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EVALUATING COMPLIANCE TO KENYA NATIONAL CANCER GUIDELINES ON DIAGNOSIS AND STAGING OF BREAST CANCER AT KENYATTA NATIONAL HOSPITAL

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ABSTRACT

Background: In Kenya, breast cancer is one of the most prevalent diseases among women. Early diagnosis and stage-directed treatment are vital in reducing morbidity and mortality associated with it. The Kenya National Cancer Guidelines (KNCG) was developed in 2013. Utility of the guidelines is expected to improve early detection, timely diagnosis, harmonize and standardize treatment of cancer. This study sought to assess whether health care providers at Kenyatta National Hospital are utilizing the guidelines in diagnosis and staging of breast cancer.

Study objective: To evaluate adherence to KNCG on diagnosis and staging of breast cancer.

Study design: Retrospective descriptive study was conducted within five months. **Study subjects:** Two hundred and fifty (250) patients' records with diagnosis of breast cancer between September 2013 and September 2015.

Results: Most patients were female 95.6 % with mean age of 47.5 ± 15.5 years. Duration from referral point to index breast clinic review was 10.9 ± 11.1 days. Duration from index breast clinic review to surgery was 64.0 ± 114.4 days. Documentation on findings from clinical assessment varied between 24.8 to 86.4%. Documentation on radiological assessment of the breast varied between 3.6 to 35.2% whereas for metastatic assessment varied between 3.6 to 64.0 %. Laboratory investigations documentation varied between 8.4 to 94.8% whereas pathologic diagnosis and tumour biology documentation varied between 3.6-62.4%. American joint cancer committee- tumour, node and metastasis (AJCC-TNM) staging was documented in 16 % of the records reviewed.

Conclusion: From this study, triple assessment for breast cancer was incomplete and inconsistent which could result in negatively impacting management of these patients. Every effort should be put in place to track as well as prioritize patients with breast cancer in terms of investigations and surgical interventions in a timely manner. Clinical, radiologic and pathologic

assessment must adhere to KNCG and be accurately documented. Clinician should undergo knowledge, attitude and practice (KAP) survey on KNCG so as to identify possible gaps and institute measures aimed at compliance which ultimately could improve care of patients with breast cancer at KNH.

INTRODUCTION

Breast cancer in Kenya occurs more frequently in young women of less than 50 years. It's the leading cause of cancer among women at the rate of 33.5/100,000 population according to the Nairobi Cancer Registry(1).It is the leading cause of death worldwide and ranks as the fifth cause of cancer related death overall, as well as the most common cause of cancer death among women in developing and developed countries(2) .

In an area as complex and rapidly evolving as oncology, clinical practice guidelines (CPGs) are an important tool in providing best practice in care of patients. Adherence to guidelines varies widely and yet the greatest benefit achievable by these guidelines is to improve clinical outcome (3). Globally, patients with similar medical conditions get different levels of care depending on their health care provider, institution, or location. Clinical guidelines address this by providing standardized care irrespective of care provider or point of care (4).

Accurate and timely diagnosis of breast cancer combined with a standardized staging and management results in significant reduction in morbidity and mortality. In resource limited centres adherence to existing cancer management guidelines can result in improved clinical outcome (5).

The Kenya national cancer guidelines (KNCG) was developed to enable relevant clinicians apply best practice with regards to cost-effective diagnosis, staging and treatment (15). There's paucity of data as far as application of KNCG at Kenyatta national hospital hence this study which evaluated

adherence to KNCG in diagnosis and staging of breast cancer at KNH.

MATERIALS AND METHODS

A retrospective observational study was conducted in the medical records department at KNH. Two hundred and fifty medical records of patients with breast cancer were evaluated. This study commenced once it had been approved by UON/KNH ethical review committee. All the records meeting the inclusion criteria had bio data, duration between referral from outpatient to breast clinic, clinic presentation, and radiologic evaluation were documented. Diagnostic procedure i.e. FNA-cytology, core biopsy with histopathology and biological profile were also documented. Documentation on staging of the breast cancer based on American Joint Cancer Committee- Tumour Node Metastasis (AJCC-TNM) system was included. Collected data was cleaned coded and entered in SPSS version 21 for analysis. Discrete variables were summarized in frequency and percentages. Continuous variable were summarized using mean, median, mode and standard deviation. Results were presented in tables and graphs.

RESULTS

Two hundred and fifty (250) medical records of patients with diagnosis of breast cancer were reviewed in this study and the results were as follows. Female patients accounted for 95.6% (239/250), with mean age of 47.5 years as seen in table1 below. The duration in days from outpatient department to first review in the consultation clinic was 10.9± 11.1 as seen in table 1 below. The duration

from index review in breast clinic to surgery (mastectomy) was 64±114.4 as seen in table 1 below.

Table 1

Variable	Frequency	
	(%)	
Mean age (SD)	47.5	(15.5)
Mean duration to review (SD)	10.9	(11.1)
Mean duration to surgery (SD)	64.0	(114.4)
Gender		
Female	239	(95.6)
Male	11	(4.4)
Variable	Frequency	
	(SD)	
Mean duration to index review	10.9	(11.1)
Mean duration from index review to surgery	64.0	(114.4)

From the study, documented risk assessment from history taking varied

between 22.4 % (56/250) for history of ionizing radiation to 86.4% (216/250) or reproductive history as well as history of a lump. As seen in figure 1.

Documented history and physical examination of primary breast disease varied between 63.2% (158/250) for nipple retraction and skin dimpling to painless lump 86.4% (216/250) as seen in table 3 , figure 1 and 2 below. The least sought history was of physical inactivity 18.8% (46/250) as seen in figure 1.

Documentation on evaluation of pathological fractures was the least accounting for 24.8% (62/250) as seen in figure 1 and 2 below. Documented routine hematologic as well as chemistry panel accounted for 94.8% (237/250) while chemistry panel assessing for possible metastasis varied between 30.8% (77/250) for alkaline phosphatase and 44.4% (111/250) for liver function test. Documented patients who underwent HIV test accounted for 29.2% (73/250) as seen in figure3 below. The least documented investigation was urate at 8.4% (21/250) as seen in figure 3 below.

Figure 1

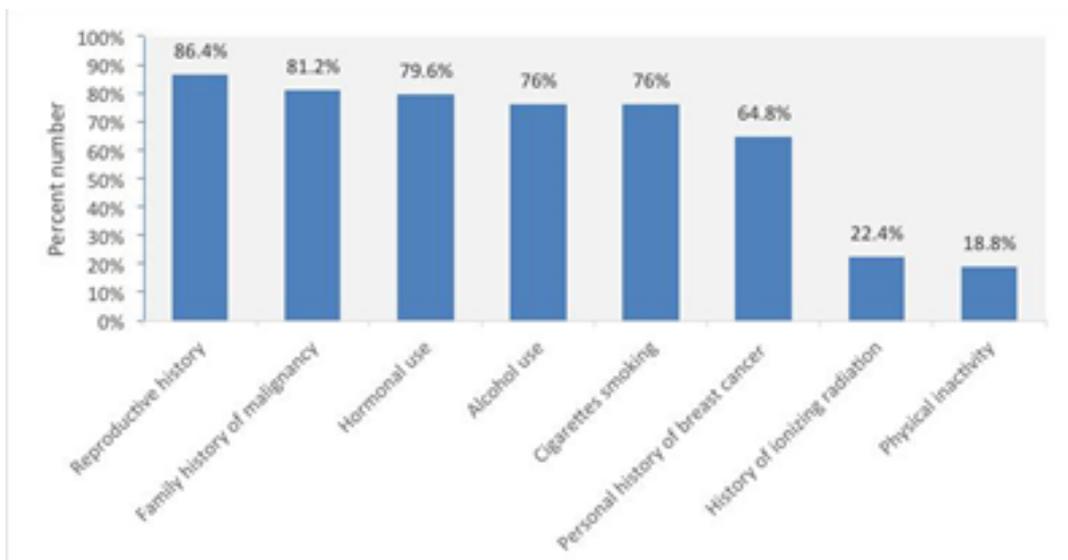


Figure 2

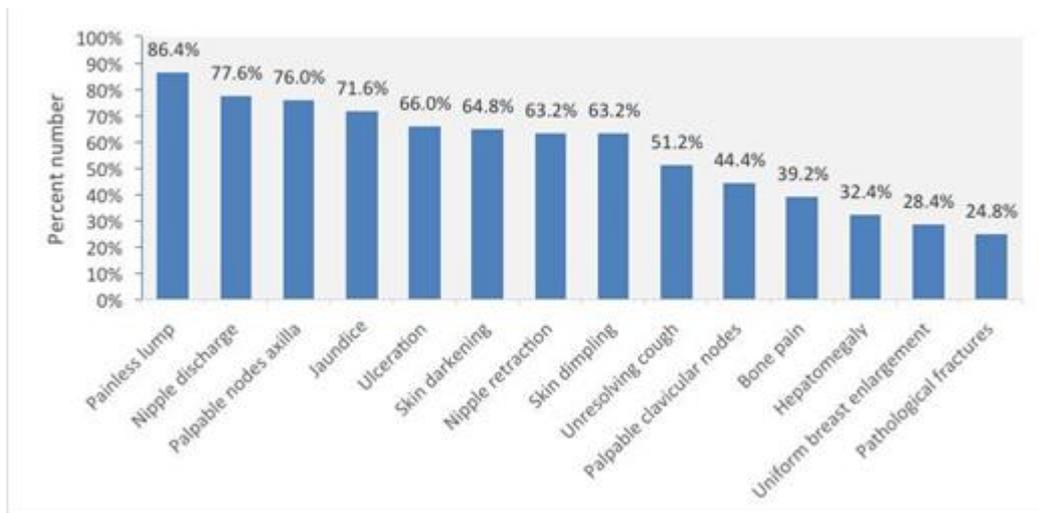
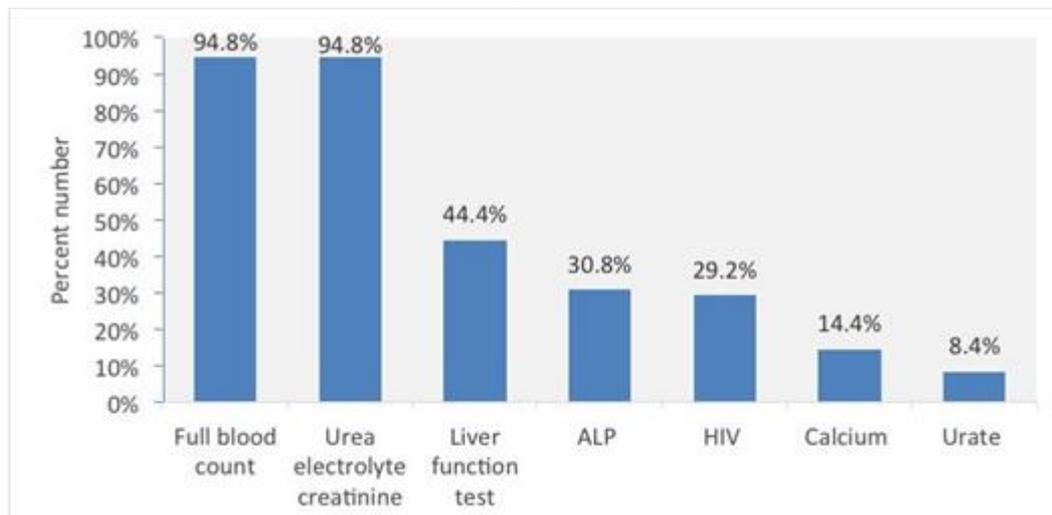


Figure 3



Documented radiological work-up for breast evaluation accounted for 65.2% (163/250) whereas axillary evaluation accounted for 6.8% (17/250). Work-up for chest metastasis accounted for 76.8% (192/250). Work-up for abdominal metastasis accounted for 55.6% (139). Documented bone scan results for possible bone metastasis accounted for 3.6% (9/250) as seen in figure 4 below.

Documented results for tissue diagnosis accounted for 61.2% (154/250) for FNA and 66% (165/250) for core biopsy. There was no documented image guided FNA result while image guided core biopsy accounted for 3.6% (9/250). Documentation on receptor status was at variance with most documentation on ER status at 41.2% (103/250) and least being HER 2 status at 35.2% (88/250) as seen in figure 5 below.

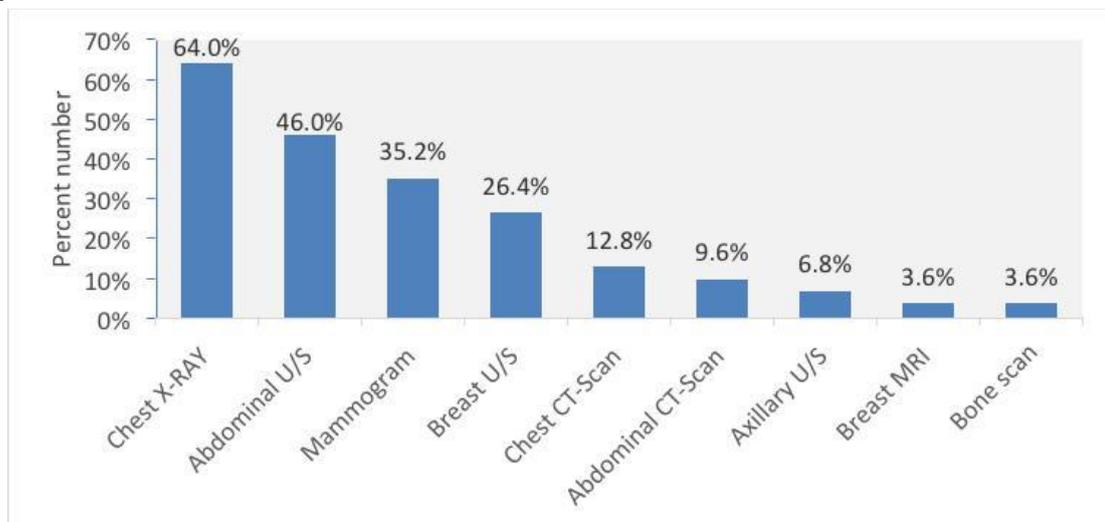
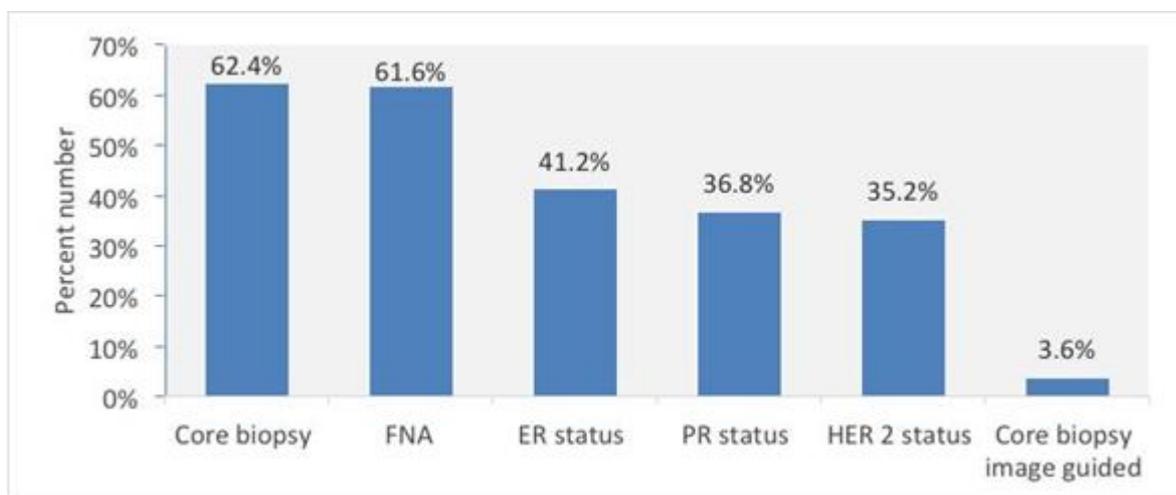


Figure 5



Documentation on the TNM staging for breast cancer was 16% (40/250) as seen in table 2 below.

Table 2

Variable	Frequency (%)
TNM staged	40 (16)

DISCUSSION

Breast cancer is the most prevalent cancer among women. Early diagnosis and stage directed treatment are vital in reducing morbidity and mortality associated the disease (5). This study sought to evaluate adherence to Kenya national cancer guidelines (KNCG) in diagnosis and staging of breast cancer at KNH. Two hundred and fifty (250) files of patients managed for

breast cancer over a two year period were reviewed.

Female patients were the majority as expected, accounting for 95.6% (239/250) with mean age of 47.5%± 15.5 years ,which was consistent with Nairobi cancer registry and WHO report of 2013(1,2).

Time taken from referral from at outpatient department to first consultation at the specialist breast clinic was more than one week (10.9± 11.1 days).This maybe partly attributable to lack of prioritization of patients suspected to have breast cancer for expedited review at the breast clinic. They are unfortunately grouped together with patients with benign disease and those requiring postoperative care.

Time taken from first surgical consultation to surgery was unacceptably

long i.e. more than 2 months (64.4±114.4 days). During this time is when laboratory, radiologic investigations as well as booking for availability of theatre space for surgery. The breast surgery service is to a large extent not multidisciplinary team (MDT) oriented. The support departments such as radiology and pathology are semi-autonomous and there lacks system of flagging suspicious results and expediting their discussion by the breast care unit. Breast surgery doesn't have a designated theatre at KNH because available theatre space is shared with urology and emergency surgeries across all surgical specialties. This hinders provision of timely optimal breast cancer care as envisaged by the 2007 BHGI summit recommendations (11).

History taking and physical examination was not comprehensive as provided for in the KNCG. Risk evaluation, primary disease as well as evaluation for metastasis was not 100 % in any of the provided parameters. This could indicate inadequate clinical evaluation of patients in the breast surgical clinic.

Full blood count urea, electrolytes and creatinine levels were the most ordered investigations. This could be explained by requirements of these investigations as preoperative work-up. However investigations assessing possible metastasis such as alkaline phosphatase, other liver function tests and calcium were not widely requested for despite being available at the KNH laboratory. These tests provide important leads to presence of metastases to bone and liver.

Utilization of mammogram and ultrasound for breast evaluation was very low i.e. 35.2 and 26.4 % respectively. These services are available at KNH. That said, ultrasound assessment of the breast is not done at the breast unit, it is done at the radiology department where there are competing needs for the ultrasound equipment and personnel.

Assessment of metastasis was again low as only 6.8% of the patients had axillary ultrasound, 76.8 % had chest imaging, 55.6 % had abdominal imaging and 3.6% had bone scan.

Only 61.6% had FNA all of which were by palpation, 66% had core biopsy of which only 3.6% were image guided.

Tumour biology assessment was low with inconsistent documentation of receptor status. I.e. Variance seen in reporting all the receptor status was most likely as a result of incomplete documentation of results in the file as received from the laboratory only 16% (40/250) of the records had documented TNM/AJCC staging of breast cancer.

This study points to sub optimal care framework for breast cancer patients at Kenyatta National hospital. There are gaps in clinical, laboratory, radiological assessment and documentation of the same, for breast cancer. The staging practice is not consistent. Comprehensive patient evaluation by triple breast assessment and appropriate staging that is known to guarantee good patient outcomes (6, 7).

CONCLUSION

Female patients were the predominant group diagnosed with breast cancer. The duration from first surgical consult to surgery was unacceptably long. Triple assessment i.e. clinical evaluation, radiologic evaluation as well as tissue diagnosis was incomplete from this study. AJCC-TNM staging documentation from this study was unacceptable. This points to sub optimal care of patients with breast cancer at KNH.

RECOMMENDATION

Every effort should be put in place to track as well as prioritize patients with breast cancer in terms of investigations and surgical interventions in a timely manner. Clinical, radiologic and pathologic

assessment must adhere to KNCG and be accurately documented. Clinician should undergo knowledge, attitude and practice (KAP) survey on KNCG so as to identify possible gaps and institute measures aimed at compliance which ultimately could improve care of patients with breast cancer at KNH.

LIST OF ABBREVIATIONS

AJCC American joint cancer committee
 ALP Alkaline phosphatase
 BHGI Breast health global initiative
 CPG Clinical practice guideline
 CT-Scan computed tomography scan
 ER Estrogen receptor
 FBC Full blood count
 FNA fine needle aspirate
 HIV Human immunodeficiency virus
 HER 2 Human epidermal growth factor receptor 2
 KNCG Kenya national cancer guidelines
 KNH Kenyatta national hospital
 MRI magnetic resonance imaging
 PR progesterone receptor
 SPSS Statistical package for social sciences
 TNM Tumour node metastasis
 U/E/C urea electrolyte creatinine
 UON University of Nairobi
 U/S Ultrasonography
 WHO World health organization

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AUTHOR'S CONTRIBUTION.

AM and SM designed the proposal, collected data and wrote the manuscript. DO and AN supervised and gave input throughout proposal development, data collection, analysis and manuscript writing. All authors read and approved.

COMPETING INTERESTS

The authors declare no competing interests

ETHICAL APPROVAL

We sought ethics approval from KNH/UON Ethics and Research Committee, approval number p650.10/2015.

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