

Incidence and geographical distribution of cancer in Radiation and Isotopes Center in Khartoum

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Abstract

Aim: This study was conducted at Radiation and Isotope Centre in Khartoum, Khartoum state, Sudan in February to April 2011 to identify age, the gender of the patients, and geographical area for the cancer patients and to determine the common types of the cancer. **Methodology:** A cross-sectional descriptive facility-based study carried out in Khartoum state in Radiation and Isotope Centre in Khartoum. **Results:** One hundred and eighty patient files were collected and reviewed. 47.3% were in the age between 50 and 80 years old. The geographic distribution of cancer patients includes 19.6% of the patients have come from Khartoum and the same percentage come from north Kordofan, this indicate that these areas have a high incidence of cancer disease. 13.4% from the patients come from Aljazeera, 7.2% from North state and 6.2% from White Nile. Almost 66% from the patients were female and the most common type of cancer between them was breast cancer which indicated by 41% from the patients. 7% from the patients suffering from esophagus cancer whereas 4% have prostate cancer. **Conclusion:** This study revealed that Khartoum and North Kordofan were the most geographical areas in Sudan affected by cancer while breast cancer was the most common. Women affected by this disease in rate higher than men and 47.3% were in the age between 50 and 80 years old.

Key words: Cancer in Sudan, geographical, incidence

INTRODUCTION

Cancer shows a high incidence in the world and also in Sudan and most of the patients come at too late stages that might explain the high mortality rate.

Sudan first initiated a national cancer control program in 1982 in association with the World Health Organization (WHO), and this was updated in the early 1990s based on the new WHO guidelines. This program focuses on prevention, early detection and screening, improved diagnosis and treatment and palliative care.^[1]

Cancer is a disease characterized by a shift in the control mechanisms that govern cell survival, proliferation, and differentiation. Cells that have undergone neoplastic transformation usually express cell surface antigens that may be of normal fetal type, may display other signs of apparent immaturity, and may exhibit qualitative or quantitative chromosomal abnormalities, including various translocations and the appearance of amplified gene sequences. Such cells proliferate excessively and form local tumors that can compress or invade adjacent normal structures. A small subpopulation of cells within the tumor can be described as tumor stem cells. They retain the ability to undergo repeated cycles of proliferation as well as to migrate to distant sites in the body to colonize various organs in the process called metastasis.^[2]

Tumor stem cells are characterized by chromosome abnormalities reflecting their genetic instability, which leads to progressive selection of subclones that can survive more readily in the multicellular environment of the host. Quantitative abnormalities in various

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metabolic pathways and cellular components accompany this neoplastic progression. The invasive and metastatic processes as well as a series of metabolic abnormalities resulting from the cancer cause illness and eventual death of the patient unless the neoplasm can be eradicated with treatment.^[2]

A major challenge to treatment of cancer in Sudan, as in most developing countries, is that most patients first present with advanced stage disease.^[3] A total of 78% of Sudanese patients have stage III or IV disease (TNM classification) when they first seek medical treatment (data from Sudan Federal Ministry of Health). In these stages, treatment may often involve multiple modalities, including surgery, radiotherapy, chemotherapy and hormone therapy, and has a markedly diminished chance of success.^[4,5] Cancers like cervical cancer are largely curable if detected early. Therefore, there is an urgent need for better early detection of cancer in Sudan to make treatment more effective, less costly, less invasive, and more accessible and acceptable to patients.^[6-8]

The main objectives of this study are to identify the age, gender and geographical area for the cancer patients and to determine the common types of the cancer in Sudan.

METHODS

This is cross-sectional descriptive facility-based study carried out in Khartoum state in Radiation and Isotopes Centre in Khartoum. A total of 180 patient’s files were collected and reviewed using a structured precoded; pretested questionnaire during the period from February to April 2011. The data were collected, entered, cleaned and analyzed using SPSS software version 17 SPSS Inc., 233s. wacker Drive Chicago, II. 60606-6412 USA. Permission to access the data in the patient records anonymously was obtained from the hospitals manager.

RESULTS

Almost half the patients (47.3%) are in the age between 50 and 80 years old.

The geographic distribution of cancer patients includes 19.6% of the patients have come from Khartoum and the same percentage have come from North Kordofan this indicate that these area has a high incidence of cancer diseases. 13.4% from the patients come from Al Jazeera. 7.2% from Northern State and 6.2% from White Nile as shown in Figure 1.

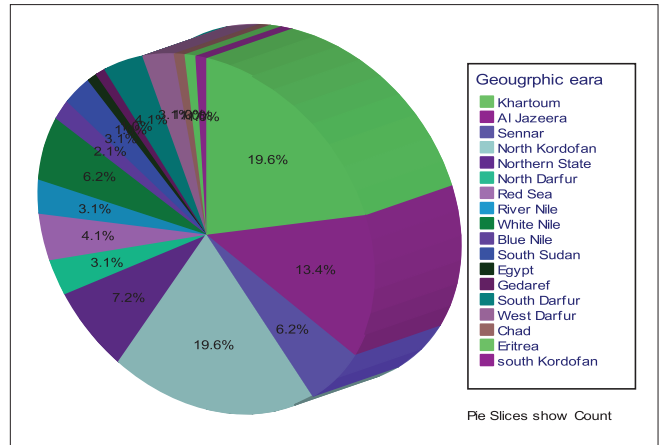


Figure 1: The geographic distribution of the patients

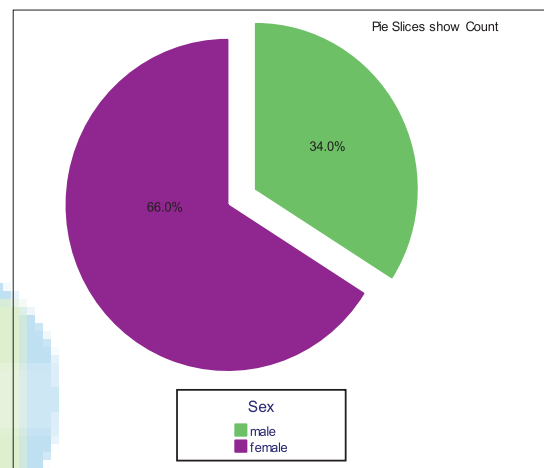


Figure 2: Represent the sex of the patients

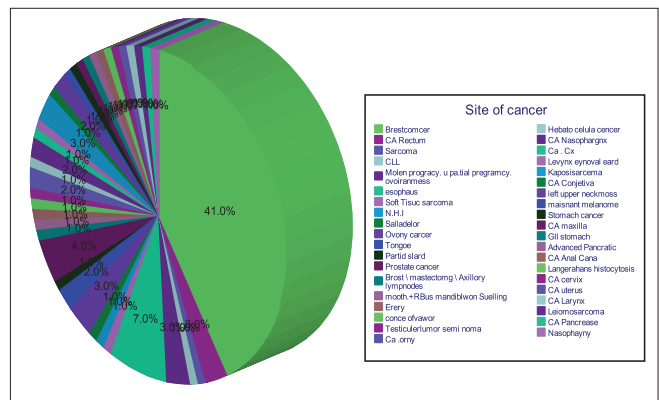


Figure 3: Site of cancer

Almost 66% of the patients are female and the most common cancer is the breast cancer about 41% of the patients as shown in Figure 2.

The most common type of cancers is the breast cancer in the women almost 41% of the patients. 7% of the patients have esophagus cancer while 4% of the patients have prostate cancer as shown in Figure 3.

DISCUSSION

About 9.3% of the patients are in the age of 50 years old, while 8.2% are in the 65 years old. Almost half the patients (47.3%) are in the age between 50 and 80 years old.

The site of geographic distribution of cancer patients includes 19.6% of the patients have come from Khartoum and the same percentage have come from North Kordofan this indicate that these area has a high incidence of cancer diseases. 13.4% from the patients come from Al Jazeera. 7.2% from Northern State and 6.2% from White Nile.

The sex of the cancer patients are 34% of the patients are male, while almost tow third of the patients are female (66%). The most common type of cancer in female is the breast cancer.

The most common cancer in the patients is the breast cancer in the women almost 41% of the patients. 7% of the patients have esophagus cancer while 4% of the patients have prostate cancer.

CONCLUSION

Almost half the patients (47.3%) are in the age between 50 and 80 years old. The geographic distribution of cancer patients includes 19.6% of the patients have come from Khartoum and the same percentage have come from North Kordofan this indicate that these area has a high incidence of cancer diseases. 13.4% from the patients come from Al Jazeera. 7.2% from Northern State and 6.2% from White Nile. Almost 66% of the patients are female, and

the most common cancer is the breast cancer about 41% of the patients.

Recommendations

- The most common areas in Sudan affected by cancer should be studied carefully to see causative agents
- More researches should be done in the most common sites of cancer that affect patients and their treatment.

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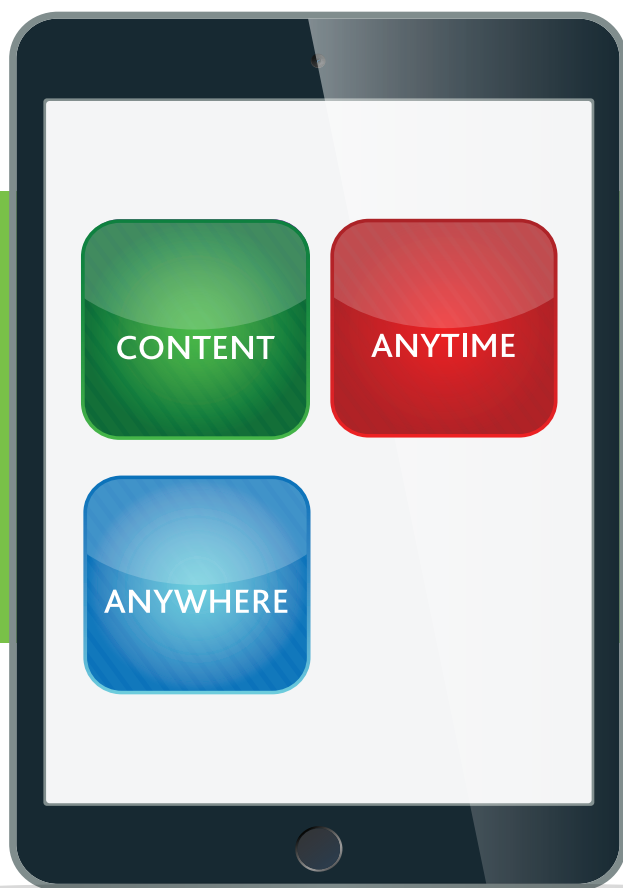
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