

Cancer and COVID-19 Experiences at African Cancer Centers: The Silver Lining

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PURPOSE The COVID-19 pandemic significantly disrupted cancer care in Africa, further exposing major health disparities. This paper compares and contrasts the experiences of 15 clinicians in six different African cancer centers to highlight the positive aspects (silver linings) in an otherwise negative situation.

METHODS Data are from personal experience of the clinicians working at the six cancer centers blended with what is available in the literature.

RESULTS The impact of COVID-19 on cancer care appeared to vary not only across the continent but also over cancer centers. Different factors such as clinic location, services offered, available resources, and level of restrictions imposed because of COVID-19 were associated with these variations. Collectively, delays in treatment and limited access to cancer care were commonly reported in the different regions.

CONCLUSION There is a lack of data on cancer patients with COVID-19 and online COVID-19 and cancer registries for Africa. Analysis of the available data, however, suggests a higher mortality rate for cancer patients with COVID-19 compared with those without cancer. Positive or silver linings coming out of the pandemic include the adoption of hypofractionated radiation therapy and teleoncology to enhance access to care while protecting patients and staff members. Increasing collaborations using online technology with oncology health professionals across the world are also being seen as a silver lining, with valuable sharing of experiences and expertise to improve care, enhance learning, and reduce disparities. Advanced information and communication technologies are seen as vital for such collaborations and could avail efforts in dealing with the ongoing pandemic and potential future crises.

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INTRODUCTION

The severe acute respiratory syndrome coronavirus 2, the causative agent of the COVID-19 pandemic, spread to Africa at a time when the continent was struggling to address a growing burden of cancer.^{1,2} Africa faces more than 1 million cases and 700,000 cancer deaths annually.^{2,3} The spread of COVID-19 to Africa prompted many African governments to put drastic measures in place to protect the vulnerable from getting infected.³ Such drastic measures, termed COVID-19 restrictions, have affected the Oncology sector in different ways. Many specialized cancer treatments across the continent are clustered in urban areas, and as such, patients have to travel to access treatment. With the restrictions in place, it was very difficult to treat inpatient chemotherapy. Moreover, there was a significant reduction in cancer surgery along with suspension of elective surgical procedures.

Radiation therapy saw a return to two-dimensional techniques from 3D radiotherapy in some centers

because of limitations in acquiring computed tomography images, which are required for 3D planning. Meanwhile, in an attempt to minimize both health practitioners' and patients' exposure to COVID-19, some centers adopted hypofractionation (less treatments and higher dose per day).⁴ Furthermore, many chemotherapy regimens have been transitioned to oral regimens, whereas patients who require concurrent chemoradiotherapy many times are receiving radiation therapy alone because of regional disruptions in supply chains of chemotherapy drugs and suspension of blood transfusion services, which are often required when patients undergo chemotherapy.⁴ This potentially places the treatment outcome of patients with cancer in jeopardy since most of them present with advanced cancer for whom treatment cannot be compromised. Such delays and compromises in chemotherapy and radiotherapy treatments have undoubtedly resulted in a decline in quality of life and increased deaths that cannot be counted as COVID-19 deaths. All the above factors have thrown cancer care

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CONTEXT

Key Objective

How is the COVID-19 pandemic affecting cancer care in African countries?

Knowledge Generated

There are sparse data regarding the impact of the pandemic on African patients with cancer. Personal experiences of 15 clinicians at six African cancer centers and available data show that the impact of COVID-19 on cancer care appears to vary not only across the continent but also over individual cancer centers.

Relevance

There are obvious positives, or silver linings, that have come from the pandemic, such as the increasing adoption of telemedicine and hypofractionated radiation therapy and increased collaboration using advanced information and communication technologies like Zoom. Increased collaboration allows valuable sharing of experiences and expertise to improve care, enhance learning, and reduce disparities, which could avail efforts in dealing with the ongoing pandemic and potential future crises, both in Africa and worldwide.

into disarray, and true outcomes will only be realized later because there have been very little data collected in terms of how COVID-19 has affected patients with cancer.

METHODS

This paper describes the experiences of 15 clinicians working in six cancer centers in different African regions during the COVID-19 crisis.

RESULTS

Impact and Experience from Different Regions

Eastern region. The number of COVID-19 cases and impact vary across African countries and regions.⁵ The Eastern region has the third highest number of cases in Africa (of five regions). The pandemic arrived at a time when they were trying to survive a raging famine that the United Nations warned would be exacerbated by COVID-19 restrictions. At the start of the pandemic, countries like Sudan reportedly had only four ventilators available for a population of more than 11 million,⁶ highlighting the challenges of weak healthcare systems.

Kenya's index case was diagnosed on March 15, 2020. Since then, Kenya has reported more than 38,000 cases by October 2020. Kenya is leading in the number of COVID cases in the Eastern Region, with the majority of cases occurring in Nairobi, Mombasa, and the border towns of Busia and Mandera.⁷ Early in the pandemic, the Kenyan government imposed travel restrictions to and from the most affected countries, closed schools, limited numbers in public gatherings, and enacted night curfews to try to control the spread of the virus. This negatively affected access to Oncology care, and in particular radiotherapy, as Kenya's currently functional radiotherapy centers (one public and five private) are all located in Nairobi. Many of the level V hospitals in the country already have existing chemotherapy units. The COVID-19 pandemic prompted many of the chemotherapy centers located outside Nairobi to either close or reduce staffing, causing disruptions in

cancer care and later, an influx of patients with cancer to Kenyatta National Hospital once the travel restrictions were lifted. This has resulted in an increased daily clinic load of 250 patients with cancer (follow-ups, new patients, chemotherapy patients, and radiotherapy patients), compared with the 100-120 daily patients in the pre-COVID-19 era.

Because of insufficient quantities of the COVID-19 testing kits in Kenya, testing is mainly limited to symptomatic patients and occasional community-based testing is performed in suspected hot spots to try to quantify the amount of infections in the community. There is currently a dearth of data on cancer and COVID-19 because of the lack of electronic medical records and active surveillance. As of early August, three³ COVID-19-related cancer deaths were reported among patients with cancer through passive surveillance from 11 infected patients with cancer. At the time of this report, screening for COVID-19 infection among patients with cancer is carried out in only one center. No screening is being done at Kenyatta National Hospital, which has the highest volume of patients with cancer. The Ministry of Health estimates that up to 90% of COVID-19-positive patients in the country are asymptomatic.

Meanwhile, in neighboring Tanzania, by the end of July 2020, 509 confirmed COVID-19 cases and 21 deaths from the virus had been registered, according to the Africa Centres for Disease Control and Prevention. In April 2020, the United States embassy in Dar es Salaam sent out an alert warning that the risk of contracting COVID-19 in Dar es Salaam was extremely high, but up to now all evidence points to no exponential growth of the epidemic in Dar and other locations in Tanzania. Reporting of cases of COVID-19 was stopped in Tanzania on April 29 with 509 infections at the time, and recently, the President of the country has declared the pandemic in Tanzania officially over. Tanzanians have resumed normal lives without even having to wear facemasks, there is no lockdown, and Tanzania airspace has been opened for international flights. With this

background information, it is therefore no wonder that there is little or no data in Tanzania in terms of how COVID-19 has affected patients with cancer up to now.

Western region. The Western Region of Africa has the fourth highest number of COVID-19 cases but includes some of the poorest countries, rendering them unable to quickly scale up an epidemic response.⁸ One country in this region is Nigeria, Africa's most populous country. The first case of COVID-19 in Nigeria was confirmed on February 27, 2020, in Lagos State. On March 23, 2020, Nigeria recorded its first death from COVID-19.⁹ Patients with cancer have been classified under the high susceptibility group with potentially worse outcome during the pandemic.

The initial reaction to the pandemic in Nigeria was that of uncertainty, especially with respect to cancer treatment. The nation, like other countries globally, was ill prepared for the pandemic, and cancer care has been greatly affected. There have been fears of patients with cancer being infected from health facilities and healthcare workers getting infected from the patients. The initial reaction was that of scaling down movement and service delivery across the board, and cancer care was among them. In some institutions, there was outright suspension of cancer care services.¹⁰ The situation has improved with increasing awareness. As of now, more patients with cancer are being treated.

There is a paucity of data on the number of cancer patients with COVID-19 infection in Nigeria, however. Limited reports from mass media and communication with colleagues identified five cases so far, in addition to the first death reported above. It is believed that the picture in Nigeria is similar to the iceberg phenomenon because testing is quite low and is limited to those with COVID-19 symptoms who meet certain criteria, such as a history of contact with a COVID-19 infected person.

Patients on palliative care have also been greatly affected because of a few identified barriers that include challenges with movement occasioned by the nationwide lockdown and/or curfew. Procurement of essential medications and supplies was also affected as a result of restriction with movement. Other factors are poor financial support, the fear of contracting the virus from healthcare workers, and the reduced number of healthcare workers on duty because of rostering in an attempt to reduce risk of exposure to the healthcare workers.¹¹

Meanwhile, Ghana, with a population of 31.13 million, has the fifth highest number of cases in African countries. As of August 10, 2020, there were 41,212 COVID-19 cases, 215 deaths, and 2,270 active cases. With a testing capacity of 13,346 tests/million, it is heralded as the second best in Africa. All health institutions are mandated to abide by government hygienic protocols and triaging of suspected cases. Even with these relatively low figures, breast cancer screening, colonoscopies, cervical cancer screening,

diagnostic services, and cancer surgery continue to be affected negatively. Tertiary and academic cancer care is bearing the brunt compared with private and regional centers. During the 3-week lockdown in 2020, only a few cancer cases were treated with radiation therapy. Outside of the lockdown period, radiation therapy and systemic therapy services gradually normalized. There was, however, a general decline in the number of patients with cancer by at least 25%.

Ghana has a high out-of-pocket payment for indirect healthcare services, and this could compound financial distress, which has worsened due to loss of income secondary to a stall in economic activities, thus resulting in vulnerable patients not seeking care.^{8,12} Workforce shortages, in an already strained Oncology specialty in Ghana as a result of shift services, increase burnout and risk of a total shutdown of services. Radiation therapy hypofractionation is prioritized over longer fractions if outcomes are equivalent based on current evidence. Because of surgical delays, there is increased demand for neoadjuvant therapy to reduce disease progression during the wait period with some patients avoiding upfront surgery and palliative chemotherapy. Patients and healthcare workers are not routinely tested, which has pros and cons. There are currently no data on the number of patients with cancer and staff infected by COVID-19. Supply chain disruption for personal protective equipment is the biggest challenge affecting staff morale despite the Government's special incentives for health workers. Previous gains in cancer control are expected to erode with a resultant increase in advanced cases at presentation, reduction in quality of life, and survival rates.

Central region. The Central Region of Africa has reported the lowest number of COVID-19 cases, albeit with low testing capacity and other challenges. Here, the Democratic Republic of Congo is still languorously recovering from a recalcitrant Ebola virus epidemic.⁶ Other countries like Central African Republic and Cameroon are dealing with challenges related to internal political conflicts. The first case of COVID-19 in Cameroon was diagnosed in Yaounde, the capital, on March 6, 2020. In Mbingo Baptist Hospital, which serves patients with cancer, the first COVID-19 case was diagnosed on May 3, 2020, and the hospital has only been moderately affected by the virus, as might be expected since it is located in a rural area with poor road access. The plan for dealing with the virus included extensive education of the hospital staff, instituting mandatory face masks for everyone in the hospital, and encouraging handwashing by placing handwashing facilities and alcohol hand sanitizers in multiple sites around the hospital. The hospital opened an isolation ward with single bedrooms for suspected cases and an open ward for confirmed cases. A total of 64 patients have been diagnosed with COVID-19 at Mbingo. Nine have been oncology patients. Of these, unfortunately, five patients with cancer

died of 12 total deaths. Patients who died had been diagnosed with hematologic malignancies or advanced solid tumors with pulmonary involvement. The average age of those affected was 45 years.

Northern and Southern Africa. The regions in Africa with the highest COVID-19 infections are Northern (second) and Southern (first) Africa, with Egypt and South Africa having the highest number of cases, respectively. Southern African countries like Mozambique, Zimbabwe, and Malawi are also still recovering from disastrous deadly flooding because of cyclone Idai in 2019 and have severe ongoing economic challenges and political instability.

South Africa is an upper-middle-income country with a per capita gross domestic product of United States \$6,374 in US dollars in 2018 according to the World Bank. The majority of the population (approximately 85%) is dependent on a resource-constrained public health system, with only approximately 15% of the population with healthcare insurance having access to care similar to that in high-income countries. In compliance with the appeal of the WHO and the South African National Department of Health, to stop, contain, delay, and mitigate the severity of COVID-19, the various Oncology units in South Africa, both Medical and Radiation, had to amend investigations and treatments to reduce exposure of patients with cancer and staff exposure to the virus, although at the same time attempting to provide quality cancer care.¹³

The resultant reduced access to cancer care raised concerns from the Cancer Alliance, a group of 28 Cancer nongovernmental organizations. Their main concern directed to the South African Minister of Health was the negative impact of COVID-19 on cancer care, including depleted medical, nursing, and pharmaceutical staff; lack of access to healthcare facilities and medicine; and patient transport and accommodations.¹³ Major difficulties included significantly reduced medical, nursing, and pharmacy staffing because of CoV-2 infection, acquired both in healthcare facilities and in the community, and diversion of staff from Oncology Units to dedicated COVID-19 units. In addition, ongoing Oncology medicine shortages have been exacerbated by reduction of active pharmaceutical ingredient production in China, early in the pandemic, followed by reduced medicine production and export from India, the major source of Oncology medicines in South Africa. As the disease persisted and continued to spread, concern grew that people were missing life-saving vaccinations, including human papillomavirus vaccinations in schools, as well as HIV and tuberculosis treatments, because of fears of catching COVID-19 and difficulties in accessing healthcare facilities. This could also lead to other fatal outbreaks and drug-resistant infections.

Cancer healthcare professionals have had to find a delicate balance between suitable cancer care while protecting both patients and the shrinking pool of cancer manpower

because of COVID-19.¹⁴ Approaches during this period in South Africa have therefore relied on reducing the number of inpatient visits and triaging new patients by disease risk status. Cancer treatment was triaged according to the curability of the underlying disease with preference given to patients with early breast cancer, colon cancer, germ cell tumors, lymphomas, and leukemias as opposed to patients with metastatic diseases. Furthermore, many so-called elective surgeries were delayed, risking patients presenting for definitive treatment to develop more advanced disease.⁸ Additionally, limited palliative chemotherapy was given to elderly patients with comorbidities, given that this group was initially considered to be more at risk to succumb to COVID-19, although such decision making remains controversial.¹⁵ In addition, many centers are adopting hypofractionated radiotherapy regimens, especially for patients whose treatment cannot be delayed, including early breast cancer.¹⁶

In anticipation of the worst-case scenario, the South African government also tried to empower healthcare workers on the prevention, management, and control of the COVID-19 pandemic.¹⁷ Rather than face-to-face interactions, virtual meetings were encouraged, although this was often not feasible because of limited information technology capability at public healthcare facilities. Also, telecommunication and courier delivery of medicines for some stable patients were instituted, although this had limited impact on healthcare delivery.¹⁸ Importantly, personal hygiene protocols, including face masks, distancing, and handwashing or sanitization, were successfully encouraged for everyone, both in healthcare facilities and in the community.

Fortunately, the severe acute respiratory syndrome coronavirus 2 surge of July and August 2020 had diminished greatly with daily positive tests dropping to about 1,500-2,000. This resulted in a significant reduction in lockdown restrictions in the general public and in the healthcare setting, allowing patients with cancer better access to diagnosis and treatment. Unfortunately the highly contagious South African COVID-19 variant has emerged, first reported by the country's health department on December 18, 2020, which has again complicated cancer care.

DISCUSSION

The world has had to face unprecedented challenges because of the COVID-19 pandemic. There are unique challenges to Africa, however. For instance, Africa has the highest rate of HIV and tuberculosis cases in the world and also has been dealing with sporadic regional outbreaks of deadly infectious diseases, such as Ebola, and recent flooding and famine. Many parts of Africa do not have a reliable electrical grid or telephone system, and therefore, communication and Telemedicine can be difficult, although this has been improved with the proliferation of mobile telephones. Many more remote parts of the continent are inaccessible at certain times of the year because of poor roads and inclement weather. In addition, road, rail,

and air transportation is often limited and very expensive. These issues stretch already resource-constrained governments and healthcare systems in Africa. Add COVID-19 on top of that.

Despite all of this, there are obvious positives, or “silver linings,” that have come from the pandemic, as outlined above. The increasing adoption of Telemedicine is something that should continue after the pandemic eases. Furthermore, there are now opportunities for increased collaboration leveraging advanced information and communication technologies like Zoom. For Africa, which has experienced dramatic gains in information and communication technology like mobile phone use and internet in recent years, these present major avenues to increase access to health care. In education, countries are increasingly adopting online learning for clinical oncology trainees, for example, in Kenya, Nigeria, and South Africa including collaboration with faculty in other countries like the United States. Meetings and conferences that

traditionally have been done in person are now offered online, opening them up to a wider audience. Many have been forced to learn how to use these technologies and will likely continue to use these to some degree going forward. In addition, hypofractionated radiation therapy in many instances should become the standard, decreasing cost and increasing patient convenience while maintaining value in cancer care as shown in a recent study.¹⁹ Fixing infrastructure issues is a long-term challenge that COVID-19 has highlighted. We also acknowledge, despite sharing these experiences, that there is a lack of data on cancer mortality rates during the COVID-19 era, which can provide more perspective compared with prepandemic levels. However, planned future collaborations are expected to generate more data including via an online registry, leveraging information and computer technologies. In addition, the lessons learned from these experiences and the developments that have resulted will prepare the continent (and the world) for future pandemics.

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