



The Difficulties of Early Diagnosis and Treatment of Breast Cancer

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Abstract

Introduction: Breast cancer is a prevalent disease that affects primarily women. Unfortunately, the incidence of this disease continues to rise, and nearly half of all breast cancer cases and deaths occur in low- and middle-income countries. Early detection of breast cancer is crucial, but many health systems in these countries struggle to manage the burden due to a lack of community awareness and poor diagnostic and treatment services. Factors that contribute to delayed diagnosis include lack of knowledge, negative symptom interpretation, beliefs in traditional medicine, lack of trust, and limited access to healthcare. In sub-Saharan Africa, it takes an average of less than three to more than six months between symptom recognition and presentation to a healthcare provider. **Aim of the work:** Our study aims to investigate how delayed diagnosis affects disease stage and treatment among women with breast cancer in Tobruk City. **Patients and methods:** This study was conducted at Tobruk Medical Centre in East Libya from January 2018 to January 2021 with 107 newly diagnosed breast cancer patients. Data was collected through structured questionnaires, and delayed diagnosis was categorised into three types. Data was analysed using EPI info version 7.2 and SPSS version 23. Ethical approval was obtained, and informed verbal consent was obtained from study participants while ensuring the confidentiality of information and privacy of participants' interviews. **Discussion and Conclusion:** Our research uncovered that 75.7% of patients waited over three months before seeking a diagnosis, with an average delay of nine months. Women living in rural areas who were far from medical facilities experienced the most significant delay in seeking medical treatment. The reasons for this delay were mainly a lack of awareness, financial constraints, and the belief in traditional or spiritual treatments. Encouraging breast self-examination can help with early detection and diagnosis. Additionally, patients living in rural areas who were illiterate, travelled long distances and suffered from painless lumps in the breast were more likely to experience lengthy delays in breast cancer diagnosis in East Libya. Therefore, developing public awareness campaigns to promote early detection and minimise patient delay is crucial.

Introduction

Breast cancer is a prevalent cancer that primarily affects women.¹ Unfortunately, Africa has the highest mortality rate due to breast cancer globally, and the incidence of this disease continues to rise.² It's worth noting that nearly half of all breast cancer cases and deaths occur in low- and middle-income countries (LMICs).³

Despite the increasing burden of breast cancer cases worldwide, delayed diagnosis and late-stage presentation are common problems, particularly in low- and middle-income countries.⁴ Early detection of breast cancer leads to better survival and mortality rates from the disease. Still, many health systems in low- and middle-income countries face challenges managing the burden due to a lack of community awareness and poor diagnostic and treatment services.^{5,6} The primary contributing factor mentioned for advanced-stage diagnosis in developing countries is delayed presentation to health facilities after the disease has progressed. However, breast cancer is often diagnosed at an early stage, and the prognosis is favourable in high-income countries.^{4,7}

Several factors have been found to contribute to a delay in the diagnosis of breast cancer, which can be attributed to patients or healthcare systems. Two systematic reviews in Africa revealed that lack of knowledge, negative symptom interpretation, beliefs in traditional medicine, lack of trust and access to healthcare were some of the factors for patient delay in the diagnosis of breast cancer among African women.^{8,9}

In sub-Saharan Africa, the average time between symptom recognition and presentation to a healthcare provider they were ranged from less than three to over six months. Some of the reasons mentioned for patient delay in presentation were low educational levels, poor breast cancer awareness, and limited knowledge of early-detection methods; type of initial symptoms, such as painless, not taken seriously, or hoping they would resolve soon; fear of the disease and its treatment (e.g., mastectomy) or death, or of being a burden to the family; belief in traditional medicine or spiritual cures; financial constraints; and poor access to healthcare.¹⁰

Aim of the work:

Our study aims to investigate how delayed diagnosis affects disease stage and treatment among women with breast cancer in Tobruk City.

Patients and Methods

Study Design, Area, and Population

This study was conducted at the Tobruk Medical Centre in East Libya from January 2018 to January 2021. The hospital serves over 300 thousand people and provides diagnostic, surgical, and chemotherapy treatment services for cancer patients, including breast cancer.

Sample Size, Measurements, and Data Collection Procedures

One hundred seven newly diagnosed breast cancer patients were included in this study. The data was collected using structured questionnaires that covered introductory and demographic information, patient history, and tumour characteristics.

Delayed diagnosis was categorised into patient, provider, or health system delays.

Data Processing and Analysis Procedures

Data was coded and entered using EPI info version 7.2 and exported to SPSS version 23 for further analysis. The analyses were verified using descriptive interpretation for the study participants' demographic, socioeconomic, and clinical characteristics using frequencies and other summary statistics.

Ethical Consideration

Ethical approval was obtained, and informed verbal consent was obtained from study participants while ensuring the confidentiality of information and privacy of participants' interviews.

Results

-I- Socio-Demographic Characteristics of Breast Cancer Patients

1. Age group of Breast Cancer Patients:

More than two-thirds (78 cases, 72.9 %) of the breast cancer patients were above 42 years. At the same time, 29 cases (27.1 %) were below 42 years. The median age of patients at diagnosis was 42 years.

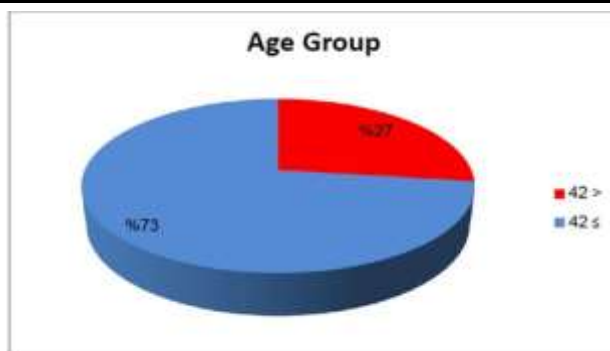


Figure (1): Age Groups of Breast Cancer Patients

2.Home Residence of Breast Cancer Patients:

More than half (62 cases, 57.9 %) of breast cancer patients were from rural residences. At the same time, 45 cases (42.1 %) were from urban residences.

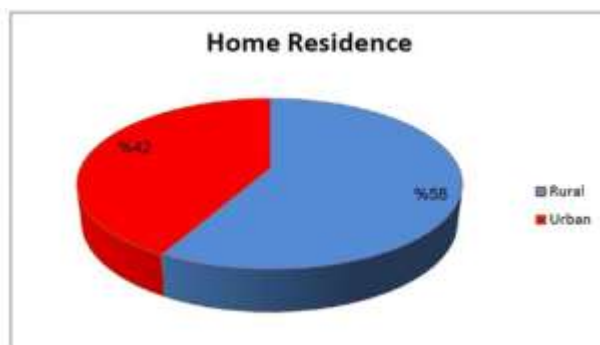


Figure (2): Home Residence of Breast Cancer Patients

3.Marital Status of Breast Cancer Patients:

83 cases (77.6 %) of breast cancer patients were married. While 24 cases (22.4 %) were single.

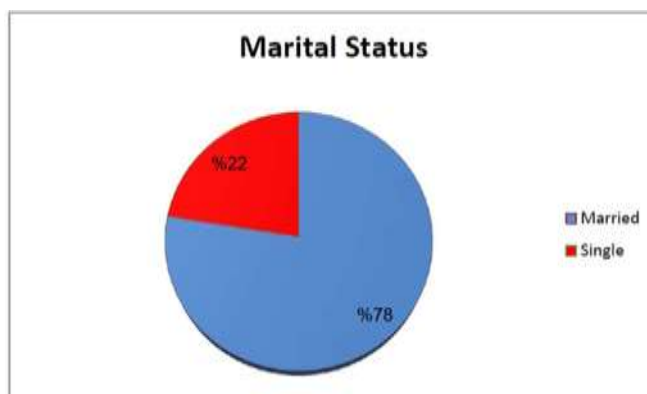


Figure (3): Marital Status of Breast Cancer Patients

4. Educational status of Breast Cancer Patients:

52 cases (48.6 %) of breast cancer patients were illiterate. While 41 cases (38.3 %) and 14 cases (13.1 %) had primary and secondary education and above respectively.

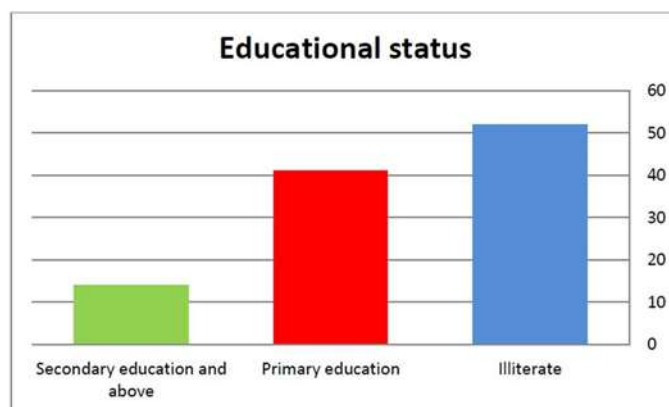


Figure (4): Educational status of Breast Cancer Patients

5. Occupational status of Breast Cancer Patients:

64 cases (59.8 %) of breast cancer patients were homemakers. While 31 cases (28.9 %) were government employees, 12 cases (11.3 %) were other occupations as non-government employees.

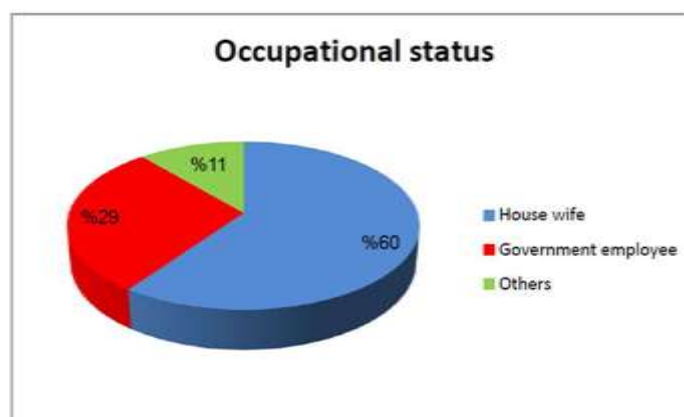


Figure (5): Occupational status of Breast Cancer Patients

6. Distance to the health facility of Breast Cancer Patients:

71 cases (66.4 %) of breast cancer patients live at distance more than 30 km from the nearest health facility. While 36 cases (33.6 %) live at a distance of less than 30 km.

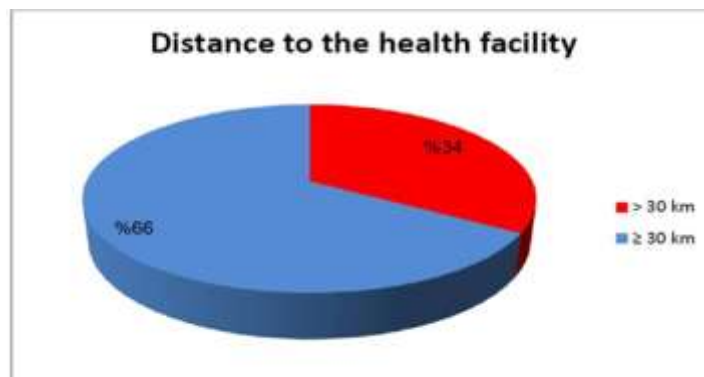


Figure (6): Distance to the health facility of Breast Cancer Patients

-II- Clinical Characteristics of Breast Cancer Patients

1. Menopausal status of Breast Cancer Patients:

63 cases (58.9 %) of breast cancer patients were pre-menopausal. While 16 cases (14.9 %) were menopausal and 28 cases (26.2 %) were post-menopausal.

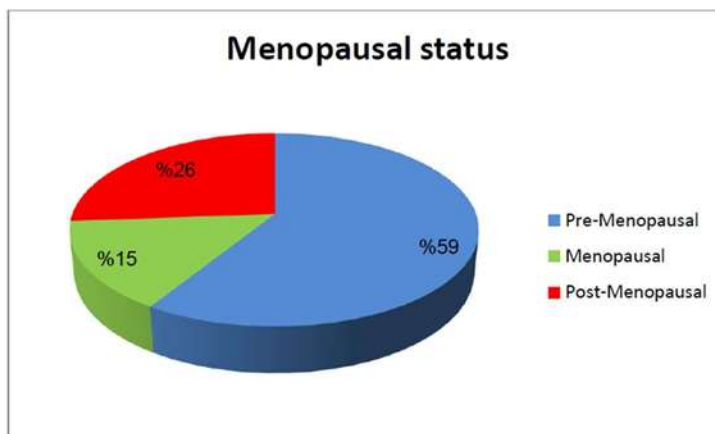


Figure (7): Menopausal status of Breast Cancer Patients

2. Family history of breast cancer of Breast Cancer Patients:

78 cases (72.9 %) of breast cancer patients have not had any family history of breast cancer. While 29 cases (27.1 %) had a family history of breast cancer.

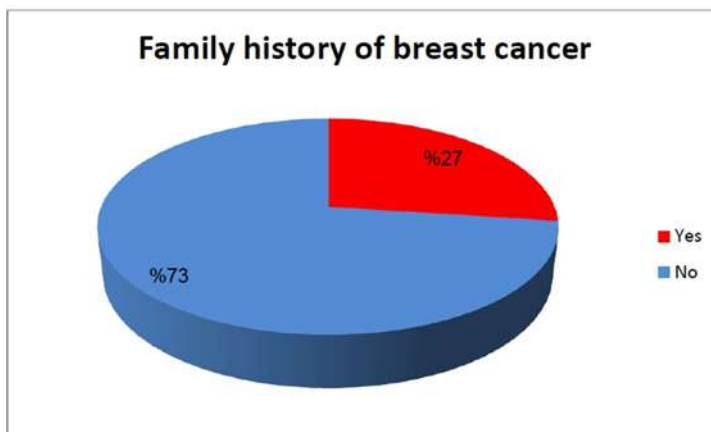


Figure (8): Family history of breast cancer of Breast Cancer Patients

3. History of any breast problem before Breast Cancer Patients:

61 cases (57 %) of breast cancer patients did not have any history of breast problems. While 46 cases (43 %) had a history of breast problems.

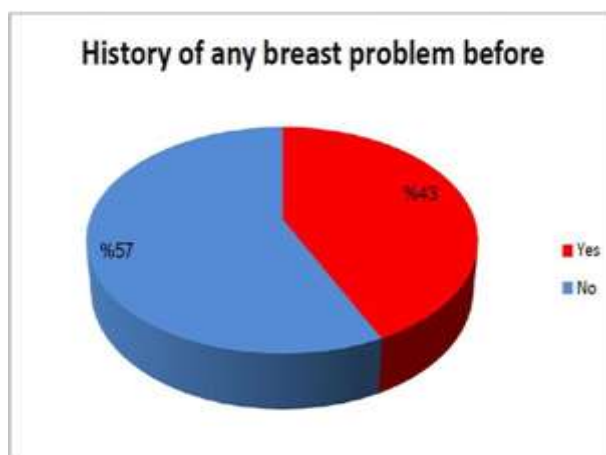


Figure (9): History of any breast problem before Breast Cancer Patients

4. Practicing breast self-examination of Breast Cancer Patients:

94 cases (87.9 %) of breast cancer patients have not had any practising breast self-examination. While 13 cases (12.1 %) were practicing breast self-examination.

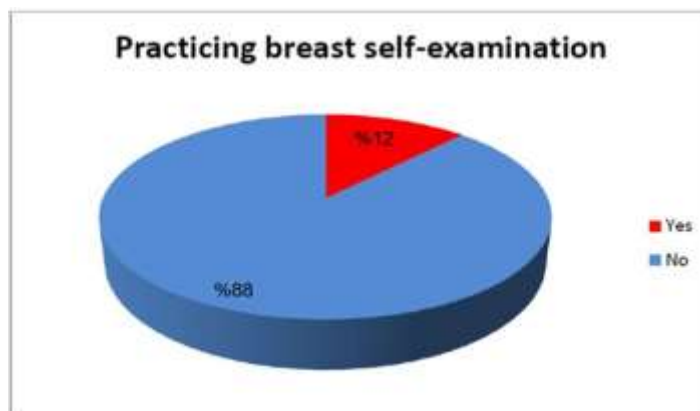


Figure (10): Practicing breast self-examination of Breast Cancer Patients

5. History of any comorbidities of Breast Cancer Patients:

94 cases (87.9 %) of breast cancer patients have not had any history of any comorbidities. While 13 cases (12.1 %) had a history of any comorbidities.

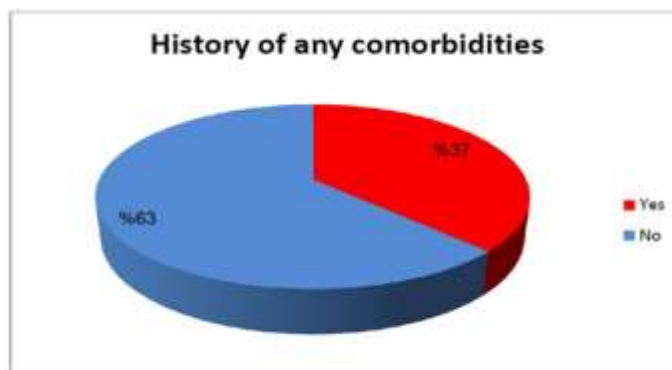


Figure (11): History of any comorbidities of Breast Cancer Patients

6. Use of traditional treatment of Breast Cancer Patients:

94 cases (87.9 %) of breast cancer patients were used for traditional treatment. While 13 cases (12.1 %) were not used in traditional treatment.

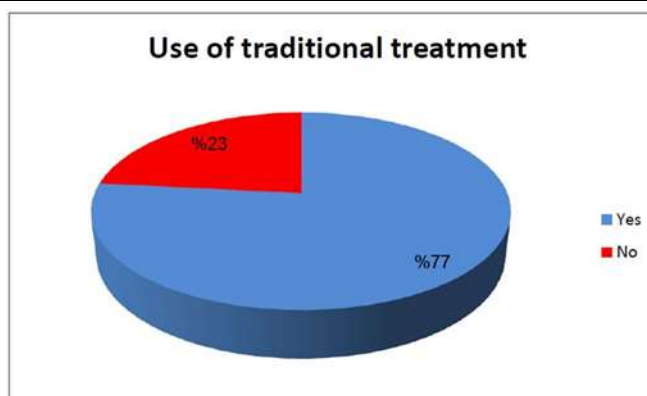


Figure (12): Use of Traditional Treatment of Breast Cancer Patients

7. Presenting chief complaint of Breast Cancer Patients:

98 cases (91.6 %) of breast cancer patients were presented by breast lump. A lump in the armpit submitted 9 cases (8.4 %). 43 cases (40.2 %) were presented by painful ulcer. While 6 cases (5.6 %) were presented by other complaints such as nipple retraction, nipple discharge or skin colour change.

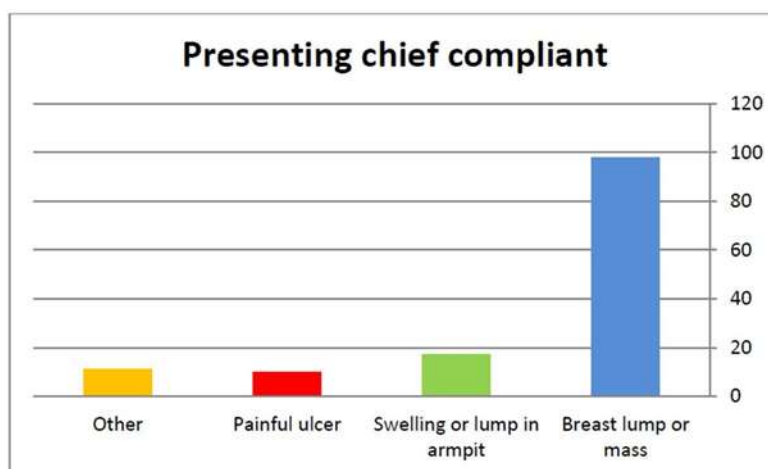


Figure (13): Presenting chief complaint of Breast Cancer Patients

8. Method of detection of symptoms of Breast Cancer Patients:

72 cases (67.3 %) of breast cancer patients were detected accidentally. 20 cases (18.7 %) were detected during breastfeeding. 8 cases (7.5 %) were detected during breast self-examination. While 7 cases (6.5 %) were detected when they produced discharge or pain.

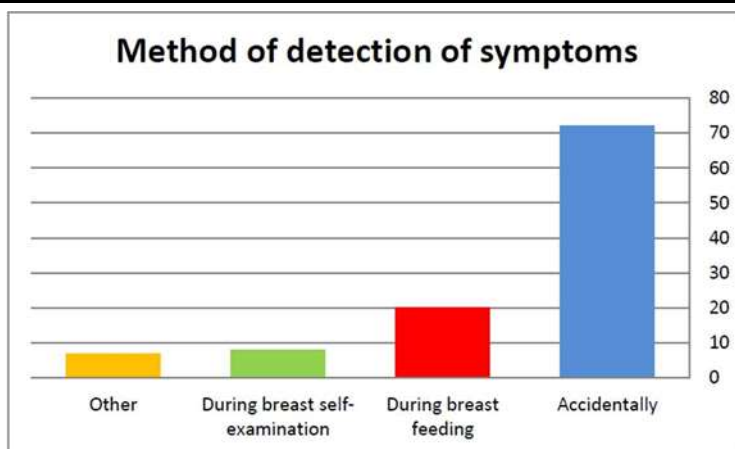


Figure (14): Method of detection of symptoms of Breast Cancer Patients

9. Patient reason for late presentation of Breast Cancer Patients:

89 cases (83.2 %) of breast cancer patients had a lack of awareness about early symptoms. 42 cases (39.3 %) had related symptoms with other medical problems. 31 cases (29 %) believed that breast cancer did not have any medical treatment. 72 cases (67.3 %) used traditional and spiritual treatment options. 76 cases (71 %) had financial problems. 69 cases (64.5 %) lacked trust in healthcare persons. While 12 cases (11.2 %) were fear of surgery or loss of a breast.

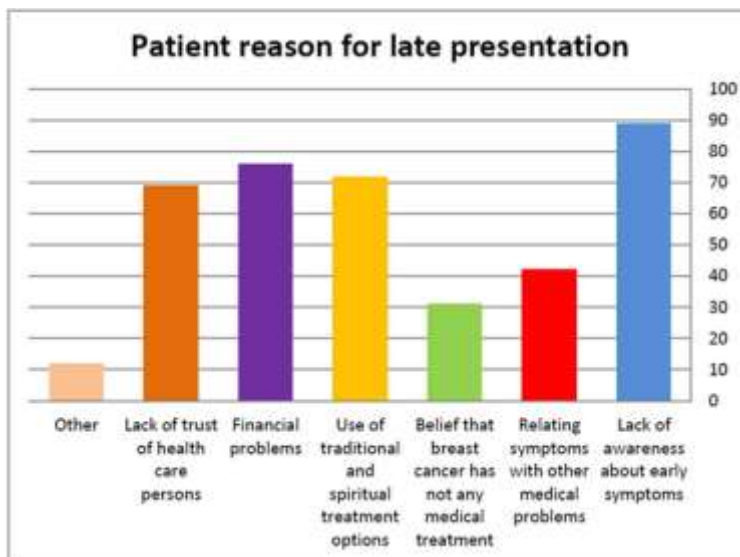


Figure (15): Patient reason for late presentation of Breast Cancer Patients

-III- Tumour Characteristics of Breast Cancer Patients

1. Axillary lymph node status of Breast Cancer Patients:

94 cases (87.9 %) of breast cancer patients had positive axillary lymph nodes. While 13 cases (12.1 %) had negative axillary lymph nodes.

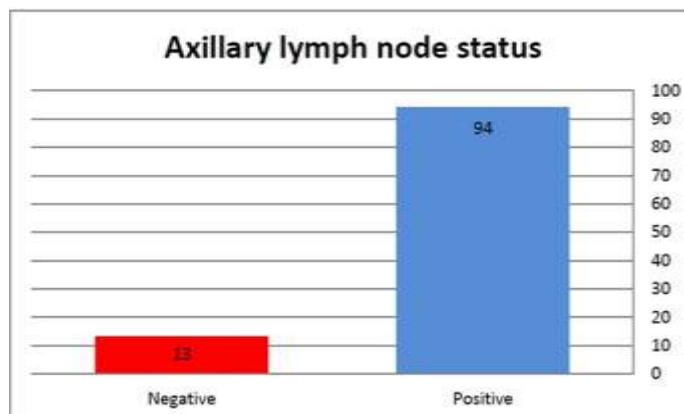


Figure (16): Axillary lymph node status of Breast Cancer Patients

2. Tumour metastases to other body parts of Breast Cancer Patients:

92 cases (86 %) of breast cancer patients had no tumour metastases to other body parts. While 15 cases (14 %) had tumour metastases to other body parts.

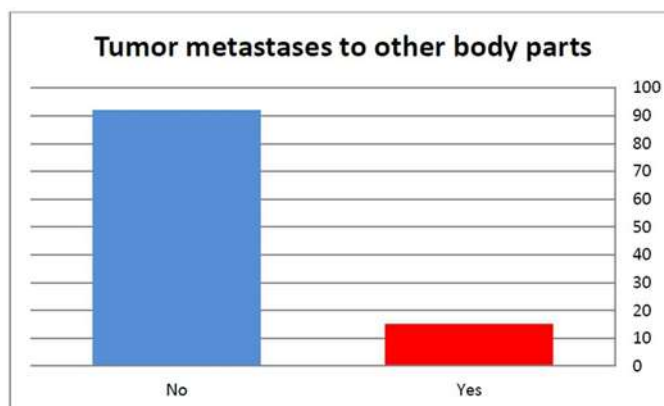


Figure (17): Tumour metastases to other body parts of Breast Cancer Patients

3.Type of tumour of Breast Cancer Patients:

88 cases (82.2 %) of breast cancer patients were invasive ductal carcinoma. 11 cases (10.3 %) were invasive lobular carcinoma. While 8 cases (7.5 %) were medullary, mucinous and metaplastic carcinoma.

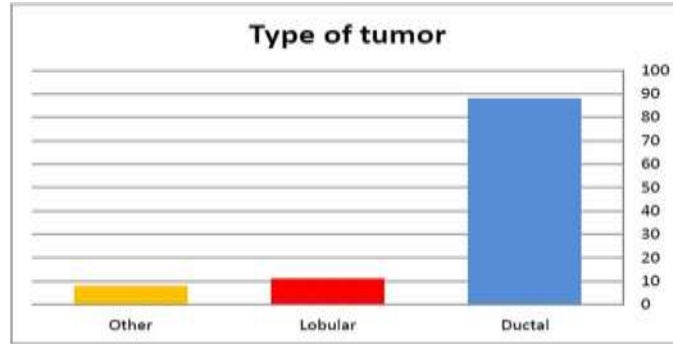


Figure (18): Type of tumour of Breast Cancer Patients

4.Tumour size in cm of Breast Cancer Patients:

62 cases (58 %) of breast cancer patients had tumour size ≥ 5 cm. While 45 cases (42 %) had tumour size > 5 cm.

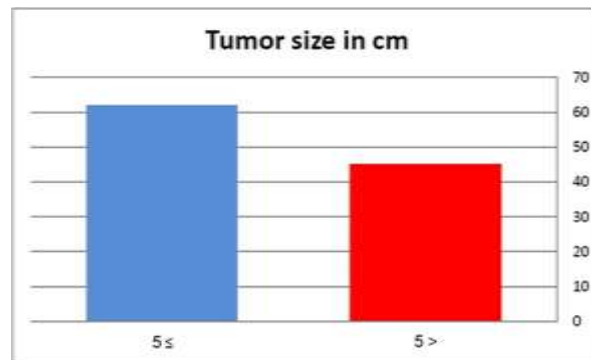


Figure (19): Tumour size in cm of Breast Cancer Patients

5.Tumour grade of Breast Cancer Patients:

55 cases (51.4 %) of breast cancer patients were grade II. 43 cases (40.2 %) of breast cancer patients were grade III. While 9 cases (8.4 %) were grade I.

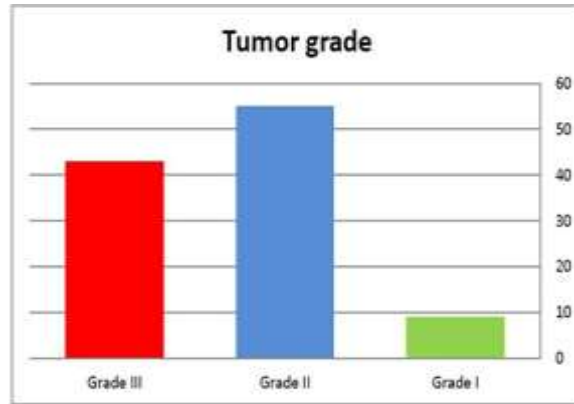


Figure (20): Tumour grade of Breast Cancer Patients

6. Tumour stage of Breast Cancer Patients:

The overall magnitude of late-stage diagnosis was 66.4%. Among these, 52 cases (48.6 %) were diagnosed at stage III, and the remaining 19 (17.8 %) were stage IV at diagnosis. Stage I and II account for 13 cases (12.1 %) and 23 cases (21.5 %) of breast cancer patients, respectively.

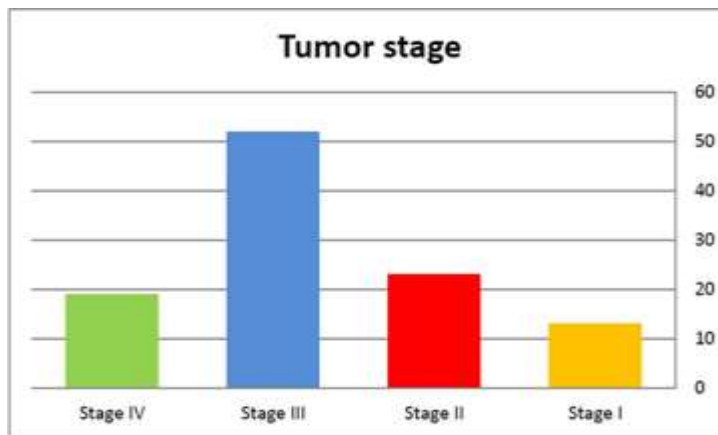


Figure (21): Tumour stage of Breast Cancer Patients

7. Patient had taken any treatment of Breast Cancer Patients:

104 cases (97.2 %) of breast cancer patients had taken treatment. While 3 cases (2.8 %) had not taken any treatment.

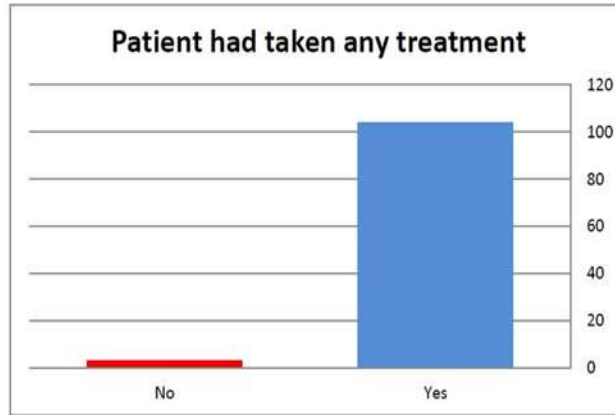


Figure (22): Patient had taken any treatment for Breast Cancer Patients

8.Patient had taken any treatment of Breast Cancer Patients:

99 cases (92.5 %) of breast cancer patients were treated by surgery. 85 cases (79.4 %) were treated by chemotherapy. 79 cases (73.8 %) were treated by hormonal therapy. While 13 cases (12.1 %) were treated by radiotherapy and other systemic treatments for underlying disease.

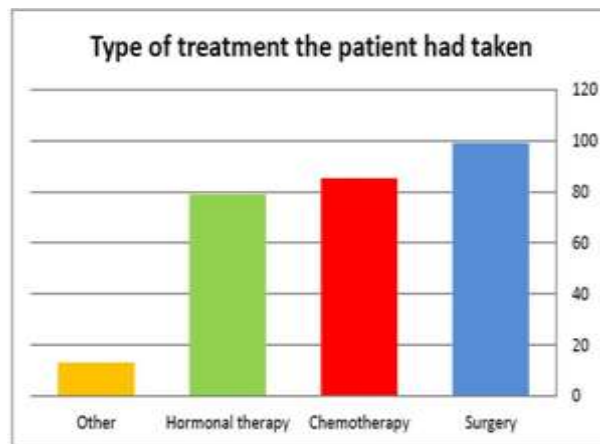


Figure (23): Type of treatment the patient had taken of Breast Cancer Patients

-IV- Breast Cancer Patient’s Medical Care Pathway

Out of the total 81 breast cancer patients, 75.7% had a long patient delay of at least 90 days (3 months). The average patient delay time was 9 months, ranging from 3 weeks to 3 years.

Patients who were aged 42 years or older (67 cases, 85.9%) had a significantly longer patient delay as

compared to those who were below 42 years old (14, 48.3%) (P=0.0001).

A significantly large proportion (67 cases, 80.7%) of married women had a longer delay in presenting to a health facility (P=0.0243).

Women who were illiterate (43 cases, 82.7%) had a longer patient delay than those who had primary education (31 cases, 75.6%) and secondary or higher education levels (7 cases, 50%) (P=0.0406).

The majority of women who live in rural areas (55 cases, 88.7%) had a significantly longer patient delay than those who live in urban areas (26 cases, 57.8%) (P=0.0002).

Women who travel more than 30 km to reach the nearest health facility (60 cases, 84.5%) had a longer patient delay than those who travel less than 30 km (21 cases, 58.3%) (P=0.0029).

Women who did not have a history of any breast problems before (51 cases, 83.6%) had a longer patient delay than those who had a history of breast problems (30 cases, 65.2%) (P=0.0281).

A higher proportion of women who did not have any family history of breast cancer (65 cases, 83.3%) had a significantly longer presentation delay in presenting to a health facility (P=0.0025).

Women with no history of comorbidities (59 cases, 88.1%) had a significantly longer patient delay (P=0.0001).

A significantly higher proportion of patients who were diagnosed at late stage (stage III & IV) (60 cases, 84.5%) had a long patient delay of more than 3 months (P=0.0028).

Discussion

Our study at Tobruk Medical Centre in Libya found that 75.7% of patients experienced a delay of over three months before seeking a diagnosis, with an average delay of nine months. Patients in Africa experience similar delays. Prolonged delays were significantly associated with advanced stages of the disease, and most patients diagnosed at an advanced stage had a delay of over three months. The most common reasons for patient delay were lack of awareness of early symptoms, financial difficulties, and reliance on traditional and spiritual treatments. Our study highlights the need to improve access to healthcare facilities and services to reduce the delay between symptom onset and diagnosis.

The study showed that breast cancer is a significant issue for women living in rural areas, where they are twice as likely to delay seeking medical care compared to their urban counterparts. This trend is consistent with studies conducted in other countries, where women living in rural areas present late to medical care. Women who have to travel more than 30 km to reach a health facility are also three times more likely to experience delays in seeking medical care, mainly due to the long distance they have to travel to access primary healthcare units and cancer diagnostic centres. For women living far from health facilities, it is challenging to access transportation, which further contributes to their delay in seeking medical care.

One of the primary reasons for the delay in seeking medical care is low awareness and knowledge of breast cancer risks, early symptoms, and treatment options among women in sub-Saharan African countries. Illiterate women are six times more likely to experience delay in presentation than those who have received secondary education or above, as they are unable to read materials such as brochures and leaflets that would have increased their general knowledge about the disease.

Our study indicates that women who present with painless breast masses are more likely to give up late than those who present with a painful mass. Individuals may not interpret and label their symptoms as severe, influencing their early medical-seeking behaviour. Additionally, breast cancer patients who have swelling or a lump in the armpit are less likely to experience a delay compared to those who do not. Women who have had a previous history of breast problems are also less likely to present late to the health facility. In contrast, those who have never experienced any breast problems before are more likely to delay in seeking early medical care.

The study has shown that knowledge of breast self-examination increases the likelihood of women presenting early for breast cancer care and being diagnosed at early stages. Similarly, women who can perform breast self-exams are diagnosed earlier compared to others. However, in our study, the majority (87.9%) of women did not practice breast self-examination. Most (67.3%) of them detected their breast abnormalities accidentally while washing their body, during sleeping, or when they took off their clothes. Some others (18.7%) noticed it while breastfeeding and when the disease produced discharge and pain (6.5%). Only 7.5% of women detected the abnormalities on their breasts by breast self-examination. Similarly, 68% of breast cancer patients in the east of Libya noted lumps as an accidental finding, while only 2% of patients detected lumps during breast self-examination.

Conclusion

Our study highlights two significant findings - long patient delay and advanced-stage diagnosis. Patients who travelled a distance of 30 km or more, lived in rural areas, had no history of breast problems, experienced no lumps or swelling in the armpit, had painless lumps in the breast, and were illiterate were more likely to experience long patient delay for breast cancer diagnosis in the east of Libya. Therefore, it's essential to design public awareness programs to promote early detection of breast cancer and prevent patient delay in presentation.

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