

Cancer Incidence in Shendi and Almatamma Localities, River Nile State - Sudan

Ahmed Mohamed Ahmed Ibrahim^{1*}, Ahmed Salih Mohammed Salih²

1) MBBS, MD clinical pathology - Head department of pathology, faculty of medicine, Shendi University, Shendi - Sudan.

2) MBBS, MMSc, MMSc subspeciality histopathology - Head department of pathology, El Mack Nimir university hospital, Shendi - Sudan.

Correspondence

E-mail: ahmed.luka59@gmail.com - Phone: +249 912343888

P. O. Box: 142 - 143 Shendi, Sudan

ABSTRACT

Objective: To study the pattern and incidence of cancer in Shendi and Almatamma Localities, River Nile State, Sudan. **Methods:** The records of all confirmed cancer cases were retrieved and studied from the files of the histopathology, haematology and chemotherapy departments at El Mack Nimir University Hospital, Shendi, Sudan during the period June 2009 to December 2012. The major types of cancer were ranked in order of relative frequency rates, the mean age, age range; male to female ratio, the crude incidence rate and age standardised rate were calculated. **Results:** The numbers of patients included in the study were 365. The male were 141 patients and female were 224 patents. The male to female ratio was 1: 1.6. The mean age of overall age of presentation was 54.4 years. The range of patients' age was 4 - 90 years. The incidence rate was 21.7 per 100,000. The age standardised rate was 194.4 per 100,000. The most common cancers irrespective of sex were breast, gastrointestinal tract, female genital tract, head and neck and Leukemias. In female the most common types were breast, female genital tract, gastrointestinal tract, head and neck and leukaemia. In male the most common cancers were gastrointestinal tract, prostate, leukaemia, head and neck and Lymphoma. **Conclusion:** The age standardised rate and cancers frequencies are compatible with the last World Health Organization records of cancer in North Africa. Thus the study data is representative to the Shendi and Almatamma localities population.

INTRODUCTION:

Nearly 12.7 million new cancer cases and 7.6 million cancer deaths occurred in 2008 worldwide, of these 6.6 million cases were in men and 6.0 million in women. This number is expected to increase to 21 million by 2030⁽¹⁾. In Africa about 715,000 new cancer cases and 542,000 cancer deaths occurred in 2008⁽¹⁾. These numbers are projected to nearly double (1.28 million new cancer cases and 970,000 cancer deaths) by 2030 simply due to the aging and growth of the population⁽²⁾ with the potential to be even higher because of the adoption of behaviours and lifestyles associated with economic development, such as smoking, unhealthy diet, and physical inactivity⁽³⁾. It is estimated that cancer is the second cause of death in North Africa (8.5%) after heart disease (25.3%). In Sudan hospitals in 2000, cancer was the third leading cause of death after malaria and viral pneumonia, accounting for 5% of all deaths⁽⁴⁾. National control efforts can only be effectively planned and implemented if the current situation is assessed⁽⁵⁾. Due to the little information

available on cancer pattern in this community, the age standardised rate and frequency rates are of considerable interest. This is the first study on pattern and incidence of cancer in Shendi and Almatamma localities.

MATERIAL AND METHODS:

The records of all confirmed cancer cases were retrieved and studied from the files of the histopathology, haematology and chemotherapy departments at El Mack Nimir university hospital ,Shendi, Sudan during the period June 2009 to December 2012. From 520 cases recorded in the files of the chemotherapy only 365 were from Shendi and Almatamma, some histopathology reports from recognized laboratories from Khartoum were also included in the study. Shendi and Almatamma localities are located 188km north of Khartoum in both banks of the River Nile. The total population is 421344 according to 2008 national census with adjusted growth rate. El Mack Nimir university hospital is the only center provides histopathology,

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haematology and chemotherapy service to the localities. The specimens were surgical biopsies and bone marrow aspirations confirmed malignancies and were on treatment or complete the treatment courses. Cancers were classified according to the organ affected, relative frequency rates, sex and age, and age standardised rate were calculated. the latter with the reference to world standard population of year 2000.

RESULTS:

Three hundred and sixty five cancer cases were diagnosed between June 2009 and December 2012. The male patients were 141 and female patients were 224. The mean age of presentation was 54.4 years (range between 4 and 90 years). The incidence rate was 21.7 per 100,000. The age standardized rate was 194.4 per 100,000. The male to female ratio is 1:1.6. The relative frequency rates for different types of cancers and their incidence rates were illustrated in table 1. The most common types of malignancies in both sexes are illustrated in table 2 and 3.

Table (1): Types of cancers in order of relative frequencies. IR, CIR and ASR

System	Total n	RFR %	CIR %	ASR Per 100,000	Male: Female ratio	Age range	Mean age
Breast	90	24.7	5.3	42.3	1:17	15-90	49.4
GIT	66	18.1	3.9	38.5	1:1	20-95	57.8
Female genital tract	42	11.5	2.5	22.6	0:42	4-80	53.4
Head and neck	35	9.6	2.1	17.3	1:1.3	21-80	50.8
leukaemia	33	9.0	2.0	19.1	1:1.1	16-85	54.6
Prostate	29	7.9	1.7	19.4	29:0	47-90	72.7
Unknown origin	17	4.6	1.0	9.2	1:1.8	30-80	55.8
Urinary system	16	4.4	0.9	8.5	1:0.6	32-90	61.6
Lymphoma	13	3.6	0.8	6.4	1:0.3	5-90	49.7
Soft tissues	10	2.7	0.6	5.0	1:0.3	23-75	49.1
Skin	7	1.9	0.4	3.4	1:0.4	20-77	49.1
Bones and joints	3	0.8	0.2	1.2	1:2	35-50	43.3
Eye	3	0.8	0.2	0.8	1:2	4-52	31.0
Lungs	1	0.3	0.1	0.7	1:0	63	63.0
Total	365	99.9	21.7	194.4	1:1.6	4-90	53

IR= incidence rate, CIR=crude incidence rate, ASR=Age Standardised rate, GIT= gastrointestinal tract

Table (2): Relative frequency rate of female cancer

Rank	System	Number	RFR %
1	Breast	85	37.9
2	Female genital tract	42	18.8
3	GIT	33	14.7
4	Head & Neck	20	8.9
5	Leukaemia	17	7.6
6	Unknown origin	10	4.5
7	Urinary system	6	2.7
8	Lymphoma	3	1.3
9	Skin	2	0.9
10	Soft tissue	2	0.9
11	Bone & Joint	2	0.9
12	Eye	2	0.9
13	lung	0	0
Total		224	100

Table (3): Relative frequency rate of male cancer

Rank	System	Number	RFR%
1	GIT	33	23.4
2	Prostate	29	20.6
3	Leukaemia	16	11.3
4	Head & Neck	15	10.6
5	Lymphoma	10	7.1
6	Urinary system	10	7.1
7	Soft tissue	8	5.7
8	Unknown origin	7	5.0
9	Breast	5	3.5
10	Skin	5	3.5
11	Lungs	1	0.7
12	Eye	1	0.7
13	Bone & joints	1	0.7
Total		141	99.9

DISCUSSION:

This is the first documented study on the pattern and incidence of cancer in Shendi and Almatamma Localities, River Nile State, Sudan. Our hospital is the only reference for histopathology and chemotherapy for these areas. Due to its unique position and services all cases from these areas come to El Mack

Nimir hospital for diagnosis and treatment firstly. This data is probably more representative than data from tertiary centers because all patients are belong to the areas.

The age standardised rate was 194.4 per 100,000. This is lower than the World age-standardised rate for all cancers (182 per 100,000)⁽¹⁾ and North Africa (208.1 per 100,000)⁽¹⁾. Is higher than: Gambia (126.7 per 100,000)⁽⁶⁾, the less developed countries (147.8 per 100,000)⁽¹⁾, Al-Jouf, Saudi Arabia (38.5 per 100,000)⁽⁷⁾. Gaza Strip and West Bank is (54.9 per 100,000)⁽⁸⁾, Sudan (81.5 per 100,000)⁽⁸⁾, and Red sea State is (41.5 per 100,000)⁽⁹⁾. The highest rate in Denmark is (326.1 per 100,000)⁽¹⁾.

Breast cancer is the most common cancer overall in Shendi and Almatamma Localities, and commonest in female similar to the pattern of incidence world-wide⁽¹⁾. The most common type is invasive ductal carcinoma, but separate cases of medullary and mucinous carcinomas are noted. The age standardized rate was 42.3 per 100,000 and this is near the North Africa standardised rate (38per 100,000)⁽¹⁰⁾.

The second most common cancer is gastrointestinal tract cancers with age standardised rate of 38.5 per 100,000 which is nearby to the North Africa (42per 100,000)⁽¹⁰⁾.

The female genital tract is the third most common cancers in the localities, the age standardised rate is 22.6 per 100,000.

Head and neck tumour is the fourth in the list. Their common sites are nasopharynx, salivary and thyroid glands.

Leukaemia is the fifth common malignancy in the localities. (66%) of all cases of leukaemia are Chronic lymphocytic and myeloid leukaemia

Prostate cancer is the second most common cancer in male in Shendi and Almatamma Localities, the age standardised rate is 19.4 per 100,000. Which is higher than North Africa (10 per 100,000)⁽¹⁰⁾

In the localities the lung cancer is the least frequent cancer.

The cancer rank in order of frequency is similar to world overall frequencies.

The localities are near the capital Khartoum; some patients are prefers Khartoum for management.

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