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The Prevalence of Different Types of Cancer Among Men and Women of Different Age Groups

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Abstract

The research intended to determine the prevalence of different types of cancer among men and female of different age groups. The objectives of the study were to determine the prevalence of different types of cancer among male and female of different age groups, to establish the influence of age on cancer. The research helps to evaluate the influence of gender on different types of cancer. It had targeted an eligible population of 1908 suspected patients of (0-100 years) whose file were suspected of cancer in the hospital facility according to the annually operational plant (AOP) of 2016-2018 years. The study used a descriptive cross sectional quantitative and qualitative retrospective research design and sample set was sorted out using fisher et al. 1998 formula and after use of correction factor a total of 362 files from the suspected cancer cases out of eligible target (0-100) who sorted treatment services at CMH. The systematic random sampling technique was used to select this sample for the study whose file were selected through semi structured extraction tool out of 362 files sorted out. In terms of gender categories varied with esophagus cancer in female were 20 cases and men were 46 cases, lymphoma cancer in female were 13 cases and men were 16 cases, breast cancer cases in female they recorded 40 cases and men were 2 cases recorded, in hepatic cancer cases female were 10 and male were 13, colon cancer in female were 2 cases, male were 3 cases, thyroid cancers cases female recorded 3 cases and male cases was 1 , rectal cancer cases female were 7 and male were 4,skin cancer female were 2 and male 1, gastric cancer female I and male 2, myeloma female no cases recorded and male 1, osteosarcoma in female 1 and in male were 2, melanoma in female were 6 cases and male 1. Prostate cancer most affected age group was between 71-80 although there were some 2 recorded cases in age group of 40-50. Cervix cancer was more illustrated female age group of 41-50 while ovary cancer was more illustrated in between the age group of 51-60.

Introduction

Cancer is the uncontrolled growth of abnormal cells in the body and can develop in any part of the body. There are different types of cancer with distinct features, however, in the variant types; the basic processes that produce cancer are rather similar. Basically, cancer begins when a cell fails to follow the confined processes of normal cell division and multiplication ,Additionally, cancer can result from external factors (such as infectious organisms, tobacco) and internal factors (like, hormones, immune conditions and inherited genetic mutations) [1].

Although it is often difficult to determine the initiating cause of cancer, and why it develops in specific people, a number of likely initiating factors have been provided by research. Such factors include; chemicals or toxic compounds such as benzene, asbestos, nickel, cadmium, vinyl chloride, benzidine, N-nitrosamines, tobacco or cigarette smoke and aflatoxin. Other causes are ionizing radiation which includes uranium, radon, and ultraviolet rays from sunlight, radiation from alpha, beta, gamma, and X-ray-emitting sources. Some of the pathogens associated with cancer include; Human papillomavirus (HPV), Epstein-Barr virus (EBV), hepatitis viruses B and C and Kaposi's sarcoma-associated herpes. Additionally, cancer has also been linked to human genetics [2].

Timely cancer diagnosis is important to improve patient survival and quality of life although there are prescribed symptoms of cancer; some of these symptoms are apparently connected with other diseases. Therefore if not carefully diagnosed, patients end up being treated for wrong diseases instead of cancer thus delaying cancer diagnosis and treatment. Delayed diagnosis is a major contributing factor to lower cancer survival when cancer begins; it produces no symptoms while the signs and symptoms appear as the mass continues to grow. The outcome depends on type of cancer and the location of growth. However, there are few symptoms that are precise for cancer while others frequently occur in persons who have other diseases conditions. Cancer can be difficult to diagnose because it has nonspecific symptoms and may be confused with a number of other diseases (great imitator). The Local symptoms may occur due to the mass of the tumor or its ulceration e.g. mass effects from lung cancer can block the bronchus resulting into cough or pneumonia. While esophageal cancer can cause narrowing of the throat, making it hard or painful to swallow and colorectal cancer may lead to narrowing or blockages in the bowel, affecting bowel movement. Mass in breasts may produce evident lumps.

Ulceration can cause bleeding that can lead to symptoms such as coughing up blood in case of lung cancer, anemia or rectal bleeding (colon cancer), blood in the urine (bladder cancer), or abnormal vaginal bleeding (endometrial or cervical cancer). Although localized pain may occur in advanced cancer stages, the early tumor is usually painless while some cancers may cause a buildup of fluids within the chest or abdomen

Statement of research problem

Cancer is deadly disease in the world and can occur to any gender and at any age. However people fear the diagnosis which leads to disease progressing to late stage if left unnoticed. Therefore because of apparent connection between cancer symptoms and other diseases,

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careful description of cancer related symptoms between gender and at different ages and correlation of these symptoms with clinical laboratory data is important for future cancer research and diagnosis.

Objectives

General objective

The present study aims at studying the prevalence of different cancer among men and women of different age groups

Specific objectives

i. To determine the influence of age on cancer

ii. To determine the influence of gender on different type of cancer

iii. To determine the relationship of the signs and symptoms of cancer-related disease with type of cancer

Null Hypotheses

The null hypotheses are

i. It was not possible to determine the influence of age on different types cancer

ii. It wasn't possible to determine the influence of gender on different types of cancer

iv. It was not possible to determine the relationship of the signs and symptoms of cancer-related disease with type of cancer

Justification of the study

Careful description of cancer related signs and symptoms and the influence of gender and age on cancer was a prudent approach to misdiagnosis. The study will added more knowledge and provided the basis for future diagnosis at different age groups and between gender as well as the future cancer research.

Literature Review

Cancer

Cancer is a collection of group of related human diseases that is characterized by the uncontrolled growth and spread of abnormal cells. Due to uncontrolled cell division of unhealthy cells which may not be stopped, it can result to death. Cancer is caused by external factors (i.e. tobacco, infectious organisms) and internal factors (hormones, inherited genetic mutations and immune conditions) which may act together or in sequence to cause cancer. According to WHO (2018), the global cancer burden is estimated to have risen to 18.1 million new cases and 9.6 million deaths in 2018. Demographically by age cancer is estimated to rise by 70% death by 2030 in Africa making the healthcare systems to struggle the escalating number of deaths from cancer.

Types of cancer

Cancer can grow almost anywhere in the human body organs which is made up of billions or trillions of cells. Many cancers that compose the cancer tissue are further identified by the name of the tissue that the abnormal cells originated from e.g. breast cancer, lung cancer, colon cancer. However, cancer may affect people of all ages, but the risk tends to increase with age.

Breast cancer

The breast is an organ in front of the lower chest section of humans and other primates. Humans have two breasts. Both genders have breasts but during puberty the female breasts become bigger and more visible. The breasts have mammary glands that produce milk during breastfeeding of the infant.

Male's breasts are in the same position as those of female one, however they are much smaller and underdeveloped and therefore cannot produce milk for breastfeeding but in some circumstances, it might become bigger and start to produce milk during some medical conditions which increases estrogen levels by deveolpng a condition called gynecomastia.

The size and the appearance of the breasts of female may be different due to genetic makeup factors and the quantity of fatty and connective tissue. Although external appearances, breasts in men and women are built very much simillar. Human breasts in both sexes have nipples, fatty tissue, breast cells and ducts. Due to that factor they share some of the risks factors for breast cancer. Both genders may have inherited mutations in their BRCA 1 and BRCA 2 genes that may increases risk of having cancer. both genders produce the hormone estrogen, which at certain levels may increase breast cancer risk. However the incidence of breast cancer in male is much lower due to fewer ducts and lobules less than in women but have mainly stroma which is fat and fibrous tissue. However, gynecomastia is not a risk factor for male breast cancer but some conditions that predispose men to gynecomastia through increased estrogen levels may also predispose them to male breast cancer.

It develops from breast's tissue having signs of a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, a newly-inverted nipple, or a red or scaly patch of skin and those with disease, there may be bone pain, swollen lymph nodes, shortness of breath and yellow skin. The a number of risk factors includes being a female, obesity, lack of exercise**,** increasing in age, family history of breast cancer or inherited genes that increase the risk, Radiation exposure, Postmenopausal hormone therapy, having never been pregnant, having the first child at an older age, drinking alcohol and hormone replacement therapy during menopause**.** Majority of breast cancer cases occur in women aged over 50 years and some cases occur in women who have a late pregnancy (over 35 years) [3].

However, Breast cancer can be prevented by making changing daily life routine, early cancer screening, examination and tests, such as clinical breast examination and mammograms.

Become familiar with your breasts through breast self-exam for breast awareness. Women may choose to become familiar with their breasts by occasionally inspecting their breasts during a breast self-exam for breast awareness. If there is a new change, lumps or other unusual signs in your breasts seek medical attention immediately. Breast awareness can't prevent breast cancer, but it may help you to better understand the normal changes that your breasts undergo and identify any unusual signs and symptoms. Drink alcohol in moderation, if at all. Limit the amount of alcohol you drink to no more than one drink a day, if you choose to drink.

Exercise most days of the week. Aim for at least 30 minutes of exercise on most days of the week. Limit postmenopausal hormone therapy. Combination hormone therapy may increase the risk of breast cancer. Seek medical advice about the benefits and risks of hormone therapy. Some women experience bothersome signs and symptoms during menopause and, for these women, the increased risk of breast cancer may be acceptable in order to relieve menopause signs and symptoms. To reduce the risk of breast cancer, use the lowest dose of

hormone therapy possible for the shortest amount of time.

Maintain a healthy weight. If your weight is healthy, work to maintain that weight. If you need to lose weight, ask your doctor about healthy strategies to accomplish this. Reduce the number of calories you eat each day and slowly increase the amount of exercise.

Choose a healthy diet. Women who eat a Mediterranean diet supplemented with extra-virgin olive oil and mixed nuts may have a reduced risk of breast cancer. The Mediterranean diet focuses mostly on plant-based foods, such as fruits and vegetables, whole grains, legumes, and nuts. People who follow the Mediterranean diet choose healthy fats, such as olive oil, over butter and fish instead of red meat

Esophageal cancer

Esophagus is the food pipe that runs between throat and the stomach. Esophageal cancer affects the food pipe. It is almost thrice common among men than women. There are two subtypes of this cancer i.e., esophageal squamous-cell carcinoma and esophageal adenocarcinomas. The risk factors for squamous-cell type cancer is heavy drinking of alcohol, smoking of tobacco, very hot drinks, poor diet, and chewing betel nut while adenocarcinomas cell-type cancer is attributed with factors such as smoking tobacco, obesity, and acid reflux [4]. Generally, the contributing factors of esophageal cancer are obesity, overweight and chronic gastro esophagus reflux diseases that lead to barret's esophagus whereby esophagus cells are changed or replaced with abnormal cells that could lead to cancer of the esophagus.

Lymphoma cancer

The lymphatic system or lymphoid system is a network of vessels and organs that filters and returns interstitial fluid to blood circulation and immune system. It is made up of a large network of lymph, lymphatic vessels, lymph nodes, lymphatic or lymphoid organs, and lymphoid tissues. Its function is to prevent fluid building-up (edema), to protect the body against pathogens and also absorbs fats from the intestine and transports them to the bloodstream [5]. Lymphoma is a type of cancer that develops in the WBC (lymphocytes) of the lymphatic system. It develops in the lymph nodes in the neck, armpit or groin. It can also develop in lymph nodes and tissues deeper inside the body. Sometimes lymphoma develops in the bone marrow and less commonly in breast, stomach, bowels, skin, brain or liver. The etiologies of malignant lymphoma include infectious agents, immunodeficiency, autoimmune disease, exposure to certain organic chemicals, and pharmaceuticals. Infectious agents such as virus promote lymphoma genesis by chronic antigenic stimulation, driving chronic persistent lymphocytic activation and proliferation, thus providing rich ground for malignant clones to arise.

Hepatic cancer/Liver cancer

The liver is an organ only found in animals with backbones and in human being, it is located in the right upper quadrant of the abdomen below the diaphragm [6]. Its function in metabolism and detoxification includes the regulation of glycogen storage, decomposition of red blood cells and the production of hormones it also produces biochemical needed for digestion and growth and synthesizing proteins. Liver cancer is also known as hepatic cancer. Symptoms of liver cancer include a lump, pain in the right side below the rib cage, swelling of the abdomen, yellowish skin, easy bruising, weight loss and weakness. Liver cancer occurs in the setting of chronic liver inflammation (cirrhosis), and is most closely linked to chronic viral hepatitis infection (HBV or HCV) or exposure to toxins such as alcohol or aflatoxin. Certain diseases, such as hemochromatosis and alpha 1-antitrypsin deficiency, markedly increase the risk of developing liver cancer. Metabolic syndrome and NASH are also increasingly recognized as risk factors for liver cancer [7].

Stomach cancer

The stomach is a muscular, concave organ located between the esophagus and the small intestine of humans and many other animals, it is in the left upper part of the abdominal cavity, at the top of the stomach lies against the diaphragm and behind the stomach it lies the pancreas. It has dilated structure and functions as a critical digestive organ. In the digestive system the stomach is implicated in the second phase of food digestion after chewing by secreting digestive enzymes which breaks down food chemically by aid of hydrochloric acid and enzymes. The pyloric sphincter controls the passage of partially digested food (chyme) from the stomach into the duodenum where peristalsis takes over to move this through the rest of the intestines.

The stomach is surrounded by parasympathetic (stimulant) and sympathetic (inhibitor) plexuses (networks of blood vessels and nerves in the anterior gastric, posterior, superior and inferior, celiac and myenteric), which regulate both the secretory activity of the stomach and the motor (motion) activity of its muscles. Because it is a distensible organ, it normally expands to hold about one litre of food.

Stomach cancer, also known as gastric cancer, is a cancer that develops from the lining of the stomach (NCI, 1980). The early symptoms of stomach cancer may include heartburn, upper abdominal pain, nausea and loss of appetite and weakness due to gastric that have been enlarged and invaded normal tissue with cancer cells. Later signs and symptoms may include; weight loss, yellowing of the skin and whites of the eyes, vomiting blood, difficulty swallowing and blood in the stool and the latter apparent as black discoloration (melena) and anemia. This type of cancer may spread to other parts of the body, mainly the liver, lungs, bones, lining of the abdomen and lymph nodes. The most common cause of this type of cancer is the infection by the bacterium Helicobacter pylori (which accounts for more than 60% of cases), smoking, dietary factors such as pickled vegetables, obesity and genetic syndromes inherited from a person's parents such as hereditary diffuse gastric cancer.

Colon cancer

Colon is generally the large intestine and in other words it is also called the large bowel. It is the last part of the gastrointestinal tract and of the digestive system in animals with back bones. It is divided into four regions which are, ascending colon which is on right, between caecum and right colic flexure, Transverse colon which is a horizontal portion, descending colon which is in left side between left colic flexure and lastly Sigmoid colon which S bend near terminal end.

Its functions is to absorb water and the remaining waste material or indigestible food is stored as feces before being removed by defecation in mammals, however it does not take part in digestion of food but has goblet cells which produces mucus to act as a lubricant.

Colon cancer is a type of cancer that begins in the large intestine (colon). It typically affects older adults although it can affect any age. It is substantially higher in males than in females [8]. It usually begins as a small noncancerous clump of cancer called polyps that form on the inside of the colon and overtime these polyps become colon cancer.

The signs and symptoms of this cancer include; persistent change

in bowel habits including diarrhea or constipation, rectal bleeding or blood in stool, persistent abdominal discomfort such as cramps gas or pain, weakness, fatigue, weight loss. Although there are no specific causes of colon cancer, the risk factors include; older age, male sex, dietary factors which include high intake of fat, sugar, alcohol, red meat, processed meats, obesity, smoking, alcohol and a lack of physical exercise. Another risk factor is inflammatory bowel disease, which includes Crohn's disease and ulcerative colitis. Some of the inherited genetic disorders that can cause colorectal cancer include familial adenomatous polyposis and hereditary non-polyposis colon cancer; however, these represent less than 5% of cases.

Rectal cancer

The rectum is the final straight portion of the large intestine in humans and some other mammals, has internal involuntary sphincter and external voluntary sphincter.

Rectal cancer is the cancer that develops in the cells in the rectum. Some symptoms of rectal cancer include; weakness and fatigue, appetite changes, weight loss, frequent abdominal discomfort, gas, cramps, pain, changes in bowel habits such as painful bowel movements, diarrhea, constipation, blood or mucus in stool, narrow stool and iron deficiency anemia. Rectal cancer is associated with mistakes in DNA that cause cell to grow out of control. The contributing risk factors of rectal cancer include old age, family history of colorectal cancer, and exposure to radiation therapy. Other conditions that may increase risk include; ovarian cancer, polyps, inflammatory bowel diseases, obesity and type 2 diabetes. Some of life style factors include; too few vegetables in diet, too much red meat, lack of exercise, smoking, alcoholic drinks.

Skin cancer

The human skin is the outer covering of the body and is the largest organ that coats the body. The skin has up to seven layers of ectodermal tissue and guards the underlying body but it is composed of three primary layers which are the epidermis, the dermis and the hypodermis (Wilkinson, P. F. and Millington, R, 2009) and has mesoderm cells, pigmentation, such as melanin provided by melanocytes which absorbs some of the potentially dangerous UV in sunlight. It also contains a DNA repair enzyme which helps to reverse the damage that has been caused by the UV light. However, for such people lacking the genes for these DNA repair enzymes may suffer high rates of skin cancer. The One form mainly produced by UV light aid to spread quickly the malignant melanoma which is deadly. The thickness of the skin varies considerably over all parts of the body and between men and women and the young and the old.

Skin cancer is the cancer that arises from the skin and it arises from the abnormal growth of skin cells. Skin cancer is associated with errors (mutations) that occur in the DNA of the skin cells i.e. squamous cells, basal cells and melanocytes. Such mutations cause the cells to grow out of control and from a mass of cancer cells. Depending on type of affected cells, skin cancer is categorized into three type; squamous cell carcinoma, basal cell carcinoma and melanoma. The first two are known as non-melanoma skin cancer. Squamous cell carcinoma occurs in sun-exposed areas of the body including face, ears and hands. Squamous cells carcinoma appears as firm red nodule, and flat lesion with a scaly crusted surface. Basal cell carcinoma usually occurs in sun exposed areas including necks or face. The signs and symptoms of this type of cancer include pearly or waxy bump, flat-flesh colored or brown scar-like lesion and bleeding or scabbing sore that heals and returns. Melanoma develops anywhere on the body although it often appears on face or trunk of affected men and lower legs in women. The signs and symptoms include large brownish spot with darker speckles, mole that changes in color, size or feel or that bleeds, small lesions with irregular border and portions that appear red, pink, white, blue or blue-black, painful lesion that itches or burns, dark lesions in palms, soles, fingertips, toes or mucous lining of mouth, nose vagina or anus. The contributing risk factors of skin cancer include fair skin, history of sunburns, excessive sun exposure, precancerous skin lesions, and family history of skin cancer, weakened immune system, exposure to radiation and exposure to substances such as arsenic.

Thyroid cancer

Thyroid is an endocrine gland in the neck composed of two lobes left and right, connected by a thyroid isthmus which a narrow tissue band weighing 25 grams in adults, with each lobe being about 5 cm long, 3 cm wide, and 2 cm thick, and the isthmus about 1.25 cm in height and width. The gland is usually larger in women than in men, and increases in size during pregnancy. It is located at the front of the neck, below the Adam's apple. Microscopically, the functional unit of the thyroid gland is the spherical thyroid follicle, lined with follicular cells (thyrocytes), and occasional Para follicular cells that surround a lumen containing colloid. The thyroid gland secretes three hormones which are the two thyroid hormones and a peptide hormone. The thyroid hormones are the T_3 and T_4 while the peptide hormone is the calcitonin. The thyroid hormones influence the metabolic rate and protein synthesis facilitates growth and development in children while Calcitonin plays a role in calcium homeostasis. Secretion of the two thyroid hormones is regulated by TSH, which is secreted from the anterior pituitary gland. TSH is regulated by TRH, which is produced by the hypothalamus. Thyroid cancer is cancer that develops from the tissues of the thyroid gland. It highly affects women than men. It occurs in any age group, although it is most common after age 30, and aggressiveness increases significantly in older patients. An early symptom of this cancer is a nodule in the thyroid region of the necks that include swelling or a lump in the neck and enlarged lymph node. Later symptoms are pain in the anterior region of the neck and changes in voice due to an involvement of the recurrent laryngeal nerve. Risk factors of this type of cancer include radiation exposure at a young age, having an enlarged thyroid and family history.

Cervical Cancer

The cervix is the female productive system which is approximately 2–3 centimeters in length. It is the lower narrower part of the uterus continuous above with the broader upper part of the uterus [9]. Cervical cancer is a cancer arising from the cervix which the lower part of the uterus that connects to the vagina. More than 90% of cervical cancer is caused by Human papillomavirus infection (HPV). However not all people who had HPV infections develop into cervical cancer [10]. Other contributing risk factors include smoking, a weak immune system, and some methods of family planning, starting sex at a young age and having many sexual partners the early stages of cervical cancer may be completely free of symptoms. Late symptoms include; vaginal bleeding, bleeding after sexual intercourse, vaginal mass, moderate pain during sexual intercourse and vaginal discharge [7]. In advanced disease, metastases may be present in the abdomen, lungs, or in another place. Symptoms of advanced cervical cancer may include: loss of appetite, weight loss, fatigue, pelvic pain, back pain, leg pain, swollen legs, heavy vaginal bleeding, bone fractures and leakage of urine.

Prostate cancer

The prostate is both an accessory gland of the male reproductive system surrounded by an elastic, fibro-muscular capsule containing

glandular tissue as well as connective tissue and has weight ranging from 7 to 16 grams averaging 11 grams [11,12]. The prostate is located in the pelvis. It sits below the urinary bladder, with the urethra passing through it and has prostate urethra which joins with the two ejaculatory ducts [11]. The prostate is covered in a surface called the prostatic capsule or prostatic fascia. Prostate cancer is the cancer that develops in prostate, a gland in the male reproductive system. Most prostate cancers are slow growing; however, some grow relatively quickly (NCI, 2014). The cancer cells may spread from the prostate to other areas of the body, particularly the bones and lymph nodes. Risk factors include; radiation exposure at a young age, having an enlarged thyroid and family history about 99% of cases occur in males over the age of 50. Early prostate cancer usually has no clear symptoms. Late symptoms include; frequent urination, nocturia, difficulty starting and maintaining a steady stream of urine, hematuria and dysuria [13].

Ovarian cancer

The ovary is an organ found in the female reproductive system that produces an ovum. Ovary is a Latin word which is ovarium meaning egg nut and located on each side of the female productive system. The ovaries also secrete hormones that play a role in the menstrual cycle and fertility. The ovary progresses through many stages beginning in the prenatal period through menopause. It is also an endocrine gland because of the various hormones that it secretes [14]. Ovarian cancer is the cancer that arises in ovary, a female reproductive organ. The risk of ovarian cancer increases in women who have ovulated more over their lifetime including those who have never had children, those who begin ovulation at a younger age and those who reach menopause at an older age [15]. Other risk factors include hormone therapy after menopause, fertility medication, and obesity. The factors that decrease risk include hormonal birth control, tubal ligation, and breast feeding. About 10% of cases are related to inherited genetic risk; women with mutations in the genes BRCA 1 or BRCA 2 have about a 50% chance of developing the disease [15].

Osteosarcoma

A bone is a rigid tissue that constitutes part of the vertebrate skeleton in animals. Bones protect the various organs of the body, produce red and white blood cells, store minerals, provide structure and support for the body, and enable mobility. Bones come in a variety of shapes and sizes and have a complex internal and external structure. They are lightweight yet strong and hard, and serve multiple functions.

Bone tissue (osseous tissue) is a hard tissue, a type of specialized connective tissue. It has a honeycomb-like matrix internally, which helps to give the bone rigidity. Bone tissue is made up of different types of bone cells. Osteoblasts and osteocytes are involved in the formation and mineralization of bone; osteoclasts are involved in the resorption of bone tissue. Modified (flattened) osteoblasts become the lining cells that form a protective layer on the bone surface. The mineralized matrix of bone tissue has an organic component of mainly collagen called ossein and an inorganic component of bone mineral made up of various salts. Bone tissue is a mineralized tissue of two types, cortical bone and cancellous bone. Other types of tissue found in bones include bone marrow, endosteum, periosteal, nerves, blood vessels and cartilage.

In the human body at birth, there are approximately 270 bones present; many of these fuse together during development, leaving a total of 206 separate bones in the adult, not counting numerous small seamed bones. The largest bone in the body is the femur or thigh-bone, and the smallest is the stapes in the middle ear, (Steele and Bramblett, 1988). Osteo is a Greek meaning bones. This is a type of bone cancer that begins in the cells that form bones. It is most often found in long bones often legs and sometimes the arms. In very rare instance, it occurs in soft tissues outside the bone. Osteosarcoma tends to occur in teenagers and young adults, but it can also occur in younger children and older adults. The signs and symptoms of osteosarcoma include, swelling near a bone, bone or a joint pain and bone injury or bone break for no clear reason. Although there is no clear cause of osteosarcoma, this diseases begins when healthy bone cell develops changes in its DNA.

The contributing risk factors include exposure to radiation therapy bone disorders e.g. fibrous dysplasia inherited or genetic conditions including; Werner syndrome, Bloom syndrome, hereditary retinoblastoma [16].

Kenyan situation

In Kenya, cancer ranks third as a cause of death after infectious diseases and cardiovascular diseases. It causes 7% of total national mortality every year. Although population based data does not exist in the country, it is estimated that the annual incidence of cancer is about 28,000 cases and the annual mortality to be over 22,000. Over 60% of those affected are below the age of 70 years. In Kenya, the risk of getting cancer before the age of 75 years is 14% while the risk of dying of cancer is estimated at 12%. In many developing countries the rapid rise in cancers and other non-communicable diseases has resulted from increased exposure to risk factors which include tobacco use, harmful use of alcohol and exposure to environmental carcinogens. Other risk factors for some cancers include infectious diseases such as HIV/IDS (Kaposi's sarcoma and lymphomas), HPV, HBV & HCV (Liver cancer), bacterial infections such as Helicobacter Pylori (cancer of stomach) and parasitic infestations such as schistosomiasis (cancer of bladder) .The leading cancers in women are breast, esophagus and cervical cancers. In men, esophagus and prostate cancer and Kaposi sarcoma are the most common cancers. Based on 2002 data from the Nairobi Cancer Registry, of all the cancers registered breast cancer accounted for 23.3%, cervical cancer for 20% and prostate cancer for 9.4%. In 2006, around 2 354 women were diagnosed with cervical cancer and 65% of these died of the disease.

Cancer diagnosis

Cancer diagnosis needs comprises of thorough patient history and physical examination together with diagnostic tests. The tests are required to establish whether a patient has cancer or just other conditions. The effectiveness of the test is to confirm the presence or absence of the disease, to monitor the progress and evaluation of the treatment and to confirm the elimination of the diseases. The diagnostic procedure for cancer includes the following.

Laboratory tests

A laboratory test is a procedure in which a specimen is examined to get information about the health status of the individual. In most cases they provide the specific and the dependable information about the particular health problems. There are a number of laboratory tests used in diagnostic which includes, blood chemistry which measures the amount of substances that are released in the body by specific organs and tissues such as metabolites for examples fats, proteins, enzymes, Creatinine and blood nitrogen urea where high or low levels can be a sign of side effects of treatment or a diseases. Gene mutation

is the inherited s in genes which are known to play a role in cancer development, example of tumor markers are BRCA 1 and BRCA 2 gene mutations plays role in breast, ovarian and other types of cancer. FHG which measures different types of blood cells like RBC's, HB, platelets and WBC's which comprises of MCV, MCH, MCHC which is useful in detecting leukemia and monitoring especially during and after treatment. Gene analysis it measures the changes in the number and structure of the chromosomes in patient's bone marrow and blood cells and useful in diagnosis and deciding on choosing on the suitable treatment and tumor markers tests which measures the presence, activity of specific proteins or genes in blood and tissues. A tumor that has more than normal level or markers may respond to treatment with a drug that targets that marker for example cancer that has high level of the HER 2/ new gene or protein may respond to treatment with a drug that targets the HER 2/new gene, although some tumor markers tests analyzes DNA to look for specific gene mutations that may be present in cancer but normal tissues for examples EGFR gene mutation helps in to determine treatment and assess prognosis in non-small cell lung cancer and BRAF gene mutations analysis to predict response to targeted treatments in melanoma and colorectal cancer and its used to diagnosis assessing response of treatment, choosing the suitable therapy and monitoring the recurrence of cancer.

Imaging tests

Imaging is the process of producing the valuable pictures of body and organs. It's useful in finding or detecting the tumors and other abnormalities, determine the diseases and evaluate the effectiveness of the treatment. It can be used in when doing biopsies and other surgical procedures. They include X-ray, CT scan, mammogram ultrasound, MRI and nuclear medicine.

Biopsy

Biopsy is the procedure in which the doctor removes a sample of a tissue which will be examined under a microscope by a pathologist to find out if the tissue is cancerous. Examples of it is the fine needle biopsy, this method is used for spinal taps, bone marrow aspirates, prostates, liver and sometimes can be used in breasts, colonoscopy this is where light tubes called endoscope is used to examine areas inside the body. It goes through natural openings like mouth and anus and if the abnormal tissues are seen during the exam will be removed for example through anus if polyps are seen will be removed for examination.

Influence of age on cancer

Age can be defined as the complete units of time a process of becoming older by growth of through changes in a human being over time and which includes physical, psychological and social changes and therefore the greatest risk factors for most human being diseases whereby through aging the accumulation of damaged cells may cause the biological system to fail, therefore becomes the most significant risk factor. According to cancer researcher Robert A. Weinberg however if we live long enough, sooner or later we all would get cancer. Basically all of the increased cancer cases between prehistoric times and people who died in England between 1901 and 1905 were due to increased lifespan [17].

Influence of sex and gender on cancer

Sex is the terminology used to distinguish between men and women on the basis of their biological bases which underlie female or male anatomy and physiology whereas gender according to W H O it define it as the socially constructed roles, behaviors, activities, and attributes that a given society considers appropriate for men and women. Hence, while every cell is sexed, every person is gendered (Canadian Institute of Health Research) [18]. However gender variety and identities as a non-binary replica [19]. The two main differences between male and female cells in the human body are their sex chromosomes and the level of sexual hormones to which they are exposed. The interplay between sex chromosomes and hormones influences both local determinants of carcinogenesis Inactivation of the X-chromosome seems to present some protection against carcinogenesis in women given that mutations in oncogenes or tumoursuppressor genes located on the X chromosome are dominant in males Moreover, 25% of the X genes escape inactivation and are expressed from both alleles, so that their expression is generally higher in women [20].

Research Design and Methodology

These entails the methodology that was used such as research design, data collection procedure and instrument, data analysis and representation method, target population, sample frame work, size, pilot study to test validity and reliable of the area, data analysis and representation procedure that is used to analyze.

Study area

The study was conducted at Cottolengo Mission hospital Chaaria. The hospital is located in Meru County, Imenti Central Sub-County and Gaitu East location. Cottolengo mission hospital is a level four hospital in Imenti Central. It's situated at centrally in Imenti Central Sub County and serves as a tertiary referral center for the sub county.

Research design

It was descriptive cross sectional quantitative and qualitative retrospectively research design through employment of structured collection of data from the file. The outcome was presented in frequency tables, figures, graphs and percentages. The Investigations was performed on patient sample and the results were recorded on the check list. That helped in determining the prevalence of different types of cancer among men and women of different age groups below of Cottolengo Mission hospital amongst the patients attending the hospital claiming of the same infection.

Target population

During the study period, 1908 cancer suspect patient were recorded in Cottolengo Mission Hospital between the period of January 2016 to December 2018 were included in the study were included in the study.

Inclusion and exclusion criteria

Inclusion criteria: Hospital records of patients suspected with cancer.

Exclusion criteria: Hospital records of patient which were not suspect of cancer and incomplete informational data record. Records of communicable disease and records of patients with confirmed diagnosis of cancer.

Sample and Sampling

The desired sample size was determined using Fisher et al. 1998 formula (10)

$n = (z)\ 2\ p\ (1 - p) / d\ 2$

Where

N= the desired sample size

Z= is the standard normal deviation at the required confidence level of 1.96

D=the level of statistical significance set

P=the proportion in the characteristics being measured

Q=1-p

If there is no estimate available of the proportion in the target population assumed to have the same characteristics, the research may use 50% of the given sample as recommended by Fisher et al, 1998 for example, if the proportion of a target population is 50, and the z-statistics is 1.96, and the desire accuracy at 0.05 level statistics significance, then the sample will determined as

$n = (1.96)^2 / 4 (0.05)^2$

n = (1.96)2 / 4 (0.05)2 = 384.16

=384

The sample size in this study was less than 10,000; therefore the formula for infinite population was used.

nf =n/ (1+n/N)

Where nf=the desired sample size, when the population is less than 10000.

n=the desired sample when population is more than 10000

n=the estimated population size of the suspected cancer patients was 636 for average target for a year in the facility

Therefore

nf=384/ (1+384/1908)

=362

Therefore, the research sample size was a minimum of 362 respondents.

Sample technique

The sample frame included patient's record diagnosed with cancer in the hospital that made the inclusion criteria. All the 1908 files of suspected cancer patient were distributed proportionally among three (3) year period. The Systematic random sampling methods were used to select the patients file in order to avoid any repetition.

Data collection method

Secondary data from patient files was collected by the use of by semi structured extraction tool. The tool which captures data on patient's bio data admission diagnosis and Clinical characteristics. Supplementary required information will be captured using modifications on the same extraction tool, these will include treatment prescribed, discharge diagnosis and clinical outcomes. Sequential inpatient under five 1908 files for the period beginning January 2016 to December 2018 were retrieved from the records department. Upon retrieval the researcher proceeded to gather the required information into extraction tool forms. Once data was captured the files were returned to the shelves for storage. The questionnaire prepared in such a way that it gathers information on two areas. First to assess the prevalence situation based on the gender and secondly based on the age.

Data Management and Analysis

Data management

The study participant's extraction forms were given a particular serial number for early identification and minimization of errors. This number was indicated in each extraction tool. The data collected was scrutinized and validated for purposes of maintaining high levels of accuracy and completeness. The extraction tools in hard copies were stored under lock and key and the converted data into soft copy was also backed in a flash disk and another computer before and analysis.

Data analysis

The collected data was coded and the data was summarized in frequency tables and histograms drawn (Figure 1). The distribution in gender showed men were more affected than female except in breast cancer and melanoma cancer (Figure 2).

The study established the prostate cancer gradual incline in the sample from the age of between the age of 41-50 and reaches peak at the age of 71-80 years which constituting the highest number of affected patients (Figure 3).

The study sought to establish the comparison between the cervical and ovary cancer where the most affected age is between the age of 41-50 although almost the same as between the age of 31-40 years. From the sampled sample, patient suffers more of cervical cancer than ovary cancer. From the study it shown that from the age of 51-60 years it starts to decline (Figure 4).

In terms of the distribution comparing to age it shows that lymphoma most affects the age between the age of 11-20 and also affects children of less than 10 years compared to other types of cancer of which majority who affects between the age of 30 -60 except esophagus and prostate cancer which affects majority, the elderly majority being of the age 60-80 years. The osteosarcoma, uterus and melanoma were the least cancer type captured compared to other types of cancer.

Discussions and Interpretations

It was realized that esophagus and prostate cancer affects mostly the elderly people of majority being the age of 61-70 for esophagus while prostate majority were for between the ages of 71-80 years old although there were few patients aging between 41-50 years old were affected too. Lymphoma type of cancer was predominant in the ages of 20 years old and below and men being the most affected compared to women being 15 out 28 files sampled. This could be attributed by being the autoimmune diseases.

From the files sampled, breast cancer was so dominant in female although male were also affected. The majority affected female patients were of the age group of 31-40 years old while male were of the age group of 70-95 years old. The high numbers in female could be because of them being female and some getting children and the old age.

Stomach cancer was much higher in male than in female. The most affected ages were between the ages of 51-60 years old and could be attributed to smoking, genetic syndrome and obese.

Cervical cancer affects female. It was much higher in female patient of age group 41-50 years although also high in ages of 31-40 years old. From the age of 51 years the number starts to decline. The higher number of cases recorded was from the age group of 31-50 years and that one could be due to some family planning, or starting sex at young age and also having multiple partners.

Hepatic or liver cancer was found to be almost equal between the genders affected although male were slightly above. The most affected age group was 61-70 years and the least affected group was 21-30 years old. The high number of the age of 61-70 could be due to alcohol consummation or exposure to toxins and hepatitis B.

Colon cancer was not so much compared to other type of cancer. Men were being slightly high in numbers than female. The most affected age groups were between the ages of 51-60 years old and could be due to lack of physical exercise and eating a lot of fats.

Thyroid cancer was isolated mostly in female than male. The age group that was affected was between 31-40 years old. Rectal cancer was most predominant in female than male most affected group was 71-80 years.

From the file that was sampled, skin cancer wasn't so much problem majority being the male and most affected group age was 71-80 years. The gastric cancer was not so much sampled from the selected file study. There were no more than affected age group and the gender; all of them were of equal measure.

Melanoma type of cancer from the sampled file it was not many, the few that was positive for melanoma cancer, men were more affected than female of the age group of 51-60 years. Uterus cancers were not so much common and the most affected group was 51-60 years old. Finally from the sampled file, osteosarcoma cancer was Isolated although the number was much lower and the most affected age groups were 51-70 years old.

Conclusion

In conclusion, the study found out that esophagus cancer seems to affect more people of both genders especially of the age group 61-70. Files sampled out male were more affected than women. Prostate cancer affects majority the elderly people especially from the age of 70-80 years which were more affected. Lymphoma type of cancer seems to affect more teenagers of less than 20 years from the sample studied than old people**.** Prostate cancer from the observation has started to affect even the younger people of 14-50 age groups. Breast cancer.

Cancer early testing is the key parameter in curbing Metastasis hence this will safe a patient from scum to the diseases to it this calls for more awareness measures like medical campaign to sensitize the people. More resources need to be allocated to this course to enhance the outreach by the healthcare provider.

Recommendations

More resources need to be allocated towards this course since there is underfunding. According to this study it was discovered that unawareness is still deep seated in majority of people especially in rural set ups. There is sufficient evidence to deduce that more resources are required for purposes of sensitization and testing and cancer screening of people and more specifically follow ups of victims affected by cancer.

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