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Epidemiology of breast Cancer in Africa: Incidence, Prevalence and Dermographic Variables

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Abstract

Breast cancer is the most frequent form of cancer in women and the most common cancer in women overall. Every year, more than one million women are diagnosed with breast cancer. Worldwide, breast cancer is a leading cause of cancer-related mortality in women, and this is no exception among Nigerian women. However, in most African countries, there is a lack of information about the prevalence of breast cancer in females. Breast cancer incidence is thought to be influenced by a number of demographic factors. Among them are factors such as age, marital status, sex, age at menarche, age at first full-term pregnancy, parity, breastfeeding, age at menopause, obesity, and level of physical activity, to name just a few of the most important.. It was decided to carry out a comprehensive search of the internet, including Medline, EMBASE, Global Health, and African Journals Online (AJOL). In addition, the analysis incorporated breast cancer registry studies undertaken in Africa, which provided estimates of the crude incidence of breast cancer among women in the community. In Africa, the evidence points to an increasing prevalence of breast cancer.

Keywords: Epidemiology, Breast cancer, Africa

Introduction

Among women of all ages, breast cancer is the most common tumor found in the breast. Women around the world are most likely to be diagnosed with breast cancer than any other type, according to Lescynska (2014). Every year, around one million new cases of breast cancer are diagnosed in women around the world, according to the report. Approximately one in eight women born today will be diagnosed with breast cancer, according to the American Cancer Society (ACS) and the National Cancer Institute. This is a significant improvement when compared to 1977, when only one out of every fourteen women was affected (George, 2016) ^[24]. Worldwide, female breast cancer is a leading cause of death for women, but in Nigeria, it is particularly widespread. Among women worldwide and in Nigeria, breast cancer is the second-leading cause of cancer death, according to Adebamowo and Ajayi (2018) ^[2].

Objectives of the Paper

This paper review seeks to explore the epidemiology of breast cancer in Africa, incidence, prevalence and the demographic variables influencing the epidemiology of breast cancer in Africa.

Concept of Breast cancer

Those tumors that arise in the breast tissue are referred to as "breast cancer." As far back as 2007, the American Cancer Society issued a warning about an increase in breast cancer incidences. Milk ducts and lobules are the most common sites of breast cancer, according to Hayes (2017) ^[27]. Mammary duct and lobule tumors (the tissues that supply breast tissue with milk) are the most common sites for this type of cancer, according to Sariego (2016) ^[59]. The American Cancer Society (2013) defines breast cancer as a tumor in breast tissue. Malignant tumors are tumors that are capable of spreading to other parts of the body or

invading nearby tissues (metastasize). It's possible that breast cancer will spread to cells in other places of the body.

Incidence of Breast Cancer in Africa

Women in West Africa died from breast cancer at a rate of more than 16,000 per year in 2008. Approximately 18000 new cases and 10,000 deaths were reported in Eastern Africa in 2017 (Kohler, 2017) ^[36]. Infection rates in Western Europe are five times higher than in West Africa. Breast cancer claimed the lives of approximately forty thousand persons in 2008. (Grover, 2017) ^[26] As a result of the findings of this study, the number of African women diagnosed with breast cancer has increased. In Uganda, the AAPC rate was 4.5% in 2006, whereas in Harare, Zimbabwe, the AAPC rate was 4.9% during the same time period (1991-2006). Women who are 60 years and above are likely to see an increase in incidence of breast cancer every year (Clegg 2017) ^[15]. Women under 60 have, nevertheless, gradually increased their share of the population since 1970. Breast cancer is more common in women under the age of 55 in Western Africa (Bamako [Mali] and The Gambia) than in women over the age of 55, according to a previous study. Between 1992 and 2011, the breast cancer incidence rate for white non-Hispanic women remained stable, whereas the rates for black and Asian/Pacific women rose by 0.2% and 0.6%, respectively. (Clegg, 2017) ^[15].

There has been an increase in the occurrence of breast cancer in Sub-Saharan Africa since the "Westernization" of lifestyles has led to changes in reproductive patterns (later ages for the first births, fewer children, shorter breastfeeding durations) and nutrition and alcohol intake. The use of skin lighteners and hormone modulators in cosmetics and hair care products is more common among African-American women.

As a result of this, the prevalence of breast cancer in Sub-Saharan Africa varies substantially between countries and areas. Eastern Africa had a rate of 29.9 per 10 person-years of breast cancer, while Middle Africa had a rate of 27.9, Southern Africa had a rate of 46.2, and Western Africa had a rate of 37.3. Since the early 1960s, the International Agency for Research on Cancer (IARC) has been publishing reports on cancer. Consequently, only 46 countries from the Southern African Development Community (SADC) may be found in these periodicals. As a result, the long-term cancer patterns in other African countries are not recorded (Grover, 2017) ^[26]. Growing populations demand new studies because of the long-term effects on future generations as well as changes that affect people of all ages at once. A better cancer registry or new diagnostic capabilities could be to blame. (Grover, 2017) ^[26]

Prevalence of Breast Cancer in Africa

We don't have any data on the prevalence of breast cancer among African women. More than one countries does not have a national register for cancer. 2014 was a significant year in the history of the organization (Mutebi 2014) ^[47]. Cameroon and the Central African Republic have breast cancer prevalence rates of 5.8 and 15.27 percent, according to the few studies. It is estimated that 30/100,000 people in SSA have HIV-positive breast cancer, according to Surbhi (2016) ^[61].

Women with HIV are more likely to develop breast cancer, which is linked to an increased death and morbidity rate Enow (2012) ^[20].

There is a 70.2% greater age-standardized risk of breast cancer in Central African women (11.3/100,000) than in South African women (70.2/100,000). By 2050, there will be three times as many African women diagnosed with breast cancer. Omaka (2015) ^[49]. A large percentage of breast cancer cases are never discovered in the early stages in countries like the Central African Republic (CAR), Cameroon, Malawi, and South Africa. According to Kohler (2017) ^[36], wealth inequality, access to high-quality healthcare, and fair educational opportunity are all issues in 2017. Unexpectedly few well-educated women go to the doctor. Data on breast cancer prevalence in Africa is lacking, and this is a big problem. When compared to industrialized countries, the incidence and mortality rates of breast cancer in Africa are higher than in developed countries.

The incidence of breast cancer in Africa will double by 2050, according to the Breast Cancer Update in Africa. HIV prevalence in Zimbabwe is estimated to be 4.5 percent, based on a study conducted between 1991 and 2010. Three out of every four women in South Africa, West Africa, and Central Africa are infected with HIV with a prevalence rate of 268. Shulman Sheldon, in his own words: (2016). Research has linked breast cancer to a variety of risk factors. Breast cancer risk has been linked to a variety of factors, including obesity, hormone imbalances, a personal or family history of the disease, and a sedentary way of life. Health education can help people stop using tobacco and alcohol (Mutebi, 2014, GLOBOCAN, 2018; Thomas, 2017) ^[47, 25, 63].

Demographic Variations on the Epidemiology of Breast Cancer in Africa

From their early twenties through their fifties and sixties, women's breast cancer risk steadily rises. There is a tendency for this to occur in every population that has sufficient data for analysis in the field of breast cancer diagnosis, according to Thomas (2016). Being aware of breast cancer risk factors is essential because they vary based on one's gender and the age at which one reaches menopause. Obesity and inactivity are other well-known danger factors, because of these variables, breast cancer is expected to rise in Africa (Reddy, 2017). As a result of better diet and less physical activity, women are living longer and experiencing their periods earlier. Due to their education and modern lifestyle choices, many African women are delaying their first full-term pregnancy, which diminishes breastfeeding during the lifetime of a child. The 95 percent confidence interval for African women's breast cancer risk is between 1.01 and 0.08. 2.67 (95 percent confidence interval: 1.05 to 6.80). Between 1940 and 1960, the average number of children per mother dropped from six to four, and the breastfeeding period shrank from 120 months to 60 months as a result of this shift in behavior (Balekouzoum, 2016). A rise in breast cancer incidence is expected despite the fact that these parameters are still far from meeting Western estimations, because further alterations are expected.

Recent studies have linked breast cancer incidence and prevalence to a variety of socioeconomic factors (Omolase, 2018; Awodele, Adeyomoye, & Oreagba, 2019; Dunn & Tan, 2017; Rasu, Rianon & Shahidullah, 2017) ^[50, 19, 56]. According to recent research, including those by Olasupo Omolase in 2018, and Oreagba in 2019, Dunn and Tan in 2018, Omolase in 2018, and Rasu Rianon and Shahidullah, all of whom were published in 2019, there is a growing body of evidence to support this claim. A woman's age, education, family history

of breast cancer, lack of symptoms, and fear of a breast cancer diagnosis all influence her comprehension and practice of breast cancer screening methods, according to Mehmoosh *et al.* (2012) ^[44], Irurhe *et al.* (2013) ^[29], and Al-Naggar *et al.* (2014). A woman's ethnicity, marital status, level of physical activity, level of cancer education, and belief that early detection increases her chances of survival are all critical factors in her breast self-examination.

According to statistics, there may be a correlation between age and knowledge of breast cancer. Breast cancer awareness is higher among women over the age of 50, according to a new study. As a result, older women who believe they have a high risk of developing breast cancer seek out information, but younger women assume it will not effect them and do not bother to learn more about it. Young women may avoid self-examinations of their breasts because of the low likelihood they would be diagnosed with breast cancer, according to a new study. Because they believe breast cancer only affects older women, many women in their late 20s and early 30s don't bother to learn about it or perform regular self-examinations of their breasts. This is one of the key reasons that young women do not believe they are at risk for breast cancer that they lack information and comprehension of breast cancer. Breast cancer detection methods by Johnson and Dickson-Swifta (2018) ^[31] found considerable differences in public perceptions of breast cancer risk and its implications for education and awareness initiatives. – Self-examination for breast cancer is more common among women over the age of 50 who believe they are at greater risk. It is often too late for many women who are in their 40s or 50s to discover that they have an elevated risk of breast cancer. Breast cancer education isn't a high priority because it isn't considered necessary to do so frequently. If people aren't aware of their risk factors for breast cancer, early detection measures like breast self-examination can help discover the disease before it has progressed to other parts of the body. Breast self-examination was more common in older women than in younger women, according to Similey, Mcmillan, Johnson, and Ojeda (2016) ^[43] and Petro-Naustas (2016) ^[53]. Australian researchers have revealed that young Australian women aren't concerned about their risk of developing breast cancer, and so aren't willing to take any proactive steps toward early detection (Johnson & Dickson-Swifta, 2018) ^[31]. The number of women over the age of 50 who have been diagnosed with breast cancer has increased significantly in recent years, according to new data.

According to Milaat, women who are married and have children are more aware of breast cancer (2000). According to Champion, women who have had positive interactions with healthcare practitioners are more inclined to use breast cancer screening procedures (2014). Women who are married are more aware of breast cancer, according to Dundar (2016). The number of married women who become pregnant and end up in the hospital is steadily rising. As a result, married women are more likely to seek out health care and talk with health care professionals about their own health concerns. Women who are married are more likely than single women to perform breast self-examinations because of the pressure from their male partners and the importance of their own health and that of their children's health and life duration (Macheneri 2012) ^[42]. Research shows that if a close relative develops breast cancer, one's understanding of the condition is likely to increase. If a close family member has been diagnosed with breast cancer, Baum believes that women

who know about the condition and are screened for it are more likely to learn about it (2017). Phillips and Wilbur (2015) ^[54], Juon, Seo, Kim (2016) ^[32], and Legg, Fauber, Ozcan (2017) ^[39] found that women with a family history of breast cancer have a decreased risk of developing the disease if they regularly self-examine their breasts. A woman who has a family history of breast cancer may need to be extra cautious when it comes to her own health. It is more common for women with no family history of breast cancer to be unaware of the disease than women with a diagnosed relative. Because breast cancer is a deadly disease, more women are performing regular self-examinations to look for it. To put it another way, if your mother or grandmother had breast cancer, you are seven times more likely to get a mammogram. Religion has the power to impact our beliefs and actions when it comes to health care. Muchiri (2016) ^[46] thinks that religious rituals have a substantial influence on breast health practices. There are a variety of religious traditions that attribute certain illnesses to demonic activity, including spiritualists and Pentecostals. People use their confidence in God to avoid learning about probable health risks, and hence have little interest in learning about health issues on their own. When it comes to breast cancer, some Pentecostals are unwilling to learn the risks. When it comes to breast cancer, individuals who are pious and upright don't dread it. Macheneri (2012) ^[42], claims that religion has an effect on the likelihood of breast cancer as well as its significance. One group of women who refuse to learn about breast cancer is the group who believe the sickness is a punishment from God or Satan and hence will not develop into a dangerous tumor. When it comes to breast cancer, women's religious beliefs may play a role in their early detection. According to Alkansawneh, some women are afraid to inspect their breasts because religious notions consider the female body, particularly the breasts and vaginal area, a forbidden zone. These activities have sparked debate regarding the best ways to screen for breast cancer (Nalan, 2019). They are adamant that they will never be affected by breast cancer since they feel it is an evil disease. Those who feel they will never be diagnosed with breast cancer don't regard the need for a regular breast exam as essential. Breast cancer may not deter religious fanatics from taking their own lives, even if they have a long-term medical problem. Religious beliefs and practices have a significant impact on how we perceive and respond to health difficulties, according to breast cancer diagnosis approach by Phumla (2016) ^[55]. There are actual options for preventing and treating disease. The outreach and education initiatives of religious institutions frequently include health-related programs as well. Some churches offer health-related classes, including ones on breast cancer awareness. Smaller groups like Mary League Girls are being used by both Roman Catholic and Anglican churches to raise breast cancer awareness among young people, women, and the elderly. Religious health committees routinely seek medical specialists to speak to young women and girls about the dangers of breast cancer and welcome them to their meetings and activities. Breast cancer information can be found on the websites of some organizations. People who participate in these activities tend to be more health-conscious and behave better in general.

According to Phumla, many Africans place a great deal of importance on religion and going to church (2017). Various African religious organizations often share health-related information and services with one another. Women's

knowledge of breast cancer may improve if educational materials are included in religious health initiatives. For a long time, people's health-related knowledge and behavior were thought to be influenced by their religious beliefs.

Systematic review of breast Cancer in Africa

There is readily available information about the prevalence of breast cancer among African women. A complete online search was performed using the databases Medline, EMBASE, and the Global Health and African Journals Onlin. Researchers were able to determine the crude incidence of breast cancer in African women because to the incorporation of registries from African hospitals and communities. Random effect meta-analysis was used to determine the incidence of breast cancer in all studies. Over 4600 records were retrieved and 41 studies from 54 different African nations were selected for inclusion in the study. The incidence of cancer recorded by population and hospital registries differed substantially, according to new research. For every 100,000 people in the United States, there were 24.5 new cases of breast cancer each year; the 95% confidence interval (CI) is from 20.1 to 28.9 cases per 100,000 people. North Africa had 29.3 instances per 100,000 people, while SSA had 22.4 cases per 100,000 people, with a 95 percent confidence interval of (20.0-38.7). There were 23.6 cases for every 100,000 people in all of the hospital registries that were combined together (95 percent CI 18.5-28.7). According to the study, the rates of 24.0 (95 percent confidence interval 17.5-30.4) and 23.2 (95 percent confidence interval 6.6-39.7), respectively, were for SSA and Northern Africa, respectively. Between 2000 and 2015, incidence rates in both registries climbed dramatically. Breast cancer is becoming more common in Africa, according to the most recent data. Cancer registries are notoriously difficult to audit because of the wide range of quality and quantity of data they gather.

Breast cancer is the most frequent form of cancer among women, with an estimated 2 million new cases each year. By 2020, the American Cancer Society projects that there will be 325,000 new cases of breast cancer in the United States, with 42,170 people losing their lives to the disease. The majority of developing African countries have no indication that breast cancer is common. While breast cancer has a high mortality rate, this is in part due to the fact that there is a dearth of proper public health infrastructure, incomplete vital data, and a lack of timely medical care. African cancer cases are expected to rise at an unprecedented rate in the coming decades, based on population estimates. Breast cancer is detected in Central and Southern African women at a higher rate than in any other part of Africa. In the population of Sub-Saharan Africa (SSA), 22.4 new cases of breast cancer are detected per year (WHO, 2021).

Prevalence of breast cancer varies greatly amongst African regions, as indicated by the previous statistics. Despite the low rate of breast cancer in the Southern Hemisphere, the prognosis remains dismal for those who do get it. Breast cancer death rates in SSA have been linked to urbanization and economic expansion because of a lack of infrastructure, a late presentation, and a lack of financial means. Cancer reporting and registries are more widespread in North African countries than in the Southern Hemisphere (SSA). Breast cancer patients in Africa suffer a grim prognosis because of the high mortality rate (WHO, 2021).

Conclusion

According to the increasing number of publications on breast cancer that are being published each year in Africa, the disease is becoming a trendy topic. Group studies on breast cancer have mostly been the primary source for information, treatment and outcomes. African-specific concerns, such as the ages of patients and the severity of their illnesses, are rarely taken into account in clinical trials.

According to the information we have, the incidence of breast cancer is rising in Africa. Health care changes in African countries are necessary before this trend can be reversed. Data on the disease's incidence at both the general and specific hospital level, as well as attention to breast cancer cell biology and histology, are necessary for successful breast cancer preventive and treatment efforts in Africa, we believe. Breast cancer in Africa is still an urgent healthcare issue that requires immediate attention, according to the above evaluation. Increasing public awareness is essential to halting the spread of the disease and enhancing early detection and treatment efficacy.

Recommendations

1. African governments should develop effective cancer registries in hospitals, according to the study's assessment of breast cancer-related concerns. Better cancer data collection will aid epidemiological research, patient care improvements, and cancer control, all of which will reduce the number of African women dying from breast cancer.
2. A comprehensive approach is necessary in the treatment of female breast cancer. Oncologists, OB/GYN specialists, and plastic surgeons fall within this category.
3. Breast cancer surgery choices for African women should aim towards a less invasive mastectomy.
4. Public awareness of risk factors and effective preventative techniques for breast cancer must be increased to promote early identification and treatment of the disease.
5. Health education and outreach should emphasize the need of breast self-examination and early diagnosis of malignant alterations in the breast, particularly in regard to breast health.
6. All breast cancer centers should have interdisciplinary teams in order to offer their patients with the best possible care.
7. Breast checks and screenings for women over 35 who have no indications of breast cancer should be taught and retrained by medical professionals and get tested if they exhibit any of the signs and symptoms.
8. Improve the current referral system by making patient transportation easier.
9. Breast cancer screening facilities should have well-trained staffs and sophisticated machines for accurate diagnosis.

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