Original Article

Pattern and incidence of cancer at El Obeid Hospital, Western Sudan.

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Abstract:

Background: The growing population of elderly people, the changes in life style, the new dietary habits and the HIV pandemic resulted in more exposure to cancer promoting factors in developing countries, including Sudan. Sudan is a large county with different climatic regions and the population has wide diversity of ethnic groups with varying cultures. Nevertheless, the burden of cancer in the different regions of the country is unknown.

Objectives: To study the incidence rate and the pattern of cancer at El Obeid Teaching Hospital, Western Sudan.

Patients and Methods: The records of all patients admitted with cancer to the wards of El Obeid Teaching Hospital, Western Sudan during 2006 and 2007 were studied. The cancers were classified according to the organs affected and then ranked in their order of relative frequency. The mean age, age range, gender, the incidence rates and the relative frequency rates were calculated.

Results: There were 111 new cancer patients in 2006 and 169 patients in 2007. Females were 52.9% of cases. The mean ages were 61.8 and 56.8 years for males and females respectively. Cancer of the gastrointestinal tract is the most common malignancy in both sexes, followed by breast and then cervical cancer in females; while it was followed by leukaemia in males. Hepatocellular, oesophageal, gastric and recto-sigmoid were the main gut cancers.

Conclusions: Cancer of the gastrointestinal tract was the commonest malignancy at El Obeid Hospital, Western Sudan. Establishment of a local radiation and isotopes centre is needed in this part of the country to provide oncology services and integrate preventive programs. A regional cancer registry centre supplements the national efforts to evaluate the magnitude of the problem in order to plan further future strategies.

Key words: Hepatocellular, malignancies, oesophageal cancer.

Cancer was considered a disease of the developed world, before it soon spread out as a global epidemic. Overall, in 2002 there were 11 million estimated new cases, about 7 million deaths reported and nearly 25 million persons were living with cancer worldwide[1, 2]. The World Health Organization predicts that there will be 16 million new cases per year in 2020 and 70% of these will be in the developing countries[3, 4].

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The Eastern Mediterranean Region (including Sudan) is expected to witness the greatest increase in cancer incidence in the next 15 years; between 100% and 180%[5].

Cancer is increasingly recognized as a major and growing health concern in Sudan with many challenges that are characteristic of the developing countries[6]. In Sudan hospitals in 2000, cancer was the third leading cause of death after malaria and viral pneumonia, accounting for 5% of all deaths[6]. National control efforts can only be effectively planned and implemented if the current situation is assessed[7]. Due to the little information available on cancer pattern in this community, even hospital frequency rates are of considerable interest.

This is the first documented study on the incidence and pattern of cancer at El Obeid Teaching Hospital, the only referral hospital serving Kordofan States of Western Sudan.

Patients and Methods:

El Obeid Teaching Hospital has 600 bed capacity, a regional laboratory and wide range of clinical specialties. The records of all adult patients admitted with cancer during the years 2006 and 2007 were retrospectively studied. The clinical diagnosis was confirmed with histopathology, cytology, bone marrow aspirates and peripheral blood counts as appropriate. Cancers were classified according to the organs affected. The data were also analyzed for incidences, age, gender and geographical locality of the patients.

Results:

280 new cancer patients were admitted to El Obeid Teaching Hospital in 2 years, 132 of them were males. There were 111 new cancer patients in 2006 and 169 patients in 2007. The increase rate of cases diagnosed in 2007 was 52.3%. The cancer incidence rate was 4.6 per 100,000 for the year 2006 and 7.0 per 100,000 for the year 2007.

Table 1: The Relative Frequency Rate of Cancers at El Obeid Hospital, Western Sudan.

Organ	No	%
GIT	135	48.2
Breast	54	19.3
Female genital	25	08.9
Leukaemia	12	04.2
Skin	10	03.6
Lymphoma	08	02.9
Prostate	08	02.9
Testicular	06	02.4
Urinary system	06	02.4
Thyroid	05	01.8
Bone	04	01.2
Nasopharynx	04	01.2
Lung	03	01.0
Total	280	100.0

The age range was between 20 and 85 years for males (mean± SD was 61.8 ± 14 years) and between 18 and 80 years for females (mean± SD was 56.8 ± 14.4 years). The relative frequency rate of different cancers according to organ affected was shown in table 1.

Cancer of the gastrointestinal tract was the commonest malignancy accounting for 135 cases (48.2%) of the study group, followed by breast cancer (19.3%), cancer of the female genitalia (8.9%) and leukaemia (4.2%).

The gastro-intestinal tumours were hepatocellular carcinoma (42 cases), oesophageal cancer (35 cases), gastric cancer (26 cases), recto-sigmoid (18 cases) and cancer of the pancreas (14 cases) table 2.

Table 2: Sites of Gastrointestinal Cancer at El Obeid Hospital.

Site	Males	Females	No(%)
HCC*	31	11	42(31.1)
Oesophagus	16	19	35(25.9)
Stomach	15	11	26(19.3)
Rectosigmoid	08	10	18(13.4)
Pancreas	09	05	14(10.4)
Total	79	56	135(100)

Leading cancers in males were gastrointestinal tumours, leukaemia and skin, while the leading cancers in females were cancers of the gastrointestinal tract, breast and uterine cervix.

Discussion:

The burden of cancer can be estimated by its incidence, prevalence, and mortality or survival rates[5]. Due to lack of cancer registry in this community this precise data are unknown. Considering the little information available on cancer pattern, even frequency rates are of considerable interest. This hospital based data contain some under-ascertainment of cases so that the real incidence rates may be underestimated.

In this study, the cancer incidence rate was low compared to 12.7 reported from the Red Sea State[8] and much lower than the WHO estimates[6]. Many cases might not present to health institutions and many others were seen in Outpatient Clinics and referred to higher centers due to lack in facilities. However; the increase rate of cases diagnosed in 2007 was

52.3% more than the year before, indicating more awareness of the condition and better facilities for diagnosis. The mean age was 61.8 years for males and 56.8 years for females, both were elder than the mean age of 48 years at the Red Sea State[8].

The commonest cancer in this study was gastrointestinal accounting for 48.2% of the malignancies seen in this hospital over two years. Ageeb et al (2007) found that breast cancer was the commonest malignancy in the general population at the Red Sea State, Eastern Sudan[8]. At the Radiation and Isotopes Centre-Khartoum (RICK), breast cancer was considered as the commonest malignancy in Sudanese women, while chronic myeloid leukaemia was the commonest malignancy in males[6]. RICK was the only oncology centre in the country prior to 2002[6]. However, we notice that many of the gastrointestinal cancer patients report late and only few of them were suitable for reference to RICK. Regionally, it was reported that gastrointestinal malignancies accounted for 73.3% of cancer cases in Alexandria[9], and they were the commonest tumours in Yemen, Saudi Arabia and Ethiopia[10-13].

Hepatocellular carcinoma constituted a third of the gastrointestinal tumours (31.1%), similar to 33% frequency rate reported from Yemen[10]. It was the principal cancer in males in the Ivory Coast and many other African countries[14].This was in line with previous reports from this hospital which drew the attention for the high prevalence of the hepatocellular carcinoma in Western Sudan[15]. Contamination of the native food with aflatoxin and hepatitis B infection were observed to be amongst the important factors for the development of the disease.

Cancers of the oesophagus, stomach and recto-sigmoid accounted for 25.9%, 19.3% and 13.4% of all gastrointestinal tumours respectively; whereas cancer of the pancreas was found in 14 cases (10.4%). These cancers were commonly seen in Khartoum[16, 17]. In Africa, oesophageal cancer had an incidence rate for males among the highest in the world[18]. Cancers of the oesophagus and stomach were common in males in Uganda, exceeded only by Kaposi sarcoma after the era of AIDS[19].

Cancer of the breast was seen in 54 cases (19.3%). They were mainly invasive ductal carcinoma in young ladies with aggressive behavior and the majority of the patients presented at late stages. In females; breast cancer was second to gastrointestinal tumours, and was followed by cancer of the genital tract.

Malignant conditions of the female genitalia were 25 cases (11.3%). Cervical cancer was diagnosed in 12 patients, uterine in 8 patients and ovarian in 5 patients. The incidence of cervical cancer in this study did not reflect the real situation, as many patients were treated in private clinics and were not included here. High incidence rate of cervical cancer due to the high prevalence of human papilloma virus was reported from different African countries[20-22]. Unlike cancer patterns in Western countries and similar to the findings at the Red Sea State of Eastern Sudan, we found low incidence rates of lung and prostate cancer.

Our community faces fourfold challenge that increases the risk of cancer: longevity, westernization of diet and life style, cancers associated with infection and poverty; and AIDS-associated cancer. The WHO cancer control strategy outlined a stepwise framework that raises awareness and assesses the current situation.[22]. More systematic hospital-based and local population-based registries are needed for future plans to improve standards of care and to define preventive strategies[23]. The majority of cancers in developing countries were described as potentially preventable and the efficacy of treatment can be modified and much improved with early detection[22-24].

In conclusion: Cancer incidence rate is low at El Obeid Hospital, Western Sudan; but is

rapidly increasing. The pattern of cancer is different from Khartoum and Red Sea State of Eastern Sudan. There is a necessity to increase the level of awareness about common cancers. More systematic hospital-based and local population-based registries are needed for future plans. Due to the far distance to Khartoum, we strongly call for establishment of a local radiation and isotope centre in El Obeid.

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