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Early Breast Cancer Detection Is Higher Compared to Advanced Cancer

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Background: Breast cancer is the most common cancer in women. It has become possible to diagnose breast cancer early due to effective screening and patient education which became a worldwide practice. National breast cancer screening program in Bahrain was implemented in 2005.

Objective: To determine the incidence of early, locally advanced and systemically advanced breast cancer patients.

Setting: Department of Surgery, Salmaniya Medical Complex, Bahrain.

Design: Retrospective study.

Method: One hundred and sixty-one patients seen between January 2000 and August 2011 were included in the study.

Result: One hundred fifteen (71.4%) patients had early breast cancer. Twenty-six (16.2%) patients had locally advanced cancer and twenty (12.4%) had systemically advanced breast cancer. Patients were divided into two groups: group A, (below 50 years) were 87 (54%) and group B (50 years and above) were 74 (46%) patients. Early stage was diagnosed in 68 (78.2%) patients less than 50 years and 47 (63.5%) patients in 50 years or older. There was no significant relation between the stage and the duration of symptoms, marital status, presence or absence of child birth or family history of breast cancer.

Conclusion: The incidence of early breast cancer detection in Bahrain is higher than advanced stage. These results might have been secondary to the implementation of the National Breast Cancer Screening Program, as well as the growing health awareness of the general population in regular breast self-examination and early presentation to specialized breast surgeons.

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Breast cancer is the most frequently diagnosed malignancy in women in the United States. In 2009, the incidence of breast cancer represented 25% of all newly diagnosed malignancies[1]. Breast cancer was also responsible for nearly 15% of all cancer deaths, making it the second leading cause of death worldwide after lung cancer[1].

The clinical stage of breast cancer is determined primarily through physical examination of the breasts and regional lymph nodes (axillary, supraclavicular and cervical)[2]. A frequently used staging system is the TNM system. The American Joint Committee on Cancer (AJCC) has modified the TNM system for breast cancer to help in predicting the prognosis and set the protocol of management, see table 1[3].

The single most important predictor of 10 and 20 year survival rates in breast cancer is the number of axillary lymph nodes involved with metastatic disease.

Delay in seeking medical advice for symptoms of breast cancer remains an important factor in late diagnosis and further management. This delay has a significant impact on the individual, society, as well as the government strategies for health resources expenditure. The general outcome is far better and less expensive on the long run to treat patients with early stage breast cancer than advanced[3].

In Bahrain, there are about 40 new cases of breast cancer and approximately 12-15 deaths resulting from the disease each year[4]. There is no doubt that breast cancer is the most common type of malignancy affecting women and is responsible for 6% of deaths when compared to other types of malignancies in Bahrain[4]. Fakhro et al found that patients presenting with stage II and stage III were more common in Bahrain, which indicates late presentation to the physician[5].

The aim of this study is to determine the incidence of early, locally advanced and systemically advanced breast cancer patients.

METHOD

One hundred sixty-one female patientsô records were reviewed for risk factors, diagnosis, management, and survival rate between January 2000 and August 2011. TNM staging was evaluated, see table 1. The size of the primary tumor was measured clinically and confirmed by histopathology.

Table 1: TNM Staging System for Breast Cancer

Stage grouping			
Stage 0	Tis	N0	M0
Stage I	T1[b]	N0	M0
Stage IIA	T0	N1	M0
	T1[b]	N1	M0
	T2	N0	M0
Stage IIB	T2	N1	M0
	T3	N0	M0
Stage IIIA	T0	N2	M0
	T1[b]	N2	M0
	T2	N2	M0
	T3	N1-2	M0
Stage IIIB	T4	N0	M0
	T4	N1	M0
	T4	N2	M0
Stage IIIC	Any T	N3	M0
Stage IV	Any T	Any N	M1

b TI includes TI mic. From: Greene FL, Page DL, Fleming ID, et al (eds). AJCC Cancer Staging Manual, 6th ed, New York, Springer-Verlag, 2002

Metastasis was investigated biochemically and by imaging. All patients had liver function test and serum calcium level. CT scan of the chest, abdomen and pelvis were done to exclude lung, liver and other metastasis; and nuclear bone scan was done to exclude bone metastasis.

The patients were further divided into 3 subdivisions. The first was early breast cancer, which included (T1, T2, N0-N1, M0). The second was locally advanced, which included (T3, T4, N0-N2, M0). The third was advanced or systemic breast cancer, which included (T1-T4, N0-N3, M1). Another analysis was done to find the relationship between the stage at presentation and age, duration of symptoms, marital status, child birth and family history of cancer. The age was categorized into two age groups. Group A: below 50 years of age and group B: 50 years of age or above.

The data were analyzed using SPSS 18.

RESULT

One hundred sixty-one patients were reviewed. One hundred fifty-three (95%) were Bahrainis and 8 (5%) were non-Bahraini patients.

Early breast cancer was diagnosed in 115 (71.4%) patients, locally advanced in 26 (16.2%) and advanced in 20 (12.4%), see table 2. Patients were divided into two groups: group A, (below 50 years) were 87 (54%) and group B (50 years and above) were 74 (46%) patients, see table 3.

Table 2: Tumor Stage at Presentation

Stage	Number (%)
Early	115 (71.4%)
Locally Advanced	26 (16.2%)
Advanced (M1)	20 (12.4%)
Total	**161 (100%)**

Table 3: Tumor Stage and Age

Tumor Stage	Age (<50)	Age (>=50)
	Number (%)	
Early	68 (78.2%)	47 (63.5%)
Locally Advanced	11 (12.6%)	15 (20.3%)
Advanced (M1)	8 (9.2%)	12 (16.2%)
Total	**87 (100%)**	**74 (100%)**

In group A, 68 (78.2%) presented at an early stage, 11 (12.6%) were at locally advanced stage and 8 (9.2%) patients were at an advanced stage.

In group B, 47 (63.5%) presented at an early stage, 15 (20.3%) were at locally advanced stage and 12 were at an advanced stage. Early breast cancer was higher in both age groups, but P value was not significant.

Duration of symptoms, marital status and childbirth had no significant relationship to the stage at presentation, see tables 4, 5, and 6. Family history to the stage at presentation showed no significant P value but table 7 showed that 39 patients who had positive family history of breast cancer presented early, see table 7.

Table 4: Tumor Stage and Duration of Symptoms*

Tumor Stage	<3 Months	3-6 Months	6-12 Months	>12 Months
	Number & %			
Early	54 (47.8%)	30 (26.5%)	17 (15%)	12 (10.6%)
Locally Advanced	9 (34.6%)	6 (23.1%)	4 (15.4%)	7 (26.9%)
Advanced (M1)	8 (40%)	3 (15%)	4 (20%)	5 (25%)
Total	**71 (44.9%)**	**39 (24.5%)**	**25 (15.7%)**	**24 (15.1%)****

*P-value = 0.647 (Goodman and Kruskal Test) **Duration data were missing in two cases

Table 5: Tumor Stage and Marital Status*

Tumor Stage	Unmarried	Married
	Number (%)	
Early	17 (73.9%)	98 (71%)
Locally Advanced	4 (17.4%)	22 (15.9%)
Advanced (M1)	2 (8.7%)	18 (13%)
Total	**23 (100%)**	**138 (100%)**

*P-value = 0.647 (Goodman and Kruskal Test)

Table 6: Tumor Stage and Child Birth*

Tumor Stage	Had children	No children
	Number (%)	
Early	93 (72.1%)	22 (68.8%)
Locally Advanced	19 (14.7%)	7 (21.9%)
Advanced (M1)	17 (13.2%)	3 (9.4%)
Total	**129 (100%)**	**32 (100%)**

*P-value = 0.647 (Goodman and Kruskal Test)

Table 7: Tumor Stage and Family History*

Tumor Stage	Positive	Negative
	Number (%)	
Early	39 (76.5%)	75 (69.4%)
Locally Advanced	9 (17.6%)	16 (14.8%)
Advanced (M1)	3 (5.9%)	17 (15.7%)
Total	**51 (100%)**	**108 (100%)****

*P-value = 0.303 (Goodman and Kruskal Test)
**Family history data were missing in two cases

DISCUSSION

The number of new cases of breast cancer has risen worldwide, from about 640,000 in 1980 to more than 1.6 million in 2010[6]. Breast cancer statistics has revealed that most patients present with early breast cancer at the time of diagnosis[7,8-10].

The implementation of the national breast cancer screening program in Bahrain in August 2005 has marked an increase in the detection of breast cancer at an earlier stage. The aim of the screening program was early detection of breast cancer in ladies above the age of forty years; the tools used are education and screening mammography[10].

To our knowledge, this is the first study to reveal that breast cancer patients present at an early stage in Bahrain, see table 2. In addition, we also found that breast cancer was diagnosed at an early stage in various ages, see table 3.

Our finding is different than the popular impression that breast cancer patients present late in Bahrain. Our finding shows that early breast cancer is diagnosed more or almost equal to advanced cancer.

In addition to the availability of screening programs, increasing public awareness and the ease of access to health facilities have most likely contributed to early detection.

In Hong Kong, according to a study done in 2006 on 158 patients, 126 (80%) were at stage 0/I/II and 32 (20%) at stage III/IV[11].

In a study in Nigeria, 46 (26.4%) patients presented within a month of noticing the

symptoms while 72 (45.3%) presented after 3 months[12]. The reason for the delay was institutional or physician related in 46.2%; patient related reasons were revealed in 79.2%[12].

In Egypt, a study was performed on 343 women with breast cancer[13]. It compared those who had been initially diagnosed at Stage I or II with those at Stage III or IV. Forty-six percent of patients presented late (stage III or IV). The reasons for late presentation were delay in seeking medical advice, social reason, financial factor and delay of referrals. Other factors such as the absence of pain or poor health education contributed to the delayed presentation[13,14].

In a study from India, 45% were reported at early stages and 53% at late stages[1]. The risk for late stage was seen in unmarried women, widowed/divorced, poorly educated and post-menopausal women[15]. In our study there was no significant relation between the stage at presentation and duration of symptoms, marital status or child birth.

Early presentation seen in some studies in married women was explained to be due to the ability of married women to rely on their husbands for household support and to seek medical advice soon[15].

Another study concluded that most cases of breast cancer presented at an advanced stage were probably due to poor economic status, living in remote areas, illiteracy and negligence by the patient or their family members and general practitioners[16].

A study from Southern California, USA indicated that the lower socioeconomic status, black ethnicity and younger age were risk factors for late stage diagnosis and long duration of symptoms[1-2].

Swanson et al showed that black and white women were more likely to be diagnosed with smaller tumors than before[17].

CONCLUSION

The incidence of early breast cancer detection in Bahrain is higher than the advanced stage in all age groups which is similar to international figures. The result might have been secondary to the implementation of the National Breast Cancer Screening Program as well as the growing health awareness of the general population in regular breast self-examination and early presentation to specialized breast surgeons.

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