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Evaluation of Breast cancer Treatment in Al-Hussein Hospital in Karbala city

(A Descriptive Study)

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ABSTRACT:

Background*: breast conserving surgery provide good choice for treatment of stage 1 and II breast cancer and has equivalent out come in term of survival and prognosis.*

Aims of the Study*: To evaluate breast cancer treatment according to multiple variables and patient's wish in Al-Hussain hospital in Karbala city.*

Patient and methods*: - The present study is considered as a descriptive study, which has been conducted at AI-Imam AI-Hussein medical city in Karbala governorate during the period from 1st September 2017 to the 30 of December 2018. Fifty-two patients included in the study were admitted to the general surgical ward. The entire patients were first visit the breast clinic or general surgical out-patient clinic or private clinic, every case is assessed by triple assessment (history and clinical examination, imaging study, histological diagnosis). Each case was presented and discussed in MDT (multidisciplinary team), after that we do the operation (wide local excision) and the specimen without formalin send for the lab. unit in our hospital for diagnosis and assessment of the margins, the result usually come after 20-30 minutes.*

As the result come back, if the margins were free then we start with axillary dissection or we do re-excision if the margins were positive and then the wound closed with closed system drain after secure hemostasis, and the axillary dissection is standard to the level II L.N dissection.

Results*: Fifty-two patients with breast cancer included in our study, twenty three patients (44%) were treated by mastectomy and twenty nine patients (56%) were treated by breast conserving surgery.*

The most common type was invasive ductal carcinoma, which can be treated by either modality (breast-conserving surgery or mastectomy).

A sentinel lymph node biopsy (S.L.N.B) is important to avoid negative axillary dissection.

In conclusions*; screening program for breast cancer to detect early disease is very important subject before proceeding to axillary dissection S.L.N.B is very important and useful. The choice of Mastectomy was lower than that of Breast*

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Conserving Surgery in our study for early treatment with breast cancer.

Key words: *Al-Hussein Hospital, Breast cancer Treatment, Karbala city*

I. INTRODUCTION

Breast symptoms and signs are common problem in clinical practice, about 16% of women between 40 and 70 years attending the primary care clinics present with breast symptoms, four percent of these symptoms result in the diagnosis of breast cancer. Five percent of biopsy specimens in the path labs are of breast lesions, 26% of these breast lesions are usually malignant [1] The benign breast lesions are usually simple diseases, even though some of these lesions are associated with a rising risk of breast cancer [1,2,3] Breast cancer is responsible for 32% of the cancer burden in women, even though its true etiology is still unknown. One of every eight to nine women will develop breast carcinoma by the age of 90. Breast cancer is the most common cause of death in women aged 40-49 with a mortality rate of 20% [5]. Most of the breast carcinomas are salvageable if they are diagnosed and treated in the "insitu" stage with a cure rate of (>95%).2 Nowadays, the published articles and reports from the developed countries point to increase rate of both breast carcinoma insitu and cure rate of breast cancer5. This upgrade resulted from better health education, cancer screening programs and the understanding of the genetic basis of breast cancer [6,4] The Early Breast Cancer Detection Center (EBCDC) in Karbala was first established on October 2001. Its objective was to screen the risky women for developing early breast cancer [7]

Breast conserving surgery

The next evolution in treating the disease via surgical management came with the introduction of organ conserving therapy. It was initially reported in 1937 by Geoffrey Keynes of St Bartholomew's Hospital, London. Mr. Keynes also suggested the incorporation of radium treatment alongside the surgical excision as previous cases have shown a better response and regional disease control [8]. Nonetheless, several follow-up studies have demonstrated that there was an insignificant difference between the patients whom had undergone total mastectomy, breast conserving lumpectomies (wide local excisions) or WLE with radio therapy (RT) in regards to both disease free and overall survival [9,10]. However it was evident that the omission of radiation therapy had a significant impact on the ipsilateral disease recurrence rate in patients whom had undergone WLE alone. Despite this fact breast conserving therapy has achieved an unchallengeable status in breast cancer treatment and is currently the standard treatment routine performed in patients with early stage disease. The approach itself involves resection of the primary tumour in addition to a margin of normal appearing breast tissues.

Moreover, an axillary lymph node status assessment and adjuvant radio-therapy is often incorporated. This method is preferred over total mastectomy as it not only spares deletion of the whole breast, pectoralis muscles and level III lymph gland if axillary assessment is required, but also has demonstrated survival rates equivalent to total mastectomy in addition to faster patient recovery. Lumpectomy margins in breast conserving surgery:- The accompanying general recommendation, provided by the Society of Surgical Oncology and the American Society for Radiation Oncology, discusses margins for whole-breast irradiation (WBl) breast-conserving treatment at stages I and II of invasive breast cancer.

- Positive margins are associated with an increase in ipsilateral breast tumor recurrence (IBTR) of at least twofold. Negative margins maximize IBTR; broader margin widths don't significantly reduce this risk. With the use of systemic treatment, ipsilateral breast tumor recurrence levels are reduced; in patients not undergoing systemic adjuvant therapy, margins greater than

no ink on the tumor are not needed. Biological subtypes do not display the need for larger gaps than no ink on the tumor.The preference of WBI distribution method, fractionation, and boost dosage should not be decided by margin duration. Wider negative margins than no tumor ink are not reported in patients with invasive lobular cancer; classic marginal in situ lobular carcinoma (LCIS) is not an indicator of re-excision; the importance of marginal pleomorphic LCIS is not obvious. After breast-conserving operation, the aim of post-lumpectomy radiation therapy is to remove local subclinical residual disease thus the local recurrence levels by approximately 75%. For chosen patients who are at low risk for local recurrence, single dose radiotherapy provided during or shortly after breast cancer surgery is useful as an alternative to traditional EBRT. Adjuvant tamoxifen also reduces the breast cancer risk.

The Study Aims

To evaluate breast cancer treatment according to multiple variables and patient's wish in Al-Hussein hospital in Karbala city.

II. PATIENTS AND METHODS

The present study is considered as a prospective Study that conducted at AI-Imam AI-Hussein medical city in Karbala governorate during the period from 1st September 2017 to the 30 of December 2018. Fifty-two patients included in the study were admitted to the general surgical ward. The Fifty-two patients were first visit the breast clinic or general surgical outpatient clinic or private clinic every case is assessed by triple assessment (history and clinical examination, imaging study, histological diagnosis).

Data collected from patient and questionnaire are built up for them including details of history and clinical examination and result of investigations related to breast problem and other important relevant investigations for general assessment of the patient and for pre-operative evaluation.

Each case was presented and discussed in MDT (multidisciplinary team) in our hospital. (The team consist of general surgeons, oncologist, radiologist and histologist) to make final decision about the appropriate treatment and follow up. After make a decision about the lines of treatment the patient admitted in the surgical ward and take consent from the patient and her relatives.

Each operation done by one of five specialist general surgeon who are training in breast surgery and interested in breast conserving surgery and I attained the theatre for all cases either as a surgeon or as an assistant. Before induction of anesthesia we call the histopathological lab. to prepare the frozen section system that need about 30 min. for preparation, after that we do the operation (wide local excision), the specimen without formalin sent to the lab. unit in our hospital for diagnosis and assessment of the margins. The results usually come after 20-30 minutes. As the result comes back, if the margins are negative for tumor then we start with axillary clearance to the level II L.N dissection, or we do re excision if the margin was unsafe, then the wound closed with closed system drain after secure hemostasis. Afterwards the final Specimens sent for histopathological study for final assessment for both mammary and axillary specimens (for staging, grading, hormonal study and HER2 status).

In some cases when the diagnosis is proved preoperatively we start axillary dissection before the result of the frozen suction comes back. The patient is usually discharged on 2nd day from hospital and we follow that patient for the final result

of histopathology which came back usually after 2-3 weeks. After that the patient is sent to the department of oncology to complete her treatment either within the hospital or outside if the treatments are not available. Usually the follow up of our cases done in the oncological department in regular basis and they may consult us for surgical opinion for any complications or recurrence. Statistical Data Analysis: - The researcher used Microsoft Office Excel in order to analyze the entered data. Qualitative data was expressed as numbers (N) and percentages (%). Chi square test for trends was used for measurement of association. A P value was significantly used less than 0.05.

III. RESULTS

*The total number of patients underwent surgery were fifty-two, fifty-one female and one male.

Table 1: - Distribution of patients according to the age at time of presentation.

The minimal age of breast cancer diagnosed in present study is 24 years old, as in this table below: -

Age in years	No. of cases	Percentage
20-30	5	9.6
31-40	6	11.5
41-50	25	48
51-60	8	15.4
61-70	5	9.6
71-80	3	5.7
Total	52	100 %

Table 2:-Distribution of female patients according to the Age at menarche.

Age at menarche of the patients in present study was distributed between 10-15 years old, as shown in the table below: -

Table 3: - Distribution of female patients according to the Age at menopause. Twenty-nine patients were diagnosed with breast cancer pre-menopause, while twenty-two patients were diagnosed post menopause, as shown in the table below: -

Age in years	No. of cases	Percentage
40-43	6	11.7

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43-45	17	33.4
>45	6	11.7
Postmenopausal	22	43.2
Total*	51	100%

Table 4:- Factors related to the risk of breast cancer incidence.

Multiparity and breast feeding are factors associated with decrease risk of breast cancer, while the rest of factors that are shown in the table below are related to risk decrease.

Factor	Classification	No. of cases	Percentage
Gender	Female	51	98.1
	Male	1	1.9
Family history	Positive	4	7.7
	Negative	48	92.3
BMI	<30 kg/m^2	37	71.2
	>30 kg/m^2	15	28.8
History of irradiation	Positive	1	1.9
	Negative	51	98.1
Marital status	Married	48	92.3
	Single	4	7.7
Pregnancy*	>2	44	84.7
	<2	7	13.4
Breast feeding*	>1 year	37	71.2
	<1 year	7	13.45
	No	7	13.45
H.R.T	Positive	1	1.9
	Negative	51	98.1
Alcohol	Positive	0	0
	Negative	52	100
Smoking	Positive	8	15.4
	Negative	44	84.6

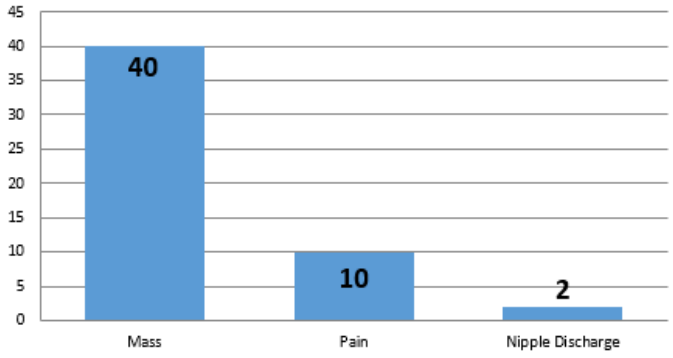

Figure 1 Mode of Presentation of Breast Cancer

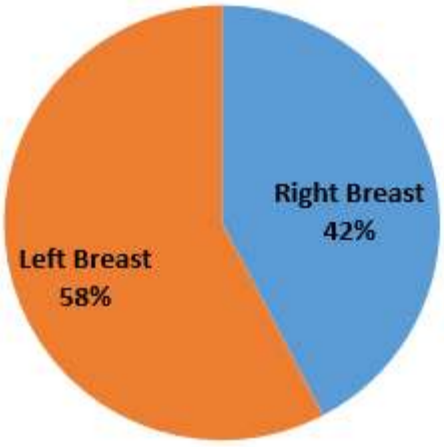

Figure 2. Percentages of the Affected Breast

Table 5: - Pre-operative Investigations for breast cancer.

All cases are assessed by triple assessment (history and physical examination, imaging, cytology and/or histopathology).

All Patients in our study underwent CT scan for pre-operative staging, as shown in the table below: -

Investigations	Performed	Percentage	Not performed	Percentage
Ultrasound	52	100	0	0
mammography	52	100	0	0
CT. scan	52	100	0	0
M.R.I	10	19.2	42	80.76
F.N.A.C.	45	86.5	7	13.46
C.N.B.	30	57.7	22	42.3

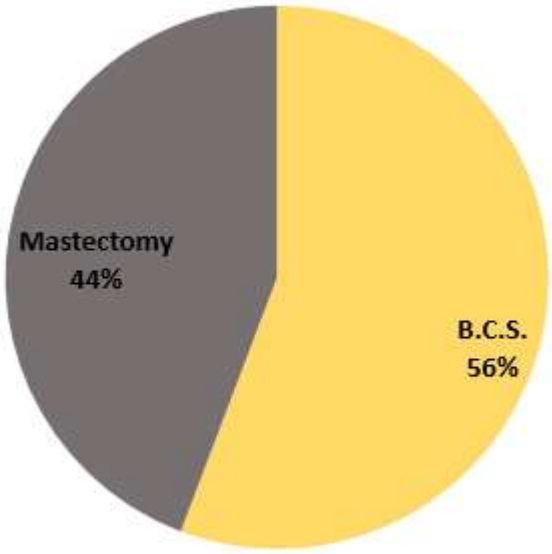

Figure 3 Types of surgical treatment for breast cancer

Table 6: - Safe margins after excision.

In present study, the majority of our cases that underwent B.C.S. had safe margins between 5mm and 10mm, as shown in the table below:-

Length	No. of cases	Percentage
<5mm	**5**	**17.2**
5-10mm	**17**	**58.6**
>10mm	**7**	**24.2**
Total	**29**	**100%**

Table 7:- Number of excised Lymph nodes in the axillary dissection.

In our study we have a case with phylloid tumor was operated by mean of B.C.S. without axillary dissection (according to MDT decision).

No. of L. N	No. of cases	Percentage
8-10	**11**	**21.2%**
10-15	**25**	**48%**
>15	**15**	**28.9%**

No L.N. dissection	**1**	**1.9%**
Total	**52**	**100%**

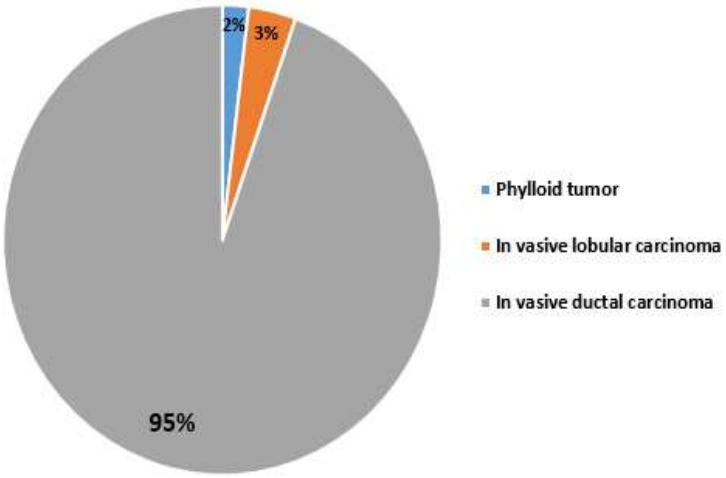

Figure 4 Subtyping Breast Cancer Histology

The prevalent form of invasive ductal carcinoma was used in this study

Table 8: - Stages of breast cancer.

Most cases presented with stage II at time of diagnosis, as show in the table below: -

Stage	**No. of cases**	**Percentage**
T0.	**1**	**1.9%**
Stage I	**6**	**11.5%**
Stage II	**40**	**77%**
Stage III	**5**	**9.6%**
Stage IV	**0**	**0%**

Total	**52**	**100%**

Table 9: - Receptors state in breast cancer.

In present study, most cases of breast cancer were estrogen receptor positive, as shown in the table below: -

Receptors		**No. of cases**	**Percentage**
Estrogen	**+ve**	**38**	**73%**
	-ve	**14**	**27%**
Progesterone	**+ve**	**35**	**67.3%**
	-ve	**17**	**32.7%**
H.E.R2-neu	**+ve**	**8**	**15.4%**
	-ve	**44**	**84.6%**

Table 10:- Distribution of type of surgery according to the stage of breast cancer.

There is a significant association between breast conserving surgery and early stage breast cancer (P. value less than 0.05).

		Total mastectomy	**B.C.S.**	**p. value**
Stage	**0**	**0**	**1**	**0.025**
	1	**2**	**4**	
	2	**16**	**24**	
	3	**5**	**0**	
Total		**23**	**29**	

Chi square= 5.02

IV. DISCUSSION:

Actually this is not the first study that discusses disease treatment assessment in AL-Hussein medical city [25, 26, 27].Regarding Age distribution of breast cancer; in present study the highest incidence of breast cancer affects women in the age group between (41 and 50) years which account for about 48%, vise-versa the lowest incidence affects elderly group between (71 and 80) years which account for 5.7%. The low incidence of breast cancer in this age group may reflect lack of awareness for the disease or small study size, or maybe there are some causes prevalent in our country, which are responsible for deaths in this age group before reaching this age like cardiovascular diseases.

In the United States, Less than 5% of women diagnosed with breast cancer are younger than 40 years of age [11] and According to Noone AM, et al., the average age for breast cancer diagnosis is 62 [12].In 2016, nearly 99.3 % and 71.2 % of all deaths associated with breast cancer in America were recorded in women aged 40 and 60, respectively. [13]. Therefore, a mammography test must be conducted in advance of women aged 40 or over. Among other risk factors of CA-breast is gender, according to table 4 in present study, 98.1% of mammary carcinoma affects women while 1.9% affects men, and this is aligned with the Lin Netal study results that male breast breast cancer accounts for 1 percent of all breast cancer incidents. [15].

About 7.7 % of CA breast have family history in present study and one of these cases which are 4 in numbers have first degree relative with CA colon at age of 36 years, which may be unrelated.

Tung's N. et al., study concluded that BRCA1 & BRCA2 inherited mutation accounts for 5-10% of all female breast cancer, 5-20% of male breast cancer and 15-20% of all family breast cancer. [16,17]

The history of irradiation also constitutes a risk factor for breast cancer development; In this prospective study only one patient has a history of irradiation to the chest and neck for treatment of Hodgkin's lymphoma at childhood between 10-12 years and that patient diagnose with breast cancer at age 58 years, Although radiation therapy has progressed to include a lower dose in smaller areas, recent studies suggest that the elevated risk of breast cancer continues [18].

Regarding the mode of presentation of breast cancer in figure 1; In present study, 40 cases of breast cancer cases presented with breast lump, 10 cases with pain, while only 2 cases presented with bloody nipple discharge and the left breast was affected more than right side as shown in figure 2. Walker S., et al. study suggests that the most common presentation among females who suffer from breast cancer is breast lump and has relatively high predictive value for malignancy [19].

Regarding pre-operative investigations for breast cancer table 5; all patients are assessed by triple assessment (history and clinical examination, imaging studies and histological Diagnosis). All cases are submitted for pre-operative ultrasound, mammography and computed tomography scan for pre-operative staging, 10 patients underwent MRI study, 45 cases underwent F.N.A.C. while 30 cases underwent C.N.B in addition to the other relevant routine Investigations.

FNAC is one of the most initial diagnostic tool for suspicions breast lump, however; in up to 30% of cases, FNAC may be inconclusive necessitating the need for further testing [20]. C.N.B. has higher sensitivity for cancer than FNAC, has lower false negative, and has proven more successful in finding rare breast cancer like lobular carcinoma [21]. Moreover, MRI has the ability to detect small lesions that are not detectable by mammography but have low specificity and may result in over-diagnosis [22].

Mammography is still the preferred breast imaging procedure but less successful for patients younger than 40 years of age, thick breast, less prone to tiny tumors smaller than 1 mm [23].Ultrasound applied as additional tool for mammography [24]. Regarding the types of surgical treatment for Breast cancer figure 4; in present study twenty nine cases (56%) are treated by breast conserving surgery and those patients fulfill the criteria for B.C.S. on the other hand twenty three cases (44%) treated by

mastectomy, five of them presented with stage III breast cancer which is contraindication for B.C.S, other five cases had central retro-areolar tumor, while four cases refused undergoing B.C.S. and preferred total mastectomy, two cases had invasive lobular carcinoma on C.N.B., another three cases with diffuse micro calcification on mammogram, two cases with large tumor in relation to the breast, which is a relative contraindication to B.C.S., one case with excisional biopsy, which returned after 2 weeks with positive margins, underwent a total mastectomy, last case which underwent total mastectomy was male.

V. CONCLUSIONS: -

Throughout our research, 55.67 percent of patients are diagnosed with breast-conserving surgery and 44.33 percent are treated with mastectomy, which is why breast-conserving surgery is now considered a good option for stage 1 and stage 2 breast cancer treatment.

VI. RECOMMENDATIONS: -

1- Processing and provisioning the hospitals with screening program for early detection of breast cancer.

2-Processing and provisioning the hospitals with radiation therapy and using this modality intra-operatively.

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