Cancer Patterns In Ilorin: An Analysis Of Ilorin Cancer Registry Statistics

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Abstract

Cancer, a non communicable disease of mankind has become a major public health issue. Yet reliable data on cancer incidence in Nigeria is lacking due to dearth of population based cancer registries in the counties. The essence of this presentation is to illustrate the burden of cancer in terms of its occurrence, pattern and establish the base line data on cancer at our centre.

Data presented were new cancer cases diagnosed clinically, radiologically, histologically or by cytology and registered at Ilorin cancer registry from 1999-2003. Collection of data was by active reporting, while the sources of information included the wards, clinics, laboratories, radiology department and autopsy records. Coding of primary sites of cancer was according to International classification of disease for oncology 10th edition (ICD 10th) of World Health Organization.

Over a period of 5 years, 1999-2003 a total of 1187 new cancer cases were registered comprising of 456 (38.42%) males and 731 (61.58%) females. Male to Female ratio was 1:1.6. The top five common cancers at our centre were breast cancer, 266(22.41%); cervical cancer, 156 (13.14%); hepatocellular carcinoma, 152 (12.81); malignant lymphoma 56(4.72%) and prostate carcinoma 51 (4.30%), all constituting more than fifty percent (57.37%) of the total new cancer cases registered. Cancers of the liver, 97 (21.27%); prostate, 51 (15.85%) and colorectal, 26 (9.18%) were the commonest in males while in females, the leading malignancies were breast, 262 (35.84% of cancer cases in women); cervix, 156 (21.34%) and hepatocellular carcinoma, 55(18.44%). Cancer of the lung is rare in both sexes. Children accounted for 6.23% of all the cases and are dominated by malignant lymphoma.

Most of the common cancer cases registered at our center are controllable and their burden could be minimized. Therefore, there is need for country-wide cancer screening policy and immunization programmes for early detection and prevention, for an effective control of cancer in Nigeria.

Key words: Cancer, Cancer registry, population-based cancer registry.

Introduction

Cancer occurs when the genetic material of a cell is damaged which could be due to genetic, environmental, dietary, use of alcohol, tobacco and socio-economic factors[1]. The consequence is uncontrolled cell growth and the cancer cells grows into neighboring organs or spread to distant organs with the consequent destruction of vital life supporting organs, which explains the high morbidity and mortality rates in cancer. In 1992 World Health Organisation (WHO) and Illinois Department of Public Health reported that cancer accounted for one tenth of deaths world wide and second leading cause of death in developed countries[2,3] . In relation to its aetiological factors, cancer is no longer regarded as a health problem of western world as it has been reported that more than half of all cancers occurred among the three-quarters of the world's population who reside in the developing countries [4] . The number of new cancer cases in the population depends on the population size, age and population's exposure to the cancer risk factors as well as diagnostic facilities[1]. Thus the burden of cancer in developing nations including Nigeria will increase in the nearest future, due to increasing aging population, industrialization and increase population being exposed to causative factors such as tobacco, alcohol and adoption of western style of life. Yet cancer is being under-emphasized in developing countries due to overwhelming burden of communicable diseases such as AIDS and tuberculosis.

Over the years in the western world cancer registry has gained experience of the type of data required for different purpose [5,6] , whereas in African continent, Nigeria in particular, cancer registry has been facing series of challenges and as a result virtually most existing cancer registries in Nigeria are either hospital- or departmental- based[7]. Hence determination of the cancer burden nation wide has been based on estimation [8]. Up to date Ibadan cancer registry (IBCR)

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which was established in 1960 and recently resuscitated by International Agency for Research on Cancer is the only reliable population based cancer registry in the country with internationally acceptable data on cancer [9].

Cancer is characterized by geographical variations. In Australia, Victoria with a population of approximately 5million people in 2005, about 24500 (13500 males and 11000 females) new cancer cases were registered with prostate, colorectal, breast, melanoma and lung as the leading sites [10]. Also, Norway with a population of 4.7 million in 2007, registered about 26000 new cancer cases with prostate, colorectal, breast, lung and lymphoma as the commonest sites[11]. The Ibadan cancer registry, Nigeria, which covered an area occupied by about 2.6 million people registered a number of 9090 new cancer cases (3126 males, 5964 females) within a period of 5 years (2004-2005) giving an average yearly incidence of 1800 cases, with Breast, Cervix, Colorectal, Prostate and Lymphoma as the commonest cancers [9]. Using the national pathology-based cancer registry data, the leading cancer sites among the black South Africans were cervix, esophagus, breast, prostate and mouth [12]. Cancer occurs at all ages but elderly people are especially affected [11, 12,13]. At Ibadan, children accounted for 3.60% of the total number of cases registered while at Zaria, cancer rate among children was 10.92% [9,14].

The Ilorin hospital-based cancer registry (ILCR) commenced cancer registration in the last quarter of 1997. Therefore the essence of this communication is to highlight the burden of cancer and its relative distribution in terms of sites, age and sex and also to establish the database on cancer at our centre. University of Ilorin Teaching Hospital is a referral centre for both government and private-owned hospitals within Kwara and neighboring states (Kogi, Niger, Osun and Oyo states).

Materials and Methods

Data for the five years (1999 – 2003) study were obtained from the register of the hospital-based Ilorin cancer registry of University of Ilorin Teaching Hospital (UITH) Ilorin which commenced cancer registration in the last quarter of 1997. Cancer notification was voluntary state wide, therefore to generate a reliable data, collection of data was by active reporting, a process whereby the cancer abstractor visited the various sources of information. All malignant tumours, ICD-10, Codes C00-C96 of WHO [15], diagnosed or treated at the hospital complex were registered. Sources of Information (data) were pathology, hematology and chemical and immunology laboratories, out-patients' clinics, wards, medical records, radiology departments and autopsy register (for incidental cases). Data were abstracted on both patients and cancers and these included registry identification number, name, date of birth, sex, residential address and occupation. Other information (on cancer) were date of diagnosis, site of cancer (topography), cancer histology (Morphology), source of information and basis of diagnosis. The first step at the registry is to match the incoming data against the register using 'Person Search' in the CanReg 4 software[16] to see 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

The bases of diagnosis were Biopsy (histology), Cytology, Clinical, imaging (x-ray, ultrasound scan (USS) or Computer tomography (CT)) and autopsy.

Coding of the primary sites of cancer was according to W.H.O, International Classification of Diseases 10th (ICD-10) revision[15]. The data are presented in tables and pie charts.

Results

Over the 5-year period (1999-2003) of cancer registration at the ILCR, a total of 1187 new cancer cases were registered giving an average annual registration of 237 cases. Verification of cases by histology and cytology was 95.6% while clinical and other bases of diagnosis accounted for 4.4%. The five commonest cancers during the period were breast, 266 (22.41%); cervix, 156 (13.14%); liver, 152 (12.81%); malignant lymphoma, 56 (4.72%) and prostate, 51 (4.30%), Fig I.

There were 456 (38.42%) males and 731 (61.58%) females with male to female ratio of 1:1.6, Table I. Among males, cancer of the liver, 97 (21.27% of all male cancers) topped the list followed by prostate, 51(11.18%); colorectal carcinoma, 26 (5.7%); malignant lymphoma, renal, and leukemia with 22 (4.82%) cases. Others were gastric carcinoma, 10 (2.19%); salivary gland, 7 (1.54%) and esophagus with 6 (1.32%) cases. Lung cancer was low with 7(1.54) cases. Kaposi sarcoma occurred in four men, while testicular and brain tumour had one case each. In women, cancer of the breast, 262 (35.84% of all female cancers) and cervix, 156 (21.34%) were the commonest cancers, while hepatocellular carcinoma, 55(7.52%) came third. Others were lymphoma, 32(4.38%); colorectal, 23(3.15%); leukemia, 21(2.87%) while uterus and thyroid had 7(0.96%) cases each. Kaposi sarcoma, 7 (0.96%) cases occurred more in women than men. No single case of lung and brain tumour was recorded among women.

Cancer occurred in all age groups but younger people were especially affected in our study as 67.06% of the cases occurred below the age of 54 years while the remaining 32.94% of the cases occurred in the elderly people above 54 years. The peak age of occurrence was at the 5th decade with 268 (22.58%)

TABLE I: NEW CANCER CASES REGISTERED BY SITES AND SEX AT UITH, ILORIN (1999 – 2003)

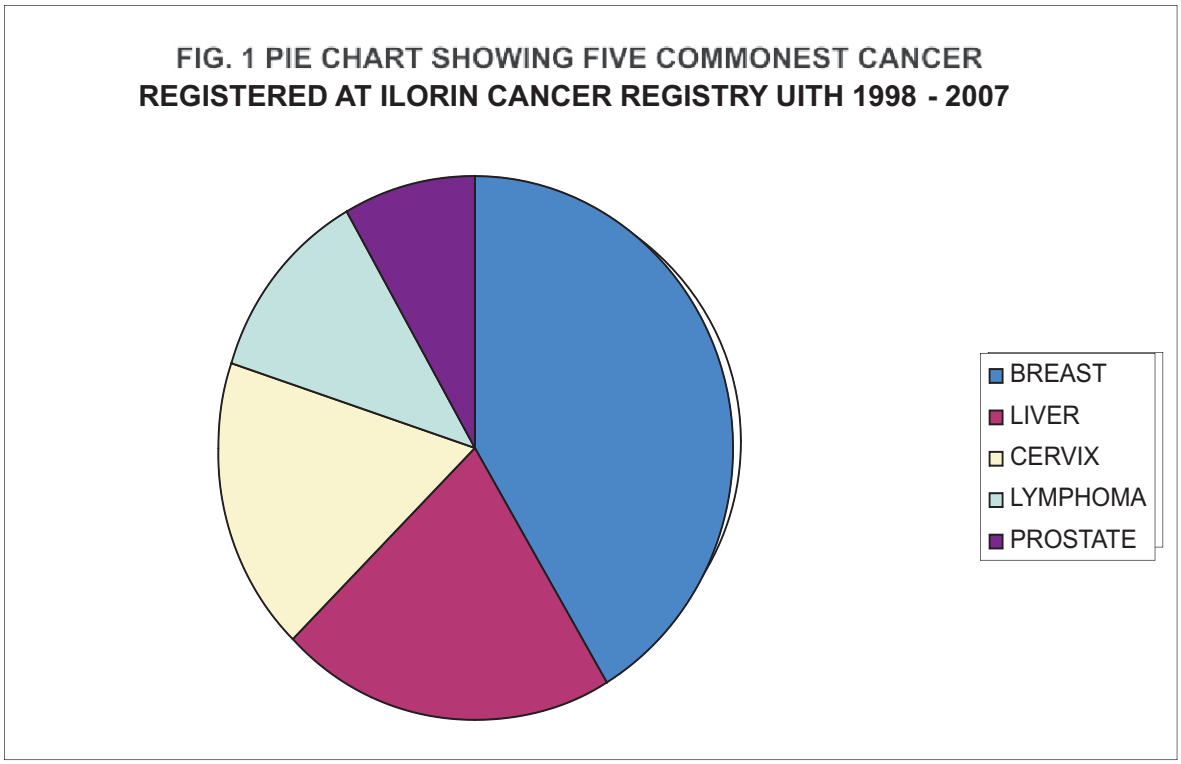
SITES	ICD-10	MALE	FEMALE	TOTAL	%
Lip, Oral cavity & Pharynx	**C00-C14**	**23**	**12**	**35**	**2.95**
Lip	C00-C00.9	0	2	2	
Floor of the mouth	C04	6	3	9	
Salavary gland	C07-C08	4	3	7	
Pharynx	C09-C13	7	2	9	
Others and unspecified sites	C01-C03, C06-C14	6	2	8	
Digestive organs	**C15-C26**	**149**	**100**	**249**	**20.98**
Esophagus	C15	6	5	11	
Stomach	C16	10	5	15	
Colorectal	C18-C20	26	23	49	
Liver	C22	97	55	152	
Pancreas	C25	5	6	11	
Other and unspecified sites	C17,C21,C23,C24-C26	5	3	8	
Resp. syst & Intrathoraxic Org.	**C30-C39**	**19**	**8**	**27**	**2.27**
Larynx	C32	1	0	1	
Trachea, Bronchus & lung	C33,C34	7	0	7	
Others-nose, pleura,thymus	C30-C31,C33,C35-C39	11	8	19	
Bone, Articular cartilage	**C40-C41**	**8**	5	13	**0.51**
Melanoma of Skin	**C43**	**3**	**3**	6	**1.26**
Mesothelial & Soft tissue	**C45-C49**	**6**	**9**	15	**0.93**
Kaposi's Sarcoma	C46	4	7	11	
Other Connective tissue	C45,C47-C49	2	2	4	
Breast	**C50**	**4**	**262**	**266**	**16.76**
Female genital organ	**C51-C58**	**NA**	195	195	**13.14**
Cervix uteri	C53	NA	**156**	**156**	
Body of Uterus	C54, C5	NA	11	11	
Ovary	C56	NA	9	9	
Others	C51-C52,C54,C57-C58	NA	19	19	
Male Genital Organ	**C60-C63**	**65**	**NA**	**65**	**5.48**
Prostate	C61	51	NA	51	
Testis	C62	1	NA	1	
Others	C60,C63	13	NA	13	
Urinary Tract	**C64-C68**	**25**	**4**	**29**	**2.44**
Kidney	C64	22	1	23	
Bladder	C67	3	3	6	
Eye	**C69**	**12**	**7**	**19**	1.6
Brain & CNS	**C70-C72**	**1**	**0**	**1**	**0.08**
Thyroid	**C73**	**7**	**11**	**18**	**1.52**
Unknown Primary Site	**C79-C80**	**90**	**56**	**146**	**12.29**
Malign. Neoplasm of Lymphoid &		**22**	**34**	**56**	
Haematopoietic Tissue	**C81-C96**				
Hodgkins Disease	C81	4	8	12	
Non Hodgkin's Lymphoma	C82-C85	16	24	40	
Multiple myloma	**C90**	**2**	**2**	**4**	
Leukaemia	**C91-C95**	**22**	**21**	**43**	3.62
All Malignant Tumours	**C00-C96**	460	727	**1187**	**100**

NA = Not Applicable

ICD10 = International Classification of Diseases 10Th Edition

TABLE II NEW CANCER CASES REGISTERED GROUP SITE AND AGE AT ILORIN CANCER REGISTERY (1999 - 2003)

SITES	ICD-10	-4	-9	-14	-19	-24	29	34	39	-44	-49	-54	59	-64	-69	70+	Un known	Total	%
Oro-Pharynx	C00-C14	0	4	4	2	1	2	4	1	2	4	2	1	3	1	2	2	35	**2.94**
Digestive organs	C15-C26	0	2	0	3	8	9	23	20	31	29	20	19	27	26	23	9	249	**21**
Resp. system& Intrathoracic Organ	C30-C39	0	1	0	0	0	0	0	2	0	3	4	1	4	7	5	0	27	**2.27**
Bone, Skin & Soft tissue	C40-C49	1	0	3	4	4	1	0	2	4	5	1	2	4	3	3	0	37	**3.12**
Breast	C50	0	0	0	0	8	11	25	36	47	29	25	18	19	14	16	18	266	**22.4**
Genital Organ	C53-C63	0	0	1	0	2	4	12	24	29	31	29	21	31	30	26	20	260	**21.9**
Urinary tract	C64-C68	2	4	0	0	0	0	0	0	3	2	2	3	0	5	6	2	29	**2.44**
Eye	C69	3	3	4	0	0	0	2	0	1	0	2	1	1	1	1	0	19	**1.6**
Brain & CNS	C70-C72	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	**0.08**
Endocr. Organ	C73-C75	0	0	0	1	1	4	0	2	0	0	2	0	4	2	1	1	18	**1.52**
Lymphoid organ	C81-C90	4	5	10	1	3	0	3	0	15	1	6	0	3	1	2	1	55	**4.63**
Leukemia	C91-C96	0	6	10	3	3	2	3	1	1	3	3	1	2	1	1	5	45	**3.79**
Others, Unknown site	C79-C80	0	0	7	6	10	9	10	9	12	15	19	17	18	6	8	0	146	**12.3**
All cancer sites	**C00-C96**	**10**	**25**	**39**	**20**	**40**	**42**	**82**	**97**	**146**	**122**	**115**	**84**	**116**	**97**	**94**	**58**	**1187**	**100**



cases. The 4th to 6th decades of life accounted for more half (54.23%) of the registered new cancer cases for the period, while 64 years and above only accounted for a quarter (25.8%) of the total cancer cases, Table II. Children aged 0–14 years accounted for 74 (6.23%) cases, and these were mainly due to Burkitts lymphoma 26 (2.19%) and Leukemia with 16 (1.34%) cases. Other childhood malignancies included Retinoblastoma, Nephroblastoma, while the only brain tumour reported in this study occurred in a child.

Table II also illustrates the new cancer cases registered by group sites and age. Cancer of the breast with 266 (22.41%) cases comprised of 4 men and 262 women respectively ranked highest, closely followed by genital organs, 260 (21.90%) which was dominated by cancer of the cervix, 156 (13.14%) and prostate (51), while digestive organ ranked third with 249 (20.98%), Fig. 3. Unknown primary sites which included ill-defined sites C26–C39) and unspecified sites (C76–C80) accounted for 146 (12.30%) of the total cancer cases registered during the period and these were mostly metastatic cancer.

Discussion

Population–based cancer registry (PBCR) is an office which attempts to collate, store, analyze and interpret data on person with cancer in a defined population (geographical area) with the emphasis on epidemiology and public health [16]. Whereas, the hospital–based cancer registry records all new cancer cases in a given hospital without the knowledge of the background population; emphasis is on clinical care and hospital administration [16]. This paper is constrained to compare our data (being from hospital–based cancer

registry) with those of PBCR. However, the data being generated has not only illustrated cancer burden and pattern in Ilorin but also should be regarded as a mirror image of cancer in the population.

Our study shows an annual registration of 237 new cancer cases. This is low when compared with the report from population-based cancer registry but similar to another hospital–based Zaria cancer registry report [9, 11, 14]. This low registration which is at variant with report from population–based cancer registries such as Ibadan[9] and Victoria[10] with an annual registration of about 2000 and 26000 new cases per annum respectively is attributed to the type of cancer registry, hospital-based, that is operating this centre. This further demonstrates one of the advantages of PBCR over hospital-base cancer registry as the data from the former is more valid and complete than the later.

At Ilorin, the commonest cancers where both sexes are combined are breast, cervical
and hepatocellular cancers, whereas at Ibadan; breast, cervical and prostate, but at Zaria, malignant lymphoma, cervical and breast cancers in that order are the commonest[9,14]. Also reports from California[17] show that cancers of the prostate, lung and colorectal are the commonest malignancies, while in Korea[17], cancers of the stomach, colorectal and lungs are most common. These findings support the statement that cancer is characterized and determined by geographical variations and etiological factors [6].

In terms of sex distribution, registered cancer in this centre occurs more in females than males with M:F of 1:1.6 in our study. These findings are similar to reports from Denmark, Ibadan and Zaria which are attributed to high incidence of breast and cervical cancer in women[9,14,17] . However these are at variant with reports from other studies which reflect males predominance over females and being attributed to high incidence of cancer of the lungs and prostate in men [10, 13, 17]. Hepatocellular carcinoma, 97, (21.27% of malignancies in men) is the commonest cancer in men followed by malignant lymphoma while prostate cancer is third. About two decades ago at Ibadan, the leading cancers among men were malignant lymphoma, hepatocellular carcinoma and prostate [18], whereas in the recent study, cancer incidence and top ten cancers in eleven Local Government areas in Ibadan, Nigeria and environs, 2004-2008 by Ogunbiyi et al, cancer of the prostate, colorectal and lymphomas were the leading malignancies in men while hepatocellular cancer was pushed to distant fourth[7].

Therefore there is a need for a collaborative study to examine how cancer of the liver has been on the decline at Ibadan as

the findings could be of value to organize a nation wide control measure on liver cancer. In Canada, Denmark, California and Austria, cancer of the prostate is the leading malignancy in men [13,17]. Cancer of the lung (7 cases) is low among men in our study similar to reports from other centers [9,14,19] but contrary to the findings in the western world [17] and South African[12]. This may be related to a relatively low smoking cigarette habit, dearth of cardiopulmonary specialist or adequate diagnostic facilities to aid its diagnosis at our centre. Our study also shows that incidence of Kaposi sarcoma among men is low whereas it is the commonest cancer among men in Zimbabwe[17].

Cancer of the breast and cervix are the leading malignancies in women similar to the findings in some other studies [9,12,20]. However this is contrary to the reports from countries like Canada, New Zealand and Egypt[17] where incidence of cancer of the cervix is low. The high rate of both breast and cervix cancer in this presentation is note worthy and of relevance in planning of cancer control programme, as both belong to the group of cancers that are preventable and potentially curable provided they are diagnosed early [2].

In this study cancer occurs in all age groups similar to other studies[12,19,20] However, the peak age of occurrence is the 5th decade which corroborates the reports from Ibadan [9] and Guinea[21,] but different from reports from South Africa [12] and Hungary[22] where peak age of incidence is the 6th and 7th decades respectively. Children aged 0–14 accounted for 6.23% of all registered cancer cases similar to other studies[14,,22]. Lymphoma is the commonest cancer in children (0-14 years) in our study unlike in western countries where central nervous system tumors predominate in children [11, 13].

In conclusion, since most of the common cancer cases reported is controllable and their burden could be minimized, therefore there is the need for definitive screening policy and immunization program for early detection and prevention of cancer for an effective control and reduction in the burden of cancer in Nigeria.

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