ORIGINAL RESEARCH ARTICLE

Histopathological profile of breast cancer at a tertiary hospital in Malawi: A retrospective cross-sectional study

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Abstract

Breast cancer is one of the major public health problem in developing countries. In Malawi, cancer of the breast among females is among the top four accounting for 4.9%. The study determined the histopathologic profile of breast cancer in Northern Malawi from July 2013 to June 2018. A record based retrospective cross-sectional study was conducted at Mzuzu Central Hospital. We reviewed 202 histopathological results of breast specimens during the study period. Data was analyzed using STATA version 14.0. Out of 202 clinically diagnosed breast lesions/tumours, 102 (50.5%) were histopathologically confirmed cancerous in nature, and 100 (49.5%) were non-cancerous. Ductal carcinoma was the leading histologic presentation with 68 cases representing 66.7%. Participants in the age group of 70-89 years were 13 times more likely to develop breast cancer (OR 12.66; *P*-value = 0.001; 95% CI 2.79 - 57.46), compared to those in the age group 10-29 years. The magnitude of breast cancer in Mzuzu Central Hospital, Northern Malawi is alarming (50.5%). Policy makers should emphasise on awareness campaigns for early and routine breast screening, early diagnosis and early treatment. *(Afr J Reprod Health 2021; 25[1]: 76-80).*

Keywords: Breast cancer, lesions, biopsies, magnitude, risk factor

Résumé

Le cancer du sein est l'un des principaux problèmes de santé publique dans les pays en développement. Au Malawi, le cancer du sein chez les femmes fait partie des quatre premiers cancers avec 4,9%. L'étude a déterminé le profil histopathologique du cancer du sein dans le nord du Malawi de juillet 2013 à juin 2018. Une étude transversale rétrospective basée sur des dossiers a été menée à l'hôpital central de Mzuzu. Nous avons examiné 202 résultats histopathologiques d'échantillons mammaires au cours de la période d'étude. Les données ont été analysées à l'aide de la version 14.0 de STATA. Sur 202 lésions / tumeurs mammaires cliniquement diagnostiquées, 102 (50,5%) étaient de nature cancéreuse confirmées histopathologiquement et 100 (49,5%) n'étaient pas cancéreuses. Le carcinome canalaire était la principale présentation histologique avec 68 cas représentant 66,7%. Les participantes du groupe d'âge de 70 à 89 ans étaient 13 fois plus susceptibles de développer un cancer du sein (OR 12,66; valeur p = 0,001; IC à 95% 2,79 - 57,46), comparativement à celles du groupe d'âge 10-29 ans. L'ampleur du cancer du sein à l'hôpital central de Mzuzu, dans le nord du Malawi, est alarmante (50,5%). Les décideurs politiques devraient mettre l'accent sur les campagnes de sensibilisation au dépistage précoce et systématique du sein, au diagnostic précoce et au traitement précoce. *(Afr J Reprod Health 2021; 25[1]: 76-80).*

Mots-clés: Cancer du sein, lésions, biopsies, ampleur, facteur de risque

Introduction

Breast cancer is a common and fatal condition in developing countries[1]. Globally, breast cancer comprises 10.4% of all cancer incidences among women[2]. In developing countries, it is the first leading cause of death among women with 324, 000 deaths which represents 14.3% of all deaths[3,4].

The mortality rate of breast cancer varies proportionally with age, stage of disease at diagnosis, the speed of management, type and extent of the tumor and response to initial treatment[5].

The main risk factors associated with breast cancer are hormonal factors, genetic predisposition, lifestyle and environmental

factors[6]. The global burden of breast cancer is progressively shifting from developed to developing countries[7]. As such, developing countries are at cross roads with a double burden of both communicable and non-communicable diseases.

Breast cancer is one of the major public health problem in developing countries and its prevalence is escalating[8]. For instance, a study conducted in Malawi showed that in females; cancer of the breast was among the top four accounting for 4.9% after cancer of the cervix, Kaposi's sarcoma, and cancer of the oesophagus[9]. However, no studies have been conducted in Northern Malawi in particular to establish histopathological pattern of breast cancer. The aim of this study was therefore to determine the histopathological profile of breast cancer in Northern Malawi from July 2013 to June 2018.

Methods

Design, setting and population

This study used a census approach in which all records on breast biopsy samples were collected. A record based retrospective cross-sectional study was conducted at Mzuzu Central Hospital (MCH), in northern Malawi. MCH is a referral facility for northern region of Malawi serving a population of about 2.4 million people from six districts. We reviewed 202 histopathological results of breast specimens from July 2013 to June 2018. The breast biopsy samples were collected at Mzuzu Central Hospital and sent to University of North Carolina (UNC) laboratory in Lilongwe for histological diagnosis. The flow diagram (Figure 1) shows the process involved in coming up with a histopathological diagnosis at UNC laboratory in Lilongwe.

Inclusion and exclusion criteria

Patients' files with complete information such as sex, age, race, HIV status, clinical and histological diagnosis between July 2013 and June 2018, as well as patients' files with original biopsy reports were included in the study. On the other hand, all breast tumours diagnosed before July 2013 and after June 2018 were left out. Patients' files with missing demographic, clinical and histopathological data were also excluded.

Statistical analysis plan

Raw data were entered in Microsoft excel 2016, validated and cleaned before importing into Stata, version 13.0 (Stata Corp. LP, College Station, TX, United States of America) for analysis. Descriptive analyses were performed to summarise patients' sociodemographic and clinical characteristics. Chi Square (or Fisher's exact) test was used to look for significant associations between predictor and outcome variables at 95% significance level. A binomial logistic regression was used to quantify the association between predictor variables and outcome variables.

Results

The age range was 10-89 years and the race of all participants was black African. (Table 1) There were 202 breast biopsies collected from clients at Mzuzu Central Hospital which were sent to UNC laboratory in Lilongwe for histopathological analysis (Table 2). One hundred and two (50.5%) were confirmed cancerous in nature, while 100 (50.5%) were non-cancerous. Ductal carcinoma was the leading histologic presentation with 68 cases representing 66.7%, while the least form of breast cancer presentation was Lymphoma/haematological with only one case (1%). (Table 3)

Participants in the age group of 70-89 years were 13 times more likely to have breast cancer (OR 12.66; P-value = 0.001; 95% CI 2.79 - 57.46 compared to age group 10-29 years. Sex and HIV status were insignificant in developing breast cancer (P-value > 0.05). (Table 4)

Discussion

Breast cancer is a public health concern and causes a huge burden of disease, especially among females worldwide[5]. There is paucity of information on breast cancer in Northern Malawi. This paper has provided cognizance on common types of breast cancer and its risk factors in Malawi using the data from July 2013 to June 2018, of 202 patients from Mzuzu Central Hospital. In our study, the magnitude of breast cancer was very high, accounting for 50.5% of all breast tumours/lesions whose samples were sent for histopathological diagnosis. These findings are far much higher
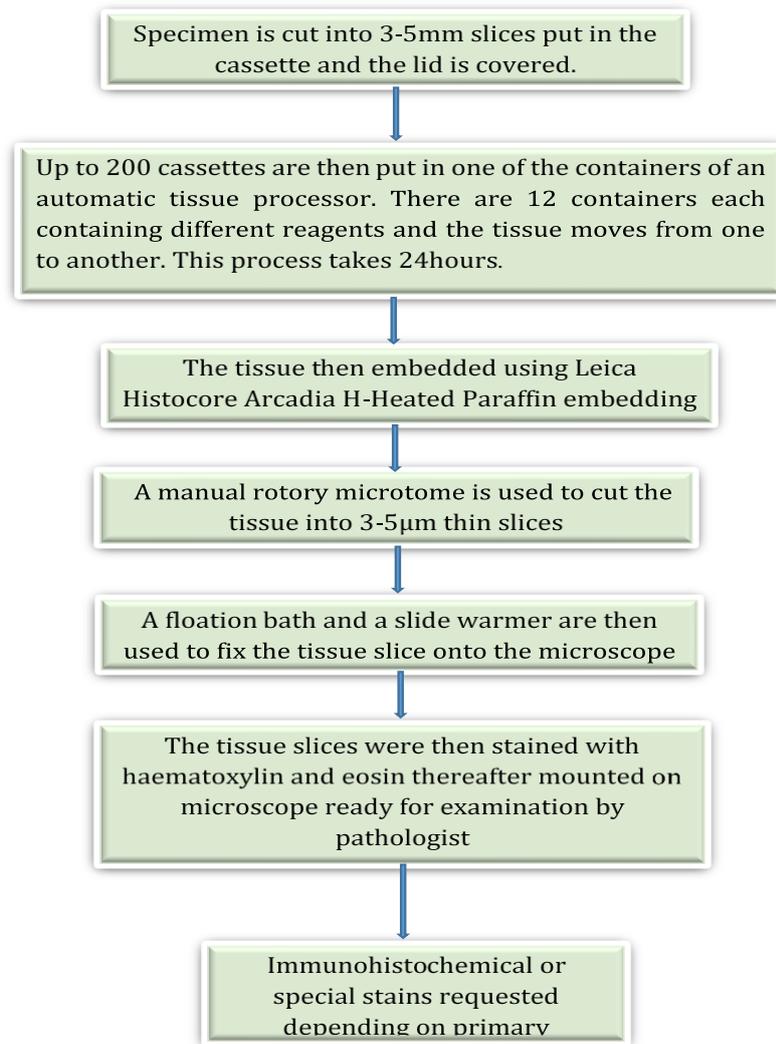
Figure 1: Steps/process involved in histopathological diagnosis at the UNC laboratory

Table 1: Demographic characteristics and HIV status

Variable	Frequency	Percent
Sex		
Female	185	92.0
Male	12	6.0
Missing	4	2.0
Age		
10-29	58	28.9
30-49	70	34.8
50-69	46	22.9
70-89	14	7.0
Missing	13	6.5
HIV status		
Positive	12	5.9
Negative	32	15.8
Unknown	158	78.2
Total	202	100.0

This is a high proportion worthy raising an alarm among health practiconers and policy makers to advocate for more in-depth studies to establish the current state of the incidence and prevalence of breast cancer in the country. Currently, breast cancer accounts for 4.6% of all cancer cases in Malawi[9]. The revelation of 102 cancer cases out of 202 should be an eye opener for clinicians to improve the accuracy of the breast cancer diagnosis. The hospital authorities should reinforce continuing professional development (CPD) sessions in order to improve accuracy which could in turn contribute towards early diagnosis and improvement in the quality of breast cancer management.

The findings of this study show that the breast lesions/tumours mostly affected the age than the magnitude found in a study conducted in Nigeria which was at 29.80%[5].

Table 2: Histopathological analysis of breast biopsies and cancer magnitude

Type of tumour	Year tested						
	2013 N (%)	2014 N (%)	2015 N (%)	2016 N (%)	2017 N (%)	2018 N (%)	Total N (%)
Cancerous	16(53.3)	2(28.6)	14(51.9)	20(47.6)	27(54.0)	23(50.0)	102(50.5)
Premalignant	0(0.0)	0(0.0)	0(0.0)	1(2.4)	0(0.0)	0(0.0)	1(0.5)
Non-malignant/benign	10(33.3)	2(28.6)	10(37.0)	12(28.6)	13(26)	13(28.3)	60(29.7)
Infection	2(6.7)	0(0.0)	1(3.7)	2(4.8)	0(0.0)	0(0.0)	5(2.5)
Inflammation	1(3.3)	0(0.0)	0(0.0)	2(4.8)	0(0.0)	2(4.4)	5(2.5)
Normal	0(0.0)	0(0.0)	0(0.0)	1(2.4)	1(2.0)	1(2.2)	3(1.5)
Inconclusive/No results	0(0.0)	0(0.0)	1(3.7)	2(4.8)	4(8.0)	4(8.7)	11(5.5)
Others	1(3.3)	3(42.9)	1(3.7)	2(4.8)	5(10.0)	3(6.5)	15(7.4)
Total	30(100)	7(100)	27(100)	42(100)	50(100)	46(100)	202(100)

Table 3: Histopathological types of breast cancers

Site	Cases	Percentage
Squamus Cell Carcinoma	3	2.9
Adenocarcinoma	11	10.8
Lymphoma /haematological	1	1
Ductal Carcinoma	68	66.7
Others	19	18.6
Total	102	100

Table 4: Risk factors of breast cancer

Cancer	OR (95% C.I)	Std. Err.	z	P-value
Sex				
Male	1.51 (.37 - 6.17)	1.08	0.57	0.57
HIV				
Positive	.90 (.19 - 4.32)	.72	-0.13	0.90
Age (years)				
30-49	7.37 (3.19-17.01)	3.15	4.68	0.000
50-69	8.37 (3.31 - 21.16)	3.96	4.49	0.000
70-89	12.66 (2.79 - 57.46)	9.77	3.29	0.001

group 30-49 years (70, 34.8%), followed by age group of 10-29 years (58, 28.9%). These findings are in agreement with a study conducted elsewhere who also found that breast cancer was common among the young population up to pre-menopausal[10]. A study on a clinical profile of breast cancer conducted in Malawi also found that among 85 breast cancer cases, 55% were < 50 years[11]. Breast lesion/tumour is one of the commonest form of breast cancer presentation. Therefore, this calls for government and all relevant stakeholders to prioritise cancer screening, early diagnosis and early treatment among adolescents and young adult who present with most breast tumour/lesion. The major type of breast cancer which was more prevalent among the affected clients was Ductal carcinoma with 68 cases representing 66.7%. These findings agree with those of other studies conducted elsewhere which revealed that Ductal carcinoma is a commonest form of breast cancer[2]. However, its prevalence was slightly lower in our study 66.7% compared to the one found in a study conducted in Nigeria which was at 72.52%[5].

The study also found that age was the most significant risk factor for breast cancer (*P*-value < 0.05). Participants in the age group of 70-89 years were 13 times more likely to develop breast cancer (OR 12.66; *P*-value = 0.001; 95% CI 2.79 - 57.46) compared to those in the age group 10-29 years. Changes in hormonal level may precipitate breast cancer. It could show up by starting and stopping of menstruation, pregnancy in early age, hormonal replacement therapy, and use of oral pills among others[6]. This may partly explain the findings of this study in which the risk of developing breast cancer increased with age advancement, with the highest risk in the age category of 70-89 years who are in the menopause category. The findings of this study are in agreement with those found in Turkey where breast cancer risk increased in women with age >50years [95% CI 2.42 – 3.18][12]. This study revealed that while advanced age has greater risk of developing breast cancer, but the magnitude of breast lesions/tumours is heaviest among the age group 30 – 49 years followed by age group 10 – 29 years. The possible explanation to this divergent presentation could be that the aging population is far less than the young population in Malawi unlike in most developed countries. Therefore, the government should set the right priorities in prevention and management of breast cancer which should be inclusive. Sex and HIV status were insignificant risk factors in developing breast cancer (*P*-value > 0.05) (Table 4).

The findings of this study should be applied with caution because of the following limitations: firstly, study was conducted at one tertiary hospital, as such the findings on the histopathological profile can not be generalised. Secondly, this being a record based retrospective study, it was not possible to probe and identify some of the missing variables that would have been significant to this study. However, this study has provided an awareness on the histopathological profile of breast cancer based on the 202 patients from July 2013 to June 2018, which could be used to inform practitioners and policy makers.

Ethics Statement

Ethical approval for the study was obtained from National Health Sciences Research Committee (NHSRC), with the approval number 19/05/2316. Mzuzu Central Hospital authorities cleared the authors to access the patients' records for data extraction. Names, surnames and any parameters that would identify the patients were excluded from the data capturing instrument to ensure privacy and confidentiality.

Conclusion

This study has found that the risk of developing breast cancer increases with age. However, the magnitude of breast lesions/tumours greatly affect those below 50 years of age (63.7%). Policy makers should emphasise on awareness campaigns for early and routine breast screening, early diagnosis and early treatment. Those in practice should make use of each contact with client to offer breast screening services.

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Declaration

BCM and FWS conceived and designed the study. AK, CC, PK, JU and PUK contributed to development of the study protocol and supervised data collection and entry. AK analyzed the data and BCM drafted the manuscript. All authors read and approved the final manuscript.

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