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A LETHAL AND A NONCOMMUNICABLE DISEASE IN NIGERIA: THE COMMON CANCER INCIDENCE AND ITS TYPES

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Abstract

This paper explored cancer incident in Nigeria and their types. The research used a descriptive survey design with a five years cancer patient's record available at the cancer registries. The instrument used for data collection is a self-developed instrument tagged Cancer Incidence Assessment Instruments (CIAI) which enabled the researchers to estimate the cancer incidence in Nigeria and their types. A simple frequency distribution table was used in organizing the data and in describing the information obtained. The study revealed that cancer may start in the early stage of life and may also occur in old age but it is more frequent at youthful ages in both males and females. It also revealed that women are more affected by cancer disease than their male counterparts. Among other findings, the study revealed that cancer is more frequent among civil servants and especially females, followed by traders/business and also housewives. Even though there is a variation of the ranking of the disease every year but Breast and Prostate cancers maintain the number one in both females and males respectively for the period under investigation. Based on the interview conducted there is no reliable treatment protocol that ensures complete recovery of the patients.

Keywords: cancer, treatment protocols, lethal

Introduction

Cancer disease which is non – communicable but lethal has become more forceful and raises concerned as ever before, it constitutes 12% of all deaths globally. Cancer as one of the leading causes of death worldwide where new cases and death from the disease keep rising. In 2007 there were 11 million cancer cases, 7 million cancer deaths, and 25 million people living with cancer (Kolawole 2011). According to Globocan estimates in 2012, there were 14.1 million new cancer cases, 8.2 million cancer deaths, and 32.6 million people living with cancer (within 5 years of diagnosis) worldwide. 57% (8 million) of new cancer cases, 65% (5.3 million) of the cancer deaths, and 48% (15.6 million) of the 5-year prevalent cancer cases occurred in the less developed regions due to limited medical resources to fight the disease.

Joseph (2018) reported that cancer is responsible for 72,000 deaths in Nigeria every year, with an estimated 102,000 new cases of cancer annually. According to the World Health Organization (WHO 2019), about 116,000 new cases were recorded in only 2018 and about 41,000 died of cancer-related illness in Nigeria. They also added that if proper care is not taken against cancer risk factors, the cancer burden in Africa is projected to double from 1,055,172 new cancer cases in 2018 to 2,123,245 by 2040. The overall age-standardized cancer incidence rate is almost 25% higher in men than in women, with rates of 205 and 165 per 100,000, respectively. Male incidence rates vary almost five-fold across the different regions of the world, with rates ranging from 79 per 100,000 in Western Africa to 365 per 100,000 in Australia/New Zealand." (NNCCP 2018 – 2022).

There are more than two hundred (200) different kind of cancer that exist worldwide but the common among them include Breast and Cervical cancer which are common cancers in the world and the most frequent cancer among women, Prostate cancer and Liver cancer are common in men, Colorectal cancer which is common cancer in men and in women worldwide to mention but a few. Some of the common signs and symptoms of cancer may include pyrexia, ail, tiredness, changes in skin appearance (redness, sores that would not heal, jaundice, darkening), unplanned weight loss or weight gain, lumps or tumors (mass), inconvenient swallowing, changes and difficulties with bowel or bladder function, never – ceasing cough or throatiness, curtly of breath, chest pains, bleeding and discharges that can't be explained.

Cell mutations and other factors that assist in damaging the DNA eventually lead to cancer, and these factors include air pollution, smoking, heavy alcohol drinking, eating a poor diet, obesity, exposure to chemicals, and other toxins. And if these triggering factors are prevented it will go a long way in minimizing the risk of effecting with cancer. The human body is made up of many cells (basic unit of life) and these cells provide structure for the body that takes in nutrients from food and converts those nutrients into energy and also carries out specialized functions. Therefore, cells are a vital constituent in the living creature (Morgan 2006).

A cell that engages in a physiological event is called Cell Cycle or Proliferation Phase. The proliferation process or cell division cycle consists of four phases (phase G_1, phase S, phase G_2, and phase M) at the end of which cell division occurs and becomes two daughter cells. These two daughter cells then move to another phase G_0 which is called Resting / Quiescent phase where they can stay until their death, differentiate, or reenter a new proliferation cycle (Mackey

1978, Avila et. al 2012, Mostafa, Abdennasser and Tarik 2015, Pujo-Menjouet 2016). Physiologically it is only when this process reached full maturity that HSCs are released in the general blood circulation (Avila et. al 2012). Hence Stem Cell (SC) are special human cells that can develop into many different cell types; they are characterized by their ability to self-renew, the ability to develop into several lineages, and the potential to proliferate extensively (Djema et. al 2018, Pujo-Menjouet 2016, Craig, Monica and Mark 2006, Clerk et. al 2006, Patrick et al 2007, Piero, Robert and Michael 2007).

However, sometimes genetic alteration may occur that a HSCs escape the various physiological controls which affect the myeloid lineage and it is characterized by an over proliferation of abnormal immature white blood cells of the myeloid lineage. These immature cells are called Cancer Cells which are transmitted by subsequent divisions to daughter cells that eventually yield one of the most malignancies called Acute Myeloid Leukemia (AML) (Djema et. al 2017; Djema et. al 2016; Mostafa, Abdennasser and Tarik 2015, Djema et. al 2018). The distinguishing features of Cancer cells are its ability to invade close by tissues in the body and also the ability to metastasize itself to a distant region in the human body thereby leading to the formation of tumors (Lynne 2020).

Heiko (2013) added that tumors are initiated, sustained, and reinitiated by the capability of only a subpopulation of the cancer cells. Numerous features of cancer cells differentiate it from the normal cells which include loss of differentiation, increased sensitivity, and decrease in drug sensitivity (Leland and Michael 1994, Max, Suling, and Gabriela 2006). Cancer which is either solid (for example breast, lung, or prostate cancers) or liquid (blood cancers) has been recognized among the many types of killer diseases worldwide which is even ranked second after heart disease (Freedman and Belostotski 2009; Liu and Yang 2014; Musiliu, Sharidan, Fuaada and Ilyas 2019).

The clinical procedures used in treating or managing cancer include radiotherapy, immunotherapy, surgery, and chemotherapy which depend upon the patient's condition, location of the tumor, and the stage of cancer.

Chemotherapy: The term chemotherapy was coined by Paul Ehrlich (famous German Chemist) to mean the use of chemicals in treating diseases, where he screens series of chemicals by their effectiveness through animal models which eventually led to the development of cancer drug (Vincent, DeVita and Edward 2008). Chemotherapy (anticancer drugs) is the use of drugs or chemicals that has a systemic effect on killing cancer cells. They are of various classes

(induction chemotherapy and consolidation chemotherapy) whose activities are based on the patient's condition and the tumor stage (Chih-Yang, et. al 2017, Emilia 2019).

Immunotherapy: The ability of the immune system to recognize tumors and eliminates many early malignant cells and promote protective immunity and maintain tolerance is known to be immunotherapy or immunosurveillance (Matthew et. al. 2011; Susanne et. al 2016). The immune system can overpower tumor growth by destroying cancer cells and preventing their development (Robert et. al. 2011). Cancer immunotherapy has transformed the treatment of cancer by increasing the use of immune-based therapies, including the widely used class of agents known as immune checkpoint inhibitors (Puzanov et. al 2017). Immunotherapy has been considered more effective than chemotherapy and radiotherapy in preventing recurrence and metastatic tumors after cancer surgery (Qian Chen et al 2019).

Radiotherapy: Mohammad, Ben, Dirk, and Andrew (2018); Musiliu, Sharidan, Fuaada, and Ilyas (2019) ascertain that radiotherapy is among the many satisfying techniques for the treatment of cancer. Radiotherapy is a non – surgical therapeutic that eliminate the targeted over proliferated cancer cells by deposition of either high-energy gamma rays or X-rays (photons), or energetic beams of ions, sufficient to damage the cancer cells or their vasculature and thus induce tumor death or nutrient starvation (Haume *et al 2016)*.

Even though great success has been attained in using proton – based treatment protocol for decades (Haume *et al 2016*), yet cancer tissues can have or develop resistance to radiation which becomes difficult to effectively irradiate the whole tumor, and this may lead to its regeneration (Kwatra et al. 2013). As an alternative to proton – based (gamma rays and X-rays) treatment protocol, Ion Radiotherapy (IR) was achieved, which is a combination of heavy ions (carbon and oxygen) and light ions (hydrogen and helium) which lowered the unwanted effects on healthy tissues and better control the size and shape of the irradiated volume. Hence, the best radiotherapy treatment protocol for tumors closed to sensitive tissues and vital organs like the brain, the spinal code, and the eye is ion-based therapy.

Surgery: Surgery is the removal of main tumor or tumors together with the affected and surrounding tissues likes the lymph nodes and fascia which requires particular surgical training and skills to secure good result (Sara et al 2019). Cancer surgery of is different types that include curative surgery, preventive surgery, diagnostic surgery, staging surgery, debulking surgery, palliative surgery, supportive surgery, restorative surgery, cryosurgery, laser surgery, electro surgery, and microscopically controlled surgery all of which depends on the location, gravity,

and severity of the tumor. Evidence has shown that the combination of more than one therapies for the treatment of advanced-stage cancer is a veritable option because therapies targets different methods of tumor cell survival and their combined effect is highly desirable (Gabrilovich 2007).

Traditional Means of Cancer Treatment

The role of traditional medicine through the medicinal plant for the majority of people is very significant in providing valuable contributions to health care both in developing and developed countries. In a situation whereby conventional medicine has not made up to the expectation, an alternative means will be sort and this brought about traditional means of cancer treatment which is now accepted worldwide among cancer patients. Tan et al (2008) stated that it has been over 6000 years that Chinese uses Traditional Chinese Medicine for the treatment of cancer with a huge record of success. Sharan and Mazanah (2013) added that there are four basic roles attached to the traditional healers in Malaysia in the treatment of cancer which include medicinal healer, emotional comforter, spiritual guide, and palliative caregiver.

Olanipekun, Arowosegbe, Kayode, and Oluwole (2016) have found the reliability, effectiveness, and cultural acceptance for use of these plants (Annona senegalensis, cola acuminate, mexoneuron benthamianum (Bailli) herendand and Za (wild)) for the treatment of cancer. Gbadamosi and Erinoso (2016) testify scientifically, validated and confirmed the efficacy of six (6) out of the twenty (20) reviewed medicinal plants that could be used in the management of breast cancer which include "*A. ascalonicum*, *C. portoricensis*, *K. ivorensis*, *L. alata*, *P. zeylanica*, and *X. aethiopica*". Aliyu et al (2017) have ascertained that 55.2% of their respondent on Complementary and Alternative Medicine use among Cancer Patients in Usmanu Danfodiyo University Teaching Hospital, Sokoto uses a biological-based method while 28.3% uses herbal preparations.

Abubakar et al (2020) have also testified on the use of forty-eight (48) medicinal plant parts such as the bark, the root, the leaf or the whole plant that are being transformed into powders and are mixed pap to be taken through the mouth for the treatment of cancer. This study also reveals the effectiveness, inexpensiveness, and perceived safety of these plants. Other researchers that surveyed and identified plants useful in the treatment of cancers include among many others are Abubakar, Musa, Ahmed and Hussaini (2017), Abimbola, Maryna, Lucinda and Trevor (2011), Mike et al (2010), Taye (2013), Segun, Ogbole, and Ajaiyeoba (2018), Engel,

Oppermann, Falodun, and Kragl (2011), Hongsheng, Jie, and Ying (2011) and Jianping et al (2011).

Cancer Dormancy as a Therapeutic Option for Cancer Treatment

Apart from the interpretation of tumor dormancy as an observed natural phenomenon in human cancer, which seems to be difficult to achieve since the first dormancy – oriented therapeutic approach in the case of solid tumors has not been very fruitful. Since cancer treatments most often consist of delivering the maximum tolerable doses of drugs to kill clinically apparent tumors, and knowing that an incompletely eradicated cancer frequently grow again, even more aggressively than the initial one, the option of maintaining the tumor in dormancy is more appealing than trying to eradicate it. This tumor dormancy may be achieved through either (i) blood or nutrients supply tissues that prevent tumor growth; (ii) or through Immunosurveillance i.e vigilance of the immune system which suffices to stop tumor development.

Current Control Strategies in Nigeria

Concerted efforts were ensured to fight the dreaded cancer globally. There have been numerous and different strategies that were employed by researchers, scientists and physicians for control and treatment of cancer, the government of various nations and the United Nations have employed several machineries for the fight against cancer, for example the establishment and funding of the National Comprehensive Cancer Control Plan (NCCP) in 1998 which was saddled with the responsibility of planning and implementation of intervention to reduce cancer burden (Stewart et. al. 2018). In the Sub-Saharan Africa, the effort by the AU, ECOWAS on Cancer Prevention and Control is highly commendable. In Nigeria, government and nongovernmental machinery have been put in place which includes Nigeria Cancer Society (NCS) which was established since 1968 with the sole aim of assisting in the development of facilities for diagnosis and treatment of cancer; educate the public on the problem of cancer; and to conduct a research in all aspects of cancer. In the same vein, nine comprehensive Cancer Care Centers throughout the country (eight public and one private) were established to condense the problem of the cancer disease and early death from all avoidable causes. The Nigeria Cancer Plan 2008 – 2013 was enacted with the sole aim of drawing the attention of all stakeholders to offer public enlightenment, provide a means of cancer prevention, to give early diagnosis of cancer cases and make referrals where possible and, provide an effective therapy and palliative care as the cancer disease becoming one of the major public health problem. Similarly, the

Nigeria Cancer Control Plan 2018 – 2022 was also launched to serve as a road map towards ensuring the reduction of cancer-related mortality in the country.

Nigerian Government like any other country has been taken giant steps towards the control, eradication, and safeguarding the health of its citizens from this lethal disease especially the helpless and those in utmost need. This need necessitate the government on 13 April 2018 to launch The Nigerian National Cancer Control Plan (NNCCP) directly under the Federal Ministry of Health that will serve as a roadmap for the Ministry of Health to save lives and improve care for those with cancer by reducing the incidence and prevalence of cancer in Nigeria over five years (2018 – 2022).

The NNCCP is focusing on "Making screening services and early detection of cancer available for all Nigerians; Improve access to quality, cost-effective and equitable diagnostic and treatment services for cancer care; Achieve best possible quality of life for patients and families facing a life-limiting/threatening or terminal cancer; Increase cancer awareness and advocate for cancer control amongst the populace; Conduct and support integrated programs that provide high-quality population and facility-based cancer data for dissemination, research, and planning; Ensure the availability of drugs, consumables and functional equipment for cancer care in Nigeria; Ensure effective coordination and adequate resources for cancer in Nigeria". (NNCCP 2018 – 2022). Another key factor that aids in cancer control is Prevention, according to WHO (2002) 43% of all cancers are preventable by taking necessary measures aimed at reducing or eliminating exposure to risk factors or carcinogens. Things like tobacco smoking, heavy alcohol drinking, food labeling, consuming expired items, taking much salt, eating red meat, and fats if controlled will have a significant decrease in the chances of developing cancers. Physical activities like jogging, gymnastics, walking, cycling usually prevent obesity in addition to taking a balanced diet, vegetables, fruits, and immunization (Hepatitis B) reduces the chances of affecting cancer, thereby reduces mortality of the incidence of cancer.

Hence, this study is hinged towards assisting the effort of the government and nongovernmental machinery with adequate statistical data that estimate the cancer incidence in Nigeria and their types towards ensuring of reduction in cancer-related mortality in Nigeria.

Research Design

This research used a descriptive survey design method because the study involves the assessment of cancer incidence in Nigeria through the use of the Cancer Incidence Assessment Instrument (CIAI) on the sample population of cancer patients in the Cancer Registries in

Nigeria. This method allowed the researcher a vivid description of the current situation of cancer incidence in Nigeria. Wimmer and Dominic (2006) noted that descriptive survey research attempts to describe current conditions, the descriptive survey describes the population being studied.

Area of the Study

The study will be carried out in Nigeria with the three main Cancer Registries in Nigeria, the Abuja (ABCR), the Calabar Cancer Registry (CCR), and the Ibadan Cancer Registry (IBCR).

The population of the Study

The total population of the study is a five years cancer patient's record available at the cancer registries.

Sample and Sampling Techniques

Due to the prevalent case of insecurity that is affecting the country, the study delimited the population to cover only Abuja Cancer Registry (ABCR) where considerable peace, normalcy, and proximity exist.

Instruments for Data Collection

The instrument that will be used for the data collection is a self-developed instrument tagged Cancer Incidence Assessment Instruments (CIAI) which will enable us to estimate the cancer incidence in Nigeria and their types so as to develop a fractional mathematical model for cancer treatment by stem cells and chemotherapy. The checklist is developed taking into consideration the objectives of the study and the related literature reviewed. The checklist is divided into three sections: Sociodemographic Characteristics of the Patient; Common Cancer Types and Oncologic Treatment Received by the Patients.

Validation of the Instrument

To maximize the content validity of the instrument for the study and ensure objectivity, the instrument has been validated to determine whether or not the items in the instrument represent the objectives dictated, with the intent of ensuring that significant information is elicited. The instrument has been validated by 5 experts from various higher institutions and relevant bodies who have ascertained the appropriateness of the instrument in terms of layout, spacing, wording, orderliness, and arrangements of items.

Procedure for Data Collection

We have visited the Abuja Cancer Registry and obtained the relevant information by filling in the appropriate rows and columns of the instrument (CIAI).

Methods of Data Analysis

A simple frequency distribution table was used in organizing the data and in describing the information obtained.

RESULTS PRESENTATIONS

Section a: Sociodemographic characteristics of the patients; this section covers various information about the patients which include ages, occupation, and place of residence. The obtained information is represented graphically as the tables below

Table 1: Distribution of Cancer Cases by Age Group

Age group	2016 M	2016 F	2017 M	2017 F	2018 M	2018 F	2019 M	2019 F	2020 M	2020 F	TOTAL M	TOTAL F
0 - 9	9	4	12	8	8	7	8	6	3	2	**40**	**27**
10 - 19	6	9	7	9	14	10	15	15	8	2	**50**	**45**
20 - 29	14	28	12	22	17	35	11	38	14	18	**68**	**141**
30 - 39	23	84	34	129	54	138	47	150	20	57	**178**	**558**
40 - 49	22	109	38	149	58	146	44	165	32	107	**194**	**676**
50 - 59	65	93	66	133	80	141	75	137	33	66	**319**	**570**
60 - 69	64	57	54	63	78	77	96	100	34	47	**326**	**344**
70 - 79	30	17	38	30	36	26	44	34	15	14	**163**	**121**
80 and above	7	6	11	4	4	10	7	9	2	7	**31**	**36**
TOTAL	240	407	272	547	349	590	347	654	161	320	1369	2518

Source: Abuja Cancer Registry *(*ABCR 2021)

Table 1 above explained the trends of cancer incidence for the five years under study based on gender and age distribution.

Table 2: Distribution of Cancer Cases by Occupation

OCCUPATION	2016 M	2016 F	2017 M	2017 F	2018 M	2018 F	2019 M	2019 F	2020 M	2020 F	TOTAL M	TOTAL F
Civil Servant	54	81	60	109	74	127	65	113	43	72	296	502
Trader/Business	39	85	36	124	54	143	77	158	24	57	230	567
Farmers	5	7	7	16	25	15	15	15	5	5	57	58
Teachers	2	18	7	38	6	28	7	31	3	20	25	135
Bankers	2	5	1	4	2	2	3	1	4	1	12	13
Student	17	17	21	26	30	20	22	33	19	15	109	111

Retired	36	16	51	28	53	57	58	37	28	17	226	155
Unemployed	28	39	26	43	33	49	34	73	11	39	132	243
Housewife	0	55	0	88	0	102	0	108	0	49	0	402
Others	57	84	63	71	72	47	66	85	24	45	282	332
Total	**240**	**407**	**272**	**547**	**349**	**590**	**347**	**654**	**161**	**320**	**1369**	**2518**

Source: Abuja Cancer Registry (ABCR 2021)

Table 2 above explained the trends of cancer incidence for the five years under study based on gender and occupation.

Table 3: Distribution of Cancer Cases by Place of Residence

PLACE OF RESIDENCE	2016		2017		2018		2019		2020		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F
Urban	219	386	209	435	277	497	321	634	156	317	1182	2269
Rural	21	21	63	112	72	93	26	20	5	3	187	249
TOTAL	240	407	272	547	349	590	347	654	161	320	1369	2518

Source: Abuja Cancer Registry (ABCR 2021)

Table 3 above explained the distribution of cancer incidence for the five years under study based on gender and place of residence.

Table 4: Top Male Cancer Types for the Period 2016 - 2020

Cancer Types	2016		2017		2018		2019		2020		TOTAL	
	No	R_k	No	R_k	No	R_k	No	R_k	No	R_k	No	R_k
Prostate	99	1	69	1	86	1	117	1	48	1	419	1
Colon, Rectum, Anus	21	2	36	2	41	3	25	3	13	3	136	3
Mouth & Pharynx	20	3	32	3	47	2	31	2	23	2	153	2
Lymphoma	9	4	9	5	7	7	14	5	-	-	39	6
Leukemia	8	5	-	-	-	-	-	-	-	-	8	13
Bladder	7	6	6	7	4	10	7	8	4	7	28	8
Brain & CNS	5	7	6	8	17	5	10	6	6	5	44	5
Kidney & Urinary	5	8	6	9	8	6	8	7	3	8	30	7
Liver	5	9	8	6	4	10	-	-	-	-	17	10
Testis	5	10	-	-	-		-	-	-	-	5	15
Larynx	-	-	13	4	26	4	25	4	7	4	71	4
Pancreas	-	-	6	10	-		-	-	3	9	9	12
Stomach	-	-	6	10	5	9	6	10	3	10	20	9
Trachea, Bronchus & Lung	-	-	-	-	6	8	-	-	6	6	12	11
Oesophagus	-	-	-	-	-	-	7	9	-	-	7	14

Source: Abuja Cancer Registry (ABCR 2021)

Table 4 above explained the common types of cancer in male for the five years under study.

Table 5: Top Female Cancer Types the period 2016 - 2020

Cancer Types	2016		2017		2018		2019		2020		TOTAL	
	No	R_k	No	R_k	No	R_k	No	R_k	No	R_k	No	R_k
Breast	218	1	289	1	274	1	317	1	151	1	1249	1
Cervix	46	2	88	2	128	2	117	2	63	2	442	2
Overy & Adnexa	17	3	14	4	13	6	15	6	12	4	71	6
Mouth & Pharynx	16	4	14	4	28	3	25	4	4	8	87	4
Colon, Rectum & Anus	12	5	-	-	23	5	25	4	18	3	78	5
Kidney & Urinary	9	6	4	10	7	7	-	-	3	-	23	8
Corpus & Uterus	7	7	26	3	24	4	26	3	7	5	90	3
Brain & CNS	6	8	4	10	7	8	5	10	7	5	29	7
Leukaemia	6	8	-	-	-	-	-	-	-	-	6	13
Trachea, Bronchus, Lung	5	10	4	10	6	9	5	10	3	10	23	8
Liver	-	-	13	6	-	-	-	-	-		13	12
Lymphoma	-	-	7	7	-	-	10	7	4	7	21	10
Bladder	-	-	6	8	5	10	-	-	3	10	14	11
Pancreas	-	-	4	10	-	-	-	-	-	-	4	15
Larynx	-	-	-	-	-	-	6	8	-	-	6	13

Source: Abuja Cancer Registry (ABCR)

Table 5 above explained the common types of cancer in male for the five years under study.

Section C: This section tries to get numerical data that indicates the oncological treatment received by the patients in terms of the total number of patients per treatment protocol, the number of patients recovered based on that protocol, and the number of deaths during that particular treatment protocol for the period under investigation but it was not possible. But based on interaction and interviews with staff in the oncology unit that the treatment protocols are dynamic, some will start with chemotherapy and later shift to radiotherapy, while some will start with radiotherapy and later shift to chemotherapy, while the most common treatment is the surgery. The study further investigates the use of immunotherapy as a treatment protocol or a combination of the immunotherapy and other treatment protocol but is like they are unaware of the immunotherapy treatment protocol. The interaction/interview further revealed that a very insignificant number of successes is achieved in terms of full recovery of the patient because most of the treatment protocol will succeed in suppressing the disease for sometimes but later it reemerges with full force or even worse than before which will eventually lead to death.

Discussion of the Result

This section was generally designed to investigate cancer incidence in Nigeria and their types. This section of the study was guided by three (3) sections of the data collection instrument (CIAI). Table 1 examine and compare the different age groups of cancer incidence among males and females. The table revealed that cancer may start in the early stage of life and may also occur in old age but it is more frequent at youthful ages in both males and females. It also revealed that women are more affected by cancer disease than their male counterparts. Table 2 indicated cancer incidence based on occupation and the table revealed that cancer is more frequent among civil servants and especially females. Followed by traders/business and also housewives. Table 3 indicate the distribution of cancer incidence based on place of residence. The table further revealed that females of the urban areas have the highest frequency of cancer incidence than their female counterparts of rural areas and even males of the urban areas. Table 4 and 5 covers the distribution of first top ten cancer disease in both male and female respectively for the years under investigation. Even though there is a variation of the ranking of the disease every year but Breast and Prostate cancers maintain the number one in both females and males respectively for the period under investigation. Based on the interview conducted there is no reliable treatment protocol that ensures complete recovery of the patients.

Recommendations

Unlike other diseases, cancer is surrounded by many consequences which include social, economic, emotional and psychological as such the government, the private sector and the Non – Governmental Organizations (NGOs) should be committed to safeguarding the life of cancer patients by providing adequate financial support geared to eradication and reduction of cancer incidence in the nation through the following ways

1. Provide an avenue for cancer screening so that the diseases can be detected at its early stage thereby morbidity and mortality are reduced.

2. Provide an easy, accessible and less expensive treatment centers that are well equipped with drugs, consumables and modern technologies that will provide hope to the cancer patients.

3. Guidance and counselling units on cancer should be established not only in the main hospitals and cancer registries but also in the Public Health Care Units

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