

Personal perspective: Access to treatment for gynaecological malignancies in Sudan

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Introduction

Cancer incidence and mortality are rapidly growing globally. The GLOBOCAN 2018 estimates indicate that there will be 18.1 million new cases of cancer and 9.6 million deaths from cancer in 2018 and incidence is projected to increase to 21 million in 2030. Africa accounts for 5.8% of global cancer incidence and 7.3% of mortality. Cancer affects females more than males in Africa and cancer-related mortality is higher in women compared to men.¹

Sudan is a low-income country in sub-Saharan Africa with a population of approximately 40 million.² It is one of the most geographically diverse states on the continent. There are two distinct major ethnic groups; Arab and Black African, with about 600 tribes and ethnic subdivisions. Approximately 70% of the population lives either in rural or nomadic settings. Sudan is divided into 17 states that have markedly varied population densities. The health services in Sudan are organised at three levels: primary, secondary and tertiary. The states' general hospitals are the referral centres for the population. Khartoum Oncology Hospital and the National Cancer Institute, University of Gezira (NCI-UG), which is located in Wad Madani, capital of Gezira State, are the only two specialised cancer centres providing both chemotherapy and radiotherapy services for the entire country.

According to the World Health Organization (WHO), cancer is estimated to account for 6% of total deaths in Sudan.³ The precise incidence of cancer in Sudan is unknown. There is no national data registry, and therefore, the available information is gleaned from individual units in the larger healthcare centres or Khartoum regional cancer registry.^{4,5}

Gynaecological malignancies in Sudan

Incidence

Globally, gynaecological cancers represent approximately 7.0% and 6.2% of newly diagnosed cancer cases and deaths respectively.¹ According to data from Khartoum cancer registry, cancer of the cervix (gender-specific rate = 8.5 per 100 000) and

cancer of the ovary (gender-specific rate = 8.0 per 100 000) were ranked the third and fourth cancers among women.⁵ Recent data from NCI-UG showed that gynaecological malignancies represent 20% of all cancers among women and ovarian cancer is the second most common cancer after cancer of the breast (Figure 1).

Clinicopathological background

It has been reported that about two-thirds of Sudanese patients with cervical and ovarian cancers were diagnosed at a locally advanced or metastatic stage.^{6,7} Similar high proportions of advanced stage at diagnosis have been reported by several studies from other sub-Saharan African countries.^{8,9} Several factors may contribute to the delayed presentation of these malignancies such as: limited access to medical care (financial and geographical); lack of education, and poverty.⁷ Furthermore, cultural and psychological barriers associated with late presentation include fear of cancer treatment, misconceptions about the nature or curability of the disease (cancer equals death), and the fear of being perceived as a burden to their families. A previous study showed that Sudanese women with cervical cancer who are elderly, not covered by health insurance,

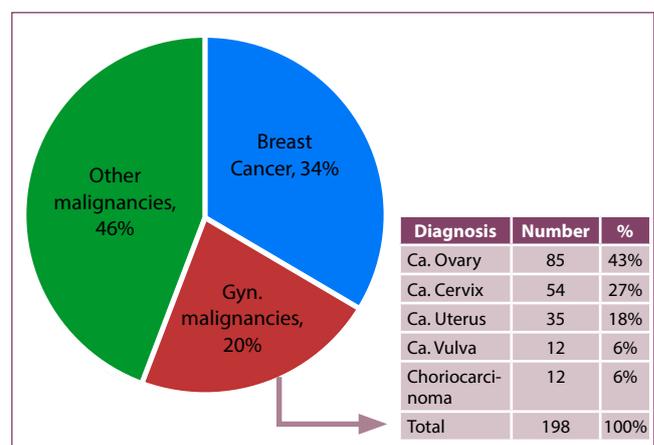


Figure 1. Incidence of cancer among female patients (n = 1012) registered and treated at the National Cancer Institute, central Sudan in 2017 (Source: NCI-UG cancer registry 2017)

of African ethnicity, and living in rural areas are more likely to be diagnosed at an advanced stage.⁷

Diagnosis and staging

In Sudan, women with clinical suspicion of gynaecological cancer are referred by the attending physicians to a gynaecology department in the nearby governmental hospital or private gynaecology clinics for tissue biopsy. In our limited-resource setting, there are few pathologists outside the capital Khartoum. Therefore, the rule of thumb is to send the specimens mainly to Khartoum or nearby cities. However, there is a very poor logistic system for delivering the specimens to the histopathology laboratories. Surgical specimens are brought to the laboratory by the care-givers of the patients. Buffered formal saline 10% is rarely used, sometimes the specimens are received in normal saline and, rarely, in absolute ethanol.¹⁰ Pathologists depend largely on their skills in morphology (with its limitations) to classify tumours on routine stains. The average time to get the histopathology result is about 2–3 weeks.¹⁰ After a cancer diagnosis has been confirmed, patients are referred to Khartoum Oncology Hospital, in the capital Khartoum or NCI-UG in Wad Madani, Gezira state depending on the proximity to the patient's residence. Recently, the government established five new oncology centres in different states that offer only chemotherapy services. In addition, there are a few private cancer treatment centres located in the capital Khartoum that are offering chemotherapy services. Chemotherapy and radiation therapy are available without cost to Sudanese citizens at public cancer centres. In Sudan, diagnostic staging modalities, such as X-ray and ultrasound, are available in most tertiary hospitals. Access to computed tomography scanning and magnetic resonance imaging are limited and when available are generally cost-prohibitive. Without adequate health insurance coverage, limited personal finances can be a significant barrier to care for patients with cancer. The national health insurance covers 43.8% of the population of Sudan.¹¹

Management

Management of gynaecological cancers in Sudan faces two major challenges: quality and quantity in both the provided service and/or the providing personnel. In our setting, there are very few certified gynaecologists who perform radical gynaecological cancer surgery. In addition, there are discrepancies within the country, with Khartoum and Gezira states faring better than other states. The consequence is that most of the gynae-oncological surgeries are performed by general gynaecologists. Recent

published data from Central Sudan showed that approximately two-thirds of ovarian cancer underwent suboptimal surgery by a general gynecologist prior to visiting the NCI-UG.⁶ Nonetheless the big issue is that some patients, who had been referred to consult oncology centres for further management, never attended. This may be because they believed they had been cured after surgery, where others just cannot afford the cost of transportation.

Diagnosis and management of patients with gynaecological malignancies require a multidisciplinary approach, including gynaecologists, clinical oncologists, pathologists and clinical radiologists. In Sudan, these specialists are lacking, and where they exist they tend to work in isolation, rather than in teams. However, since 2002 the Oncology Department of the NCI-UG has established a weekly multidisciplinary gynae-oncology clinic for management decisions.

Due to the previously highlighted suboptimal gynae-oncological services and advanced stage at presentation, the majority of Sudanese patients require radiotherapy. Radiation therapy services are only available in the central regions of Sudan i.e. in Khartoum and Wad Madani (Table I). Therefore, patients from other regions have to travel long distances. Thus, the financial aspects of transportation and the availability of boarding and lodging close to the oncology centres, represent a huge burden for the patients and their families.

Chemotherapy for cancer treatment represents one of the great challenges in cancer control efforts in limited resource countries. In Sudan, all conventional chemotherapeutic drugs on the WHO essential list are available and free-of-charge at State hospitals. Chemotherapy is dispensed by a pharmacist and administered by trained nurses under supervision of a clinical oncologist.

Palliative care services for cancer patients are available in all cancer treatment centres. Pain is the most common presenting symptom because of late presentation. The available pain medications are paracetamol, nonsteroidal anti-inflammatory drugs, tramadol and morphine (both intravenous and oral). These medications are freely available to cancer patients.

Prevention

Although cervical cancer can be prevented by population vaccination against the human papillomavirus and various population screening methods such as the Pap test, these screening methods remain beyond the economic resources of the low-income countries. In Sudan, there is no national policy

Table I. Radiation therapy services (machines and personnel) in Sudan

	Year of establishment	Personnel			RT machines		Planning sys.
		RO	MP	RTT	EBRT	HDR	
Khartoum oncology hospital (Khartoum)	1961	27	7	33	3 Cobalts 2 Linears	1	2D
National Cancer Institute (Wad madani)	1999	7	4	10	2 Cobalts 1 linear	1	2D

Abbreviations: RO, Radiation and Clinical Oncologist; MP, Medical physicist; RTT, Radiotherapist; EBRT, External Beam Radiotherapy Machine; HDR, High Dose Rate Brachytherapy machine; 2D, two dimensions.

in place for cervical cancer screening because the healthcare system is significantly weakened by limited resources and insufficient personnel. A cost-effective approach for cervical cancer screening in our limited resource setting could be by “screen and treat” modality based on visual inspection by acetic acid (VIA).¹²

Conclusion

Although cancer treatments are free of charge, the financial aspects of investigations and/or travel represent a huge burden for the patients and their caregivers. Most Sudanese patients with gynaecological malignancies present with advanced stage disease that is rarely amendable with treatment. Thus, we need to implement a better method to increase awareness among policy makers and the public. Furthermore, cost effective, simple and economically feasible methods such as “screen and treat” by VIA need to be implemented and routinely assessed.

Moreover, to walk-through the above-mentioned complex situation with success, there is an utmost need to develop local specialised training programmes. These programmes should be tailored to the local needs. Other solutions include developing local consensus and guidelines of how to tackle these tumours.

These milestones could be better achieved through active and fruitful collaborations that include medical experts from developed countries. In this regard, experts, academic institutions, and health centres from the developed countries are called to provide help for the development and strengthening of local skills.

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