 132(5):1133-45.
3. Khan GM, Thapa RK, Adhikari DS, Rajbhandari M, Dwa P, Shrestha S, Oli S. Evaluation of cancer prevalence and cytotoxic medication prescribing in central region of Nepal. *Kathmandu Univ J Sci Eng Technol*. 2013; 9(1):189-99.
4. WHO (2006a). Cancer Factsheet No 297. Available from www.who.int/mediacentre/factsheets/fs297/en/print/html
5. WHO (2006b). Epidemiological Factsheet on HIV/AIDS and Sexually Transmitted Infections, Nigeria. Available from
6. Available at: <http://www.who.int/globalatlas/predefinedReports/EFSPDFs/EFS2006NG.pdf>
7. Abdulkareem F. Epidemiology and incidence of common cancers in Nigeria. In Paper presented 2009 Jul 12.
8. Parkin DM, Boyd L, Walker LC. 16. The fraction of cancer attributable to lifestyle and environmental factors in the UK in 2010. *British journal of cancer*. 2011 Dec 6; 105:S77-81.
9. Awodele O, Adeyomoye AA, Awodele DF, Fayankinnu VB, Dolapo DC. Cancer distribution pattern in south-western Nigeria. *Tanzania journal of health research*. 2011; 13(2):106-8.
10. Adebamowo CA. Cancer in Nigeria. *American Society of Clinical Oncology (ASCO) News and Forum*. 2007. Available from <http://www.ascocancerfoundation.org/anf/Past+Issues/April+2007/Cancer+in+Nigeria?>
11. Jedy-Agba E, Curado MP, Ogunbiyi O, Oga E, Fabowale T, Igbino F, Osubor G, Otu T, Kumai H, Koehlin A, Osinubi P. Cancer incidence in Nigeria: a report from population-based cancer registries. *Cancer epidemiology*. 2012 Oct 31; 36(5):e271-8.
12. Adetifa FA, Ojikutu RK. Prevalence and trends in breast cancer in Lagos State, Nigeria. *African Research Review*. 2009; 3(5).
13. Haas GP, Delongchamps N, Brawley OW, Wang CY, de la Roza G. The worldwide epidemiology of prostate cancer: perspectives from autopsy studies. *The Canadian journal of urology*. 2008 Feb; 15(1):3866.
14. Ordinioha B, Brisibe S. The human health implications of crude oil spills in the Niger delta, Nigeria: An interpretation of published studies. *Nigerian Medical Journal*. 2013 Jan 1; 54(1):10.
15. Nijboer C, Tempelaar R, Sanderman R, Triemstra M, Spruijt RJ, Van Den Bos GA. Cancer and caregiving: the impact on the caregiver's health. *Psycho oncology*. 1998 Jan 1; 7(1):3-13.
16. Bajracharya N, Karki P, Sapkota S, Bastakoti S, Yagol N, Khan GM, Shakyra R, Rao BS. Prevalence pattern of cancer and handling of cytotoxic drugs. *Kathmandu University Journal of Science, Engineering and Technology*. 2006 Feb; 2(1).
17. Dave DJ, Pillai A, Shah DV, Agrawal S, Goel A. An analysis of Utilization Pattern of Anticancer drugs in diagnosed cases of Carcinoma in a tertiary care teaching hospital. *International Journal of Basic and Applied Medical Sciences*. 2014; 4(1):251-9.
18. Prasad A, Datta PP, Bhattacharya J, Pattanayak C, Chauhan AS, Parbaty P. Pattern of adverse drug reactions due to cancer chemotherapy in a tertiary care teaching hospital in Eastern India. *Journal of Pharmacovigilance*. 2013 Feb 8.
19. Kirthi C, Afzal A, Reddy M, Ali SA, Yerramilli A, Sharma S. A study on the adverse effects of anticancer drugs in an oncology center of a tertiary care hospital. *Int J Pharm Sci*. 2014; 6(2):580-3.
20. Ramalakshmi S, Ramesh A, Sahini K, Babu KS, Kousalya K, Saranya P. A Study on Prescribing Trends of Supportive Care Drugs Used in Cancer Chemotherapy in a Tertiary Care Teaching Hospital. *Indian Journal of Pharmacy Practice*. 2013; 6(3).
21. Ana GR, Sridhar MK, Asuzu MC. Environmental risk factors and hospital-based cancers in two Nigerian cities. *Journal of Public Health and Epidemiology*. 2010 Nov 30; 2(8):216-23.
22. Pentareddy MR, Suresh AV, Shailendra D, Subbaratnam Y, Prasuna G, Naresh DT, Rajsekhar K. Prescription pattern of anticancer drugs in a tertiary care hospital. *Journal of Evidence based Medicine and Healthcare*. 2015; 2(20):3001-9.
23. Young JL. The hospital-based cancer registry. *Cancer Resgistration: Principles and Methods*. 1991; 95:177-84.