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Demographic Characteristics and Clinico-Pathological Presentation of Breast Cancer Female Patients in South Egypt Cancer Institute (2005-2012)

Gabr A[1], Razek K[2], Atta H[3], Elsabah T[4], Tamam S[5]

[1] Department of Medical Oncology, South Egypt Cancer Institute, Assiut University
[2] Department of Surgical Oncology, South Egypt Cancer Institute, Assiut University
[3] Oncoradiology Department, South Egypt Cancer Institute, Assiut University
[4] Department of Pathology, South Egypt Cancer Institute, Assiut University
[5] Department of Radiotherapy, Faculty of Medicine, Cairo University

Correspondence should be addressed to Adel Gabr at Department of Medical Oncology, South Egypt Cancer Institute, Assiut University Egypt, adelgabre@yahoo.com

Abstract

Breast cancer is the commonest malignant neoplasms among females in worldwide including Egypt. The study was carried out on 1070 out of a total of 1370 patients (78%) presenting with palpable breast lumps diagnosed with neoplastic breast lesions. Approximately one-third of the breast cancer patients diagnosed at age 40–50 years (median age range 49 (26-86 years); 71% came from rural areas; Positive family history was recorded in 7.5%. The patient herself detected the lump in the majority of cases (84%), only 40% sought medical advice with a specialist within the first four months. Accordingly, 62% of these patients presented in advanced stages (III and IV). The main histological type was the invasive ductal carcinoma, in which pathological changes of grade II and III were observed in 62.2% and 24.7% respectively. **Conclusion**: These findings of this study justify increasing efforts for establishing a comprehensive breast cancer control programs in Egypt for increasing awareness of the breast cancer and the controlling mechanisms as well as advocating for appropriate policies and programs for cancer control and early detection.

Introduction:

Breast cancer encompasses the furthermost commonly diagnosed cancer among women, with approximately 182,000 women with breast neoplasm annually in the United States, representing for about 26% of all incident cancers among women [1]. Each year, 40,000 women die of breast cancer, constructing it the second-leading cause of cancer deaths among American women after lung cancer. The mortality risk of breast cancer is approximately 3.4% [1]. The worldwide incidence of female breast cancer show noticeable difference, with the highest rate in the USA and lowest in Asia. From 1983 to 1987, the age-adjusted incidence rate of breast cancer varied by a factor of about five between countries. However, incidence rates have been increasing in Asian countries, particularly in Japan, and China, as these regions, makes the transition toward a Western-style economy and pattern of reproductive behavior [2]. It is also the leading cause of cancer-related deaths worldwide, case fatality rates being highest in low socioeconomic countries [3]. Breast cancer is the most common neoplasm worldwide [4]. The incidence of breast cancer has increased steadily in the USA over previous years, but the breast cancer mortality appears to be declining, when early detection and more efficient treatment is employed [5,6].

Egypt was completely missing incidence rates at national level until the results given in the current National Cancer Registry Program (NCRP) report were obtained since 2008. Previous available statistics were proportions resulting from single or multicenter hospital registries that could not be used for calculation of incidence rates [7-13]. The only published incidence rates are those from a cancer registry in one district in Nile delta (Gharbiah governorate). Breast Cancer considered the commonest site of cancer in females (38.8%, 2007). Studies are published using these Gharbiah data up to 2007 and are limited to specific sites of cancer mainly breast [14-17], None of these geographically-limited studies and published rates could be considered as representative of Egypt, being based on results of one registry in a single delta governorate and do not have an impact on understanding the current situation of cancer at the national level. The National Cancer Registry Program (NCRP) was established in 2008 and became the only source for cancer incidence

in Egypt [18]. The main objective of the current publication is to present the incidence rates of cancer in Egypt in 2008–2011 based upon data of the National Cancer Registry Program of Egypt with estimated incidence of the disease up to 2050. Breast cancer considered the most common sites of cancer among female (32% in Egypt and 28% in middle Egypt) [19]. Clarifying that the breast is the leading cancer site among the Egyptian population in general, surpassing even bronchogenic cancer. Although the unclear etiology of the majority of breast cancer. However, numerous established risk factors for the disease [20]. These risk factors include female gender, patient aging, and positive family history of breast cancer at a young age. Variations of menstrual history early menarche or late menopause, Even older age at first live childbirth; prolonged hormone replacement therapy or previous exposure to therapeutic chest wall irradiation. In addition to benign proliferative breast disease, increased breast density in the mammographic examination. Genetic mutations are also encountered as a risk factor [20]. However, except for female gender and increasing patient age, these risk factors are associated with only a minority of breast cancers. The most common Proliferative pathological abnormalities of the breast are limited to the lobular and ductal epithelium, including hyperplasia, atypical hyperplasia, in situ carcinoma, and invasive carcinoma [20].

Screening and early detection when combined with adequate, efficient treatment is considered the hope for a reduction of mortality in breast cancer as postulated by WHO [21].

Aim of the work:

I- We aim to review the main demographic characteristics and clinic-pathological presentation of breast cancer female patients visiting Teaching Hospital of South Egypt Cancer Institute, Assiut University, Egypt, from 2005-2012

II- Overall relative 5 years survival rate. (Median follow up 5years)

Methods:

Case Recording and Clinical examination:

A total of 1370 cases presented with breast lump from the year 2005 to 2012 in South Egypt Cancer Institute Teaching Hospital, South Egypt Cancer Institute, Assiut University. (Only those patients who stay in South Egypt Cancer Institute from diagnosis, treatments and follow up)

I-The medical records were repossessed and studied retrospectively with regards to Demographic Characteristics and Clinico-Pathological Correlation of the histological features with estrogen receptor (ER), progesterone receptor (PR), and Her2neu status. Demographic data, reproductive history at the time of presentation and histopathological details were analyzed. Data were collected and evaluated. Data routinely recorded on the patient's file sheet questionnaire by the examining physician included age, residence, marital status in addition to family history of breast cancer. Data on tumor size and nodal status were obtained by examination of the tissue biopsies. Abdominal ultrasound and chest X-rays, CT chest and abdomen and Bone scan were carried out to exclude metastases. All reports with positive TCNB results were confirmed histopathologically after excision of the lesions. Carcinoma type was determined following the WHO classification while the TNM staging system (tumor, node, and distant deposits) of the American Joint Committee on Cancer (AJCC) was employed in recording the clinical stage of the disease [22].

II- Revision of all treatments modalities used (Chemotherapy-Radiotherapy-Hormonal therapy – Target therapy).

Results:

Among 1370 patients presenting by breast lump at South Egypt Cancer Institute Teaching Hospital, 1070 patients (78%) revealed pathological diagnosis consistent with breast carcinomas (32% with other type of malignancy and benign lesions). The peak frequency of breast cancer increased with age until menopause, thereafter it started to decline. More than half the patient (60.7%, 650/1070 cases) was in the premenopausal age, and 18.7% (200/1070) were under 40 years. The family history of breast cancer was reported in 80 patients (7.5%); 64 of these (80%) had an affected first-degree relative. 84% of cases established self-discovery of the malignant lump in. Applying the WHO classification, the most common histological type determined microscopically was invasive ductal carcinoma (840 patients: 78.5%), followed by lobular carcinoma (210 patients, 19.6%) and mixed (IDC and lobular carcinoma) (20 patients, 1.9%). At the time of initial diagnosis 750 patients (70%) had axillary nodal involvement. According to the AJCC system, the frequencies were 7.9% (85), 29.9% (320), 45.5% (486) and 16.7% (179) for stages I, II, III and IV respectively. The ER+/PR+ phenotype being recorded 40.6% (437/1070 cases) of the studied population, on the other hand, the ER-/PR- variant was displayed in 30.4% (327/1070). ER+/PR- were recorded in 6% (64 cases), and ER-/PR+ were in 3% (32) and ER/PR were undetermined in 20%. Approximately 70% of postmenopausal breast cancers were ER+ ($P<0.05$). Immunohistochemical staining for Her-2/neu protein overexpression was determined in 45% (481 cases) while 55% (589 cases) undetermined. Her-2/neu positive reaction in 61% (294/481) of patients were negative Her-2/neu expression in 39% (187/481 cases) of cases. The 5-year relative survival rate for women with stage I, II, III, IV are close to 80%, 60%,40%, 8% respectively (figure1).

Table 1: Demographic Characteristics Parameters in study population Diagnosed with Breast Lump

Variant	No. of cases	%
Age group		
20-29	46	4.3
30-39	154	14.4
40-60	687	64.2
>60	183	17.1
Marital state		
Married	850	79.5
Unmarried	180	16.8
Divorced/widow	40	3.7
Residence		
Rural	760	71
Urban	310	29
History of breast feeding		
Positive	780	73
Negative	290	27
Family history		
Positive	80	7.5
Negative	990	92.5
Menopausal state		
Premenopausal	650	60.7
Perimenopause	150	14
Postmenopausal	270	25.3
Oral Contraceptive		
Yes	423	39.5
No	647	60.5

Table 2: total cases of breast cancer in correlation to total cancer cases/years

No. of patients years	Total cases of cancer	Breast cancer	Ratio
2005	1420	164	11.5%
2006	1622	199	12.2%
2007	1855	247	13.3%
2008	2019	284	14%
2009	2281	338	14.8%
2010	2590	401	15.5%
2011	2642	353	13.4%
2012	2630	462	17.6%
Total cases	**17059**	**2448**	**14.4%**

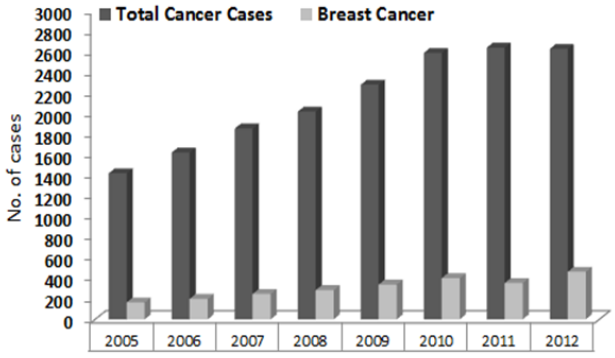

figure (1): No. of breast cancer in correlation to total cases of cancer

Table 3: Other pathology other than invasive breast carcinoma (300 patients)

Pathology	No. of cases
Ductal carcinoma in situ	35
Lobular carcinoma in situ	25
Atypical glandular hyperplasia	20
Phyllodes	14
Abscess	24
Fibrocystic disease	53
Fibroadenoma	26
Lipoma	18
NHL	18
Angiosarcoma	7
liposarcoma	5
Ductal papiloma	16
Neuroendocrine tumor	8
Lactating adenoma	16
Accessory breast	15
Total cases	**300**

Table 4: Tumor Clinico-Pathological Characteristics of 1070 patients with Breast lump

Variables	Cases	%
Clinical staging		
I	85	8
II	320	30
III	486	45.3
IV	179	16.7
Histopathology		
IDC	836	78
ILC	210	19.6
Mixed(IDC/ILC)	24	2.4
Tumor grading		
I	100	9.3
II	666	62.2
III	264	24.7
IV	40	3.8
Hormonal Receptors		
ER+/PR+	437	40.6
ER+/PR-	327	30.4
ER-/PR+	64	6
ER-/PR-	32	3
Undetermined	210	20
HER2neu expression		
Determined	**481**	45
Positive	294	27.5
Negative	187	17.5
Undetermined	**589**	55
Triple negative BC	**25/1070**	**2.3**

Table 5: Treatment modalities received among 1070 cases of breast cancer

Treatment modalities	No.	%
Surgery (ITT)		
MRM	670	75.2
BCS	192	21.5
Lumpectomy	29	3.3
Adjuvant Chemotherapy		
Anthracycline based chemotherapy	562	63
Anthracycline + taxanes	199	22.3
No adjuvant treatment	130	14.7
Adjuvant Radiotherapy		
Yes	510	57.2
No	381	42.8
Adjuvant Hormonal treatment		
Yes	720	80.8
No	171	19.2
Palliative Chemotherapy	125/**179**	69.8
Palliative hormonal treatment	29/**179**	16.2
No treatment	25/**179**	14

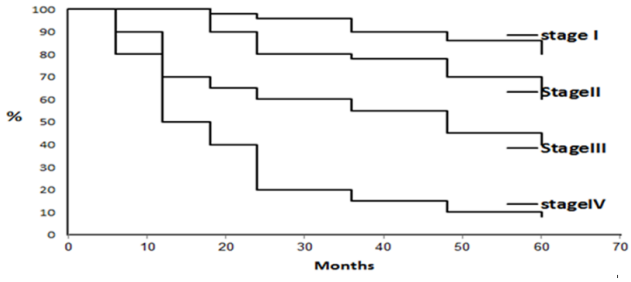

Figure (2): probability of 5 years survival of breast cancer patients according to staging

Discussion:

Breast Cancer is one of the five most common cancers worldwide including lung, breast, bowel, prostate and stomach cancer. Breast cancer is ranked within the most common female neoplasms worldwide, which is increasing particularly in developing countries where the majority of cases are diagnosed in late stages. According to WHO mortality estimates, cancer is the fourth-ranked cause of death [23]. The largest increase in cancer incidence among the WHO regions in the next 15 years is likely to be in the Mediterranean region where breast cancer is recorded as the commonest type of female malignancy in almost all national [24], and benefits programs, resulting in a high proportion of women presenting with late-stage disease, as well as by the absence of adequate diagnosis and treatment facilities. According to the International Agency for Research on Cancer, the specialized cancer agency of the World Health Organization, one-third of these cancer deaths could be decreased if detected and treated early; meaning that about 400,000 lives could be saved globally, every year. In Egypt, as in many other parts of the world, breast cancer represents the most common type of cancer: it accounts for approximately 32% of reported malignancies among Egyptian women (28% in middle Egypt) [25, 19]. In this study, breast cancer was diagnosed in 78% (1070 out of 1370 cases) of patients presenting with apparent breast lumps. Approximately two third of the patients were diagnosed in between their forties and sixties, where the peak frequency occurred, displaying a noticeable decline after the age of 60 years. WHO estimates revealed that approximately half of the cancers in the Eastern Mediterranean Region (EMR) occur before the age of 55 and that the age-standardized incidence rates of all cancers in this region are expected to double as risk factor exposure increases [23]. This situation differs from that reported in western and developed countries; where the peak incidence rates project decades later [4].

In WHO project it has been recommended that among the Arab population, younger age distribution could be a reflection of the younger demographic profile [26]. The relatively same frequency of patients with positive family history observed in this study compared to others [27,28] although the customary consanguineous marriages which are known to be common throughout our region [29]. Although 84% of the patients detected the lumps by themselves,

regrettably, only 40% sought medical advice with specialist within the first two months after detection. This finding was illustrated by the fact that 70% of the studied population had positive axillary nodal metastasis at the time of diagnosis; thus placing more than 60 % within the third and fourth stages. while surveys from other developing countries reported High proportions of advanced stages at presentation, this could be explained mainly by the lack of early detection programs, resulting in a high proportion of women presenting with late-stage disease, as well as by the absence of adequate diagnosis and treatment facilities [29,30]. Pathologically, in accordance with the results of other cancer registries, the leading tumor type was infiltrative ductal carcinomas. The frequencies of HR positive among Egyptian patients with breast cancer that were reported in this study are compared to those observed in more-developed countries [31-33]. In general, there is a more uniform loss of these receptor contents as the tumor becomes more anaplastic, indicating that hormone receptor status could represent one aspect of tumor cell differentiation. Our results showed a direct significant association between menopausal status, grade of carcinoma and hormonal receptor positive contents. Following the same rationale, a relatively high rate of positive Her-2/neu protein expression was demonstrated in this study (in between examined blocks), similar to findings previously reported from Arab countries [34], and this correlated significantly with the histological tumor grade. Thus, the coexistence of HER-2/neu over-expression and hormone receptor negative in the examined tissue could serve as a reliable prognostic indicator for the progress of the disease process. 5years relative survival rate for all patients is 65% and the 5-year relative survival rate for women with stage I, II, III, IV are close to 80%, 60%,40%, 8% respectively which is lower than comparable data published in ASCO (American Society of Clinical Oncology) (100%, 93%, 73%, 22% for stage I, II, III, IV respectively) this mostly due to late diagnosis in our patients and unavailability of treatment as target agents for those of HER2neu expression (trastuzumab, lapatininb) and many second line chemotherapies in early years of the study.

Conclusion:

The expanding burden of Late stage breast cancer in Egypt (>60), can be explained mainly by the lack of early detection programs, resulting in a high proportion of women presenting with late-stage disease, as well as by the absence of adequate diagnosis and treatment facilities. Validating the demand for beginning comprehensive national Egyptian cancer control programs for early detection of breast cancer, as a major approach to managing the disease could be achieved by raising the awareness of the general population regarding the significance of clinical breast examination, breast self-examination, and early medical consultation. According to the International Agency for Research on Cancer (IARC), the specialized cancer agency of the World Health Organization, one-third of these cancer deaths could be decreased if detected and treated early; meaning that about 400,000 lives could be saved globally, every year.

Recommendations:

It is thought that the improved survival rates in Egypt could be related to early detection of cancer rather than improved therapeutic modalities.

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