

Cancer Care in Resource-Limited Settings: A Call for Action

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Abstract

Cancer is fast growing out of the reach of trained oncologists and other experts. It was once thought to be a problem almost exclusive to the developed world but cancer is now a leading cause of morbidity and mortality in developing (resource-limited) countries thus making it a health priority. The need to deliver cancer care in resource-limited settings is gaining urgency, with need for particular emphasis on the creation of cost-effective, rational algorithms utilizing affordable chemotherapeutics to treat curable disease. The delivery of comprehensive cancer care in resource-poor settings demands a concerted effort by a team of multidisciplinary care providers, even if they are not trained oncologists. This article seeks to highlight the challenges in managing cancers in the developing world using Nigerian Christian Hospital experience as an example. We suggest ways of improving the care of cancer patients in such settings.

Keywords: Resource limited setting; Cancer care; Chemotherapy

Introduction

Not just a rich man's disease

Cancer is a public health problem worldwide affecting all categories of persons, and not just the rich. It is the second most common cause of death in developed countries and among the three leading causes of death in developing countries. WHO reported that about 24.6 million people live with cancer worldwide [1]. Globally, 12.5% of all deaths are attributable to cancer and if the trend continues, it is estimated that by 2020, 16 million new cases will be diagnosed per annum out of which 70% will be in developing countries [2]. Cancer is the leading cause of death in economically developed countries and the second leading cause of death in developing countries. Parkin and Sanghvi [3] reported that in indigenous Africans, 650,000 people of estimated 965 million are diagnosed of cancer annually and lifetime risk of dying from cancer in African women is 2 times higher than in developed countries. The burden of cancer is increasing in economically developing countries as a result of population aging and growth as well as, increasingly, an adoption of cancer-associated lifestyle choices including smoking, physical inactivity, and diets. According to Farmer et al. [4], the rising proportion of cases in these countries is caused by population growth and aging, combined with reduced mortality from infectious disease and malnutrition.

Although the developing world accounts for about 60% of world cancer burden, they have less than 5% of the treatments available for various cancers [4]. Overall, the case fatality rate from cancer (calculated as an approximation from the ratio of incidence to mortality in a specific year) (Figure 1) is estimated to be 75% in countries of low income, 72% in countries of low-middle income, 64% in countries of high-middle income, and 46% in countries of high income [5]. This clearly marks cancer as a disease of all, especially the poor. Unfortunately, many people in developing countries like Nigeria are still unaware of the danger that lurks in their bodies [6].

Challenges of cancer care in resource-limited settings

One of the primary challenges is lack of awareness of the disease spectrum [6-8]. Many patients present with cancer in stages where the 'oncologist' is almost helpless. The experience in Nigerian Christian Hospital, for instance, is that more than 80% of the breast cancer cases present with stage 3 diseases or more. Such negligence, fuelled

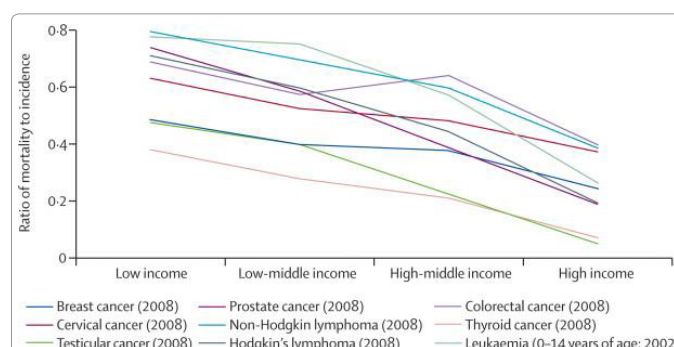


Figure 1: Ratio of mortality to incidence in a year by cancer type and country income. Case fatality (calculated by approximation from the ratio of mortality to incidence in a specific year) is much lower in high-income countries than in low-income countries for cancers that are treatable, such as childhood leukaemia (0.26 vs 0.78) and testicular cancer (0.05 vs 0.47), treatable if detected early, such as breast cancer (0.24 vs 0.48), or preventable, such as cervical cancer (0.37 vs 0.63). Estimates are based on International Agency for Research on Cancer GLOBOCAN data for 2002 and 2008 (<http://globocan.iarc.fr>) [3].

by ignorance, poses a challenge in terms of deciding appropriate (if any) treatment model that can reduce morbidity and increase life expectancy. Besides the delay in presentation, patients in resource-poor settings face a delay in making a diagnosis. This delay can be caused by unsuspecting clinicians, or more commonly, the lack of diagnostic tools/tests. Although clinical examination remains an important tool in making early diagnosis of breast cancer, for instance, mammography can detect cancers earlier thus leading to reduced mortality [9]. However, such screening technologies are largely absent in many states in Nigeria. When a doctor goes as far as taking a biopsy of a suspicious lesion, it could take ages for the result to get to the patient. The situation

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in Nigeria is quite disappointing. Histopathological service is mostly provided in tertiary health institutions. Unfortunately, these teaching hospitals are closed much of the time due to strike action! Worse still, most doctors would prefer to ‘wait’ on the results rather than act on their clinical diagnosis. That practice is however not encouraged in Nigerian Christian Hospital [10,11].

Another challenge in delivering cancer care services in resource-poor settings is the sheer lack of treatment options. In Low- and Middle-Income Countries, access to cancer care is often poor. Although the developing world accounts for about 60% of world cancer burden, they have less than 5% of the therapies available for various cancers [3]. A 2001 country-level survey by the World Health Organization found only 22% of African countries reported availability of anti-cancer drugs, 43% in the South East Asia region and 57% in the Americas[11] (Figure 2). Where one finds the drugs, they are very expensive. Typically, breast cancer patients in Nigerian Christian Hospital spend at least N15, 000 (\$100 USD) to procure drugs for one course of chemotherapy. This is above the average income of a Nigerian earned in six months. Chances are that the drugs may be fraudulent or contaminated, as most hospital pharmacies are not able to stock them reliably or economically. In reality, a typical rural Nigerian woman, who is poor, probably widowed by HIV, with 5 children, must view a diagnosis of breast cancer as a death sentence.

Beyond access to chemotherapeutic drugs is the issue of manpower. The availability of trained human resources and physical resources are fundamental problems in cancer control among developing countries. Nigeria, with more than 140 million people, has about 15 ‘board-certified’ oncologists [12]. This underscores the need for more primary care doctors to acquire knowledge and skills that would improve access to cancer care. In Nigerian Christian Hospital [10], oncology service is delivered by medical doctors and nurses with basic qualifications, ably supported by a network of oncologists in USA and Canada. A comparison published in Tanzania [13] produced striking revelations. Resources to manage this significant burden of cancer are limited. For example, nation-wide, there is 1 medical oncologist, 4 radiation oncologists, 2 physicists and an estimated 7 pathologists. No surgeon’s practice is dedicated solely to oncology. These human resources are extremely limited compared to actual need. For perspective, in Canada, a radiation oncologist would typically see 250 new patients per year. Given that at least half of East African cancer patients will need

radiation by one conservative estimate, if each Tanzanian radiation oncologist saw 250 new patients per year, the number of radiation oncologists actually available in Tanzania would be obviously and dramatically below the estimated need. This matches and underscores the picture in most African countries. In our context, there is no functional radiotherapy machine within a 200 mile radius from Nigerian Christian Hospital. Thus patients needing this service often have to make a day-long journey to Zaria (northern Nigeria) to get ‘booked’ so they can possibly get radiotherapy on a later date, if the machine does not break down.

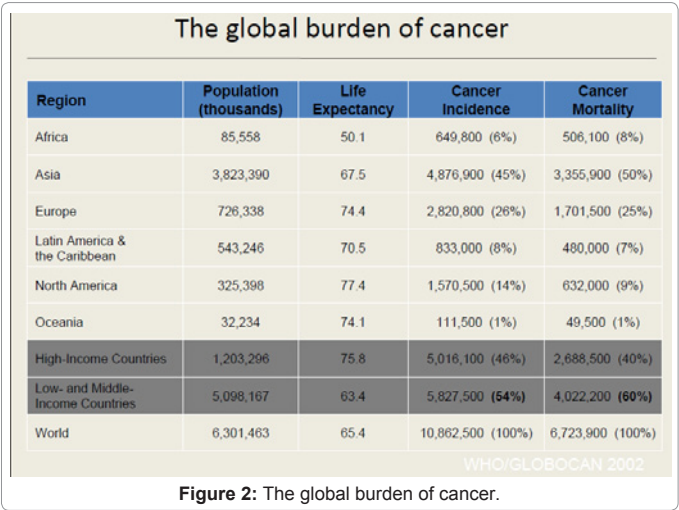
Most importantly, there is a dearth of political will or national policy on cancer care. In Nigeria, as in many other resource-limited countries, there is no policy or action plan regarding cancer care [14]. This is despite the backdrop of rising cancer-related morbidity and mortality. Notably too, cancer care is excluded in the National Health Insurance Scheme (NHIS) in Nigeria and Ghana [15-17]. Perhaps, the developing countries are not isolated in attaching less priority to this malady: cancer is notably absent from the global health agenda, including key global health targets such as the Millennium Development Goals (MDGs). Thus, there is the urgent need to prioritize cancer care in developing countries, in terms of accessibility, acceptability, affordability and accommodation of new cases.

Solutions to the myriad of problems

Clearly, investment in health care systems in developing countries is required. For oncology, this includes developing a sustainable supply of trained oncology professionals, expanding the supply of treatment modalities, improving drug supply, physical infrastructure and organizational infrastructure for cancer control [13]. In the first instance, there is need for prevention, early diagnosis and treatment of cancers. Unfortunately in most resource-limited countries, major risk factors such as smoking continue to rise while awareness of the importance of screening and early detection is low. There is widespread stigma associated with cancer and the financial barriers of poverty prevent many people from seeking preventive services or care at early stages. Strong emphasis should be placed on prevention of cancers. Effective tobacco control and provision of HPV immunization would dramatically reduce the burden of lung and cervical cancers, respectively. Working with local NGOs, Nigerian Christian Hospital has continued to support effort that take breast cancer and HIV awareness programs to the grassroots. Although this has resulted in more rural women learning about breast self examination there is urgent need to scale up the prevention service.

After prevention the next priority is early diagnosis. We must overcome the challenges of poor knowledge, pessimistic attitudes and counterproductive healthcare practices of the average person in resource-limited countries [6-8]. It will be very important to invest in education and advocacy to combat existing misconceptions and the stigma associated with cancer. There is a need to improve diet and nutrition, to reduce environmental risks, to promote healthy lifestyles and to increase screening and vaccination against cancer-causing infections (HPV and hepatitis B virus). Using the Nigerian Christian Hospital model, many rural health facilities can conduct periodic, charitable screenings for breast cancer. Efforts are currently being intensified to introduce cervical cancer screening at the hospital.

It is equally important to scale up the capacity to diagnose cancers histologically. One approach is to equip more hospitals with facilities to analyze biopsy specimens, but this will require training of more



pathologists. In the interim, it will be necessary to form collaborations between hospitals and experts in developing and developed countries in the form of *telepathology*. Farmer et al. [4] have shown that it is possible that laboratory technicians in resource-limited settings can be trained to prepare slides and take photographs through a microscope. Such pictures will be analyzed by pathologists in developed countries and diagnosis made within a short time. This approach will definitely reduce the turn-around time in cancer diagnosis while improving the quality of service patients receive. However, for this to work in a place like Nigerian Christian Hospital, it will be important to provide basic equipment as well as reliable internet connection.

Manpower needs must also be addressed in order to scale-up cancer care. Although it is important to train more oncologists to lead the battle against cancer, it is equally crucial to empower more primary care doctors/generalists to 'hold the fort'. All levels of cancer care need to be accessible at the community level, including prevention, screening and chemotherapy. However, there is a paucity of knowledge on various chemotherapy protocols. In a bid to tackle this, Nigerian Christian Hospital, through its global network, has developed a Manual of Cancer Chemotherapy for Resource-Limited Settings [10]. Such effort, if implemented at the regional and national level will positively improve cancer care in the developing world. Preliminary success from our modest effort in empowering generalists in cancer care clearly debunk the belief that safe and effective cancer treatment is rendered impossible in many poor countries by the shortage or absence of oncology specialists and facilities, treatment guidelines, and regulatory mechanisms. In order to widen the scope of the project at Nigerian Christian Hospital (NCH), copies of the manual are being distributed at no cost to primary care physicians around southern Nigeria. Efforts have also been made to start a periodic cancer round-table called NCH Oncology Group (N-CHOG). This group is intended to coordinate cancer diagnosis and treatment in the locality of the hospital.

Equally important is access to treatment modalities. Although resources are lean in developing countries, cancer treatment does not have to cost a fortune to be effective. According to Farmer et al. [4], "low-cost and effective treatment options are available for several malignancies, including cervical, breast, and testicular cancer, and childhood leukemia." Unfortunately, these interventions for early detection and treatment remain inaccessible for many people in developing countries. Many of the cancers that pose the greatest burden in developing countries are amenable to treatment with drugs of proven effectiveness that are off-patent and can be marketed generically at affordable prices. These drugs should be a focus of cancer treatment programmes, rather than expensive on-patent drugs. The global community should empower poorer countries to manufacture generic antineoplastic agents. Just like in HIV care, such policy would reduce the cost of cancer care drastically.

Another strategy that has worked in cancer care in Nigerian Christian Hospital is international collaboration. Since it is obvious that the battle against cancer cannot be left for the tertiary health facilities alone, we have formed key collaborations that enable the hospital offer similar services. Surgical cancer treatment is now obtainable through strong partnership with Earth wide Surgical Foundation. Collaboration with Brigham and Women's Hospital through Earth wide Surgical Foundation has improved our pathological services to world class standard. Specimens are analyzed periodically at this hospital for our patients. Supported by our network of oncologists around North America and Europe, we have been able to provide comprehensive

cancer chemotherapy service to patients with a variety of treatable malignancies including breast, cervical, rectal, endometrial, head and neck cancers, Hodgkin and non-Hodgkin lymphoma, and Kaposi sarcoma. This approach is similar to the scenario in Rwanda and Haiti, through a partnership of Partners in Health and the Dana-Farber Cancer Institute, Harvard Medical School, and Brigham and Women's Hospital [4].

Lastly, it is extremely important to form a concise national policy on cancer in resource-limited settings. This would make cancer a priority disease, and would ensure adequate resource allocation for its control. Putting cancer care on the National health insurance plan, just like in Mexico and Jordan [4] would have a huge impact. Donor support for cancer care needs to be strengthened, as has been done with HIV/AIDS, tuberculosis and malaria. Only a national action plan on cancer will ensure the deployment of appropriate tools such as cancer registry, training programs and research.

Conclusion

The time has come to challenge and disprove the widespread assumption that cancer will remain untreated in poor countries. Against the earlier notion of cancer as a rich-man's disease, there is a rising epidemic in low and middle income countries. It is our proposal that cancer care can and should be made accessible, available, affordable and feasible in most communities in resource-limited settings. Although, traditionally, the war against cancer has been left for trained oncologists and related professionals, practical experience in Nigerian Christian Hospital has shown that primary care doctors can be empowered to administer effective chemotherapy for a variety of cancers. Only a concerted effort against cancer, under a national cancer policy can sustain this small success at a rural Nigerian hospital for the poor.

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