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Mini Review

Breast Cancer: Global Health Perspectives with an Insight on Low-and Middle-Income Countries

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Abstract

Globally, breast cancer is the leading cause of malignancy and cancer-related deaths. Its ill health burden is particularly worrisome in low-and middle-income countries. In this article we discuss the global health burden posed by breast cancer, as well as in low- and middle-income countries where the impact is more felt. The overall aim being to draw recommendations to curb the burden of breast cancer at a global health scene.

Keywords: Breast Cancer; low- and middle-income

Introduction

Global health perspectives on breast Cancer

Worldwide, breast cancer (BC) is the most prevalent female malignancy and the leading cause of cancer related-death in females, with about 1.67 million annual new cases and 500000 deaths each year [1]. BC disproportionately affects low-and middle-income countries (LMIC) which account for 69% of the global BC patient population [2]. Reduction in mortality from BC depends to a large extent on interventions aimed at early detection and treatment, including breast self-examination, clinical breast assessment, and mammography [3–5]. Despite global emphasis on screening methods and recent diagnostic innovations for BC, its mortality rate remains higher in LMIC because diagnosis is often made at an advanced cancer stage [6]. Between 70 – 90% BC patients are diagnosed at early stages (TNM stage I and II) in high-income countries (HIC) compared to 20 – 60% diagnosed timely in LMIC [6–8]. Reasons for this late diagnoses in LMIC are numerous [6]. Findings from HIC suggest a correlation between advanced BC and delays greater than three months between symptom discovery and initiation of treatment [9,10]. Likewise, there is also a correlation between delays greater than three months and reduced survival [10,11]. Thus, clinical stage at BC diagnosis is a recognized independent determinant of survival [4,6,12,13] but are hindered by many factors [14]. Barriers to BC early diagnosis and treatment have been identified in a variety of populations [15,16] and grouped under three main categories: personal, economic, and healthcare service barriers [16,17]. Prominent among these is the economic reason, as the poor are generally medically underserved and thus are less likely to have recommended cancer screening tests than those who are medically well served. They are thus more likely to be diagnosed with late-stage cancer that might have been treated more effectively if diagnosed earlier [18]. Globally, strategies to curb BC-related morbidity and mortality should focus on all these aforementioned three barriers.

Breast Cancer in low- and middle-income countries: the case study of Cameroon

Cameroon is a LMIC located in sub-Saharan Africa, precisely in central Africa within the Gulf of Guinea. The population of Cameroon is estimated at 24.68 million [19]. In Cameroon, BC occurs at a crude annual incidence of 19.3 per 100,000 women and accounts for 10.7 deaths per 100,000 women each year [20,21]. This reflects its public health burden in the nation. According to a multicenter study carried out on almost 5000 Cameroonians with new malignancies, BC was the leading cause of cancers, followed by cervical cancer, malignant lymphoma, prostate cancer, kaposi sarcoma, hepatocellular cancer and colorectal cancer, occurring at prevalence rates of 18.5%, 13.5%, 11.9%, 7.3%, 6.9%, and 2.9%, respectively [22]. As seen in other LMICs, BC in Cameroon has the peculiarity of an aggressive natural history and predilection for women aged above 50 years, and those consuming red meat more than three times per week compared to HIC [22–25].

Unpublished data from the Ministry of Public Health and National Committee for Fight against Cancer suggest that the case management of cancer is quite challenging in Cameroon. Currently, Cameroon has two private and four government hospitals for cancer treatment. These five hospitals are the Yaoundé General Hospital, the Douala General Hospital, the Chantal Biya's Foundation Mother and Child Health Centre of Yaoundé, the Bonassama District Hospital of Douala, the Saint Martin de Porres Hospital of Yaoundé, and the Mbingo Annex Hospital of Douala all situated in in the metropolitan cities of Yaoundé or Douala. Hence, patients with BC living in rural areas find it difficult travelling long distances to these towns for treatment. This leads to either late presentation of patients with advanced BC stages or noncompliance to treatment with resultant loss to follow-up of the patients [26]. In addition to the obstacles to timely presentation of BC patients in Cameroon, there are patient-related barriers (85.7% of Cameroonian patients with advanced BC neglect their initial signs [breast lump and breast discharge], 76% do not perform breast self-examination because of lack of knowledge in this regard, 66% seek a traditional healer or religious person for first-line of treatment) and healthcare system barriers (75% do not seek care because of financial constraints, 33% are initially misdiagnosed, and only correctly diagnosed at a mean duration [standard deviation] of 12.3 [11] months between their first ever consultation and the diagnosis of BC). The last healthcare system obstacle is a mean (standard deviation) delay of 12 (9) weeks between diagnosis of BC and initiation of treatment [26].

Concerning the diagnosis of BC in Cameroon, the country still faces challenges because healthcare providers have inadequate knowledge to timely identify BC cases [26]. This further increases the number of BC patients diagnosed and referred at terminal stages to oncology centers or specialists for care [26]. It is worth to mention that sophisticated imaging studies like CT-scans, magnetic resonance imagings, and scintigraphies required for BC diagnosis are unfortunately scarce [26,27]. Moreover, their relative high cost makes them financially unaffordable to most Cameroonians [26]. This often delays BC diagnosis and care, hence, worsening the prognosis of affected patients. As the definitive diagnosis of BC relies on histopathology tests, BC patients need to undergo histological analysis for appropriate cancer diagnosis [26]. Challenges to the realization of the histology test of the breast are three-fold: (a) 14 to 21 days delays in rendering their results; (b) the relative high cost histopathology examinations; (c) the unavailability of some reagents for accurate techniques of analysis such as immunohistochemistry and immunofixation [26]. With regards to BC treatment, prompt management is required for a good treatment outcome. The treatment of BC involves different therapeutic modalities that can be in isolation or in combination. These include; chemotherapy, radiotherapy, hormonal therapy, surgery, and targeted therapies. Currently, radiotherapy is only available at the Douala General Hospital. As such, all BC patients in Cameroon in need of radiotherapy are either compelled to travel to Douala or overseas for those who can afford. With regards to human resources, Cameroon has less than 10 medical oncologists and a paucity of oncological surgeons whereas there is a rising demand for chemotherapy and mastectomy [26]. Furthermore, anti-mitotics and hormone therapy drugs are available only in the cities of Yaoundé and Douala at a high cost for the average Cameroonian. This often results in loss to follow-up of patients and recrudescence of BC when they are re-seen in our health facilities [26]. Indeed, the diagnosis of BC and its management have a high cost and more so in the context of a health system that is under-staffed, under-skilled and lacks adequate infrastructure for proper oncology care.

Conclusion

Breast cancer is a global public health threat and the most frequent malignancy worldwide. Interventions to curb the global burden of BC should focus on the aforementioned personal, eco-

nomic, and healthcare service barriers. Meanwhile, the challenges to the diagnosis and management of BC in LMICs can be resolved if the following population centred raising awareness interventions and healthcare system strenthening strategies are put in place. On the one hand, popolation centred raising awaireness interventions include health promotion and education activities on regular self-breast examinations and timely hospital presentations of BC patients may help to decrease the incidence of patients presenting with advanced breast malignancy. Furthermore, red meat should be consumed less than three times per week. On the otherhand, healthcare system strenthening strategies should entail early screening of BC risk factors before the age of 50 years. Moreover, there is an urgent need to train more medical doctors in medical and surgical oncology, as well as there is a need to build more specialized BC treatment centers with optimal diagnostic and therapeutic infrastructures in both rural and urban settings of LMICs like Cameroon in order to palliate the problems of physical inaccessibility, non-adherence to treatment, loss to follow-up and misdiagnoses of this malignancy in LMICs whch are already burdenend by a high morbidity and mortality related to BC. Lastly, the adoption of a universal access to health in LMICs may go a long way to improve on the early diagnosis and prompt management of BC patients.

Competing Interests

The authors declare that they have no competing interests.

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