Demographic and Clinico-Pathological Characteristics of Some Iraqi Female Patients Newly Diagnosed with Breast Cancer

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Abstract.
Breast tumors are the most common carcinoma in women of all ethnicities and races, and are the primary cause of premature mortality among women , early detection is associated with reduce mortality. The majority of breasttumors begin in the lactiferous ducts , which carry milk to the nipple , some begin in the lobule cells ,which are the milk producing cells. breasttumor is worldwide second most common cancer and the most tumor to be diagnosed in womens. breasttumors are ranks first among the Iraqi population for 30 years and are now forming a major public health problem being the second cause of death for women. Aim: This study was aimed to assess and highlight the clinical and demographical profiles of Iraqi women with breast tumor and correlate the distribution of breast tumor in Iraqi Arab women with these demographic and clinicpathological characteristics such as the age of women patients, histologic grade, stage, type and side of the tumor, location, menstruation , hormonal intake , tumor size, lymph node metastasis, Body mass index, family history and others. This is a descriptive study was done at the oncology teaching hospital of the medical city in Baghdad . Sixty cases of newly diagnosis of breast cancer women (mean age 51.18±10.64) were enrolled in this study during the period May 2019-february 2020. Their age range was 30-71 years and 40 healthy women were matched with patients as control (mean age 45.30±9.36), There age range was 30-64 years. Questionnaire of self -evaluation were used to collect personal and sociodemographic data in interviews with the patients directly: clinical and histologic characteristics of the patients tumors were collected via their medical records. Medical notes and histopathological reports of patients which confirmed diagnosis of breast cancer affected. Ethical approval was obtained. The average age at diagnosis was 51 years. The highest incidence of breast tumor recorded among patients women in the category of => 50 years (56.7%) followed by category of 40-49 years (25 %). The most common histopathological type was Invasive ductal carcinoma (IDC) (91.7%) , followed by Invasive lobular carcinoma(ILC) (8.3%). The rates of positive Estrogen (ER),Progesterone (PR) and Epidermal growth factor receptor HER2/neutumor contents were 80% , 75% and 23.3% respectively. 50% of the tumors lesion were found in the left breast . location of the tumor more frequent in upper outer quadrant (46.7%), followed by retro-areolar (20%). breast cancer is common in married women (95%). Majority of the patients (76.7%) were moderately differentiated (grade II). The most common stages at diagnosis were stages II (43.3%) and stage III (30.0%) in the TNM system. Positive lymph node metastasis was noted in 61.7% . This study shows that there were 51.7% of breast cancer women in pre-menopausal age and 48.3% of women were in post-menopausal age. The body mass index of women revealed that the majority of the patients and control were either obese (55.0%) or had overweight (33.3%). History of breast tumor and other cancers were recorded in 31.7%; 36.3% respectively,while 68.3% and 63.3% of patients have no history of breast tumor and other cancers. Hormonal intake was demonstrated in 48.3% of patients .the percentage of smokers was observed in 8.3% of patients ,while the nonsmoker was 81.7% and 10% in passive. At the time of the first presentation in Iraq, breast tumor is still diagnosed at relatively advanced stages. Early detection is the key method for managing the

disease of breast tumor in the short term, and essential for initiation of prompt therapy and reduction of mortality. Breast tumor in Iraq has been a significant threat to women's lives..The highest incidence of breast tumor noted among women in their sixth and fifth decades of life. most of the breast tumor patients in the current study were estrogen and progesterone (hormonal) positive. Regular -long term follow up through multidisciplinary cancer boards in mandatory to monitor response to therapy and recurrence.

Keywords. Demographic, Clinico-pathological characteristics, Breast cancer, Iraqi patients.

1.Introduction

Breast tumor is a group of diseases in which cells in breast tissue change and divide uncontrolled, usually leading to mass or lump [1]. Its can begin from various parts of the breast [2]. Breast tumor is the second most common tumor in the world and the most common tumor to be diagnosed in women (24.2% i.e. about one in 4 of all new cancer cases diagnosed in women worldwide are breast tumor [3]. In 2018 there were an estimated 2.1 million new breast tumor cases diagnosed constituting (11.6%) of all tumor cases in women and 627.000 (6.6%) breast tumor death worldwide [4, 5, 6]. The age-standardized incidence and mortality rates per 100, 000 for the breast tumor in 2018 in countries with high or very high human development Index (HDI) was (54.4 ; 11.6/100000), compared with countries with low or medium HDI, was (31.3 ; 14.9/100000) in women [7]. The incidence rates of breast tumor vary dramatically across the globe, being always highest in more developed regions, namely; Australia, New Zealand and Western Europe (more than 90 new cases/100000 women annually), North America (85 new cases/100000 women annually), compared with less than 30/100000 women annually in developing regions like Eastern Africa,Middle Africa and South Central Asia [4, 5]. Incidence and mortality data remain extremely limited for several world regions, such as Africa [7]. The World Health Organization (W.H.O.) reveals that the incidence rates of breast tumors are steadily increasing in countries of the Eastern Mediterranean Region EMR including Iraq, with annual rise ranging between 1% to 5% [8]. The age -standardized incidence and mortality rates per 100,000 in Iraq was (38,4 & 13.6/100000), compared to the countries surrounding Iraq including Turkey (46& 11/100000) , Iran (31 & 9/100000), Saudi Arabia (27,3 &7.5/100000) , Kuwait (53,4&18/100000) , Syria (67,3&27/100000) and Jordan (57,4&18.5/100000) [5, 6]. While in Egypt was (52,4&21,3/100000), Lebanon (97.6&25,3/100000), United Arab Emirates (53&17/100000), Qatar (42,1&14/100000), Globally , The age -standardized incidence and mortality rates per 100000 in United states of America was (84.9 &12.7/100,000), Canada (83.8&12.1/100,000), United Kingdom (93.6&14.4/100,000), Germany (85.4&15.7/100000), Australia (94.5&12.3/100000), China (36.1&8.8/100000) and Japan (57.6&9.3/100000) [5]. Many females who have one or more breast tumor risk factors never develop breast carcinoma, while a most females with breast tumor have no known risk factors. Some risk factors, like a person's age or race, can't be changed. Other risk factors are related to tumor-causing factors in the environment or to personal behaviors [2]. In Iraq, breast tumors are considered the most common tumor [9]. It ranks the first among the commonest malignancies among all the population [10]. There were 6206 cases in 2018 considered 6094 females and 112 males, the percentage of total constitute around 19.7 % with rate 16.3 for every 100,000 populations [11]. Iraqi reports show that women among middle age have the highest incidence rates of breast tumor and that over 40% of the cases remain diagnosed at advanced stages [12, 13]. Globally , The number of breast tumor cases increased from 1.7 million new cases and 522,000 deaths in 2012 to 2.1 million new cases and 626,000 deaths in 2018 . and the prevalence rate of all women breast

tumor (all ages) increased from 43 per 100,000 to 46 per 100,000 in 2018, which became one of the biggest threats to women health [4, 6]. The incidence rate is estimated to reach 3.2 million by 2050 [14].The main purpose of this study was to analyze the characteristics of breast tumors with a sample of Iraqi Arab population newly diagnosed with the breast tumor an age period between less than 40 years to equal or more than 50 years. Focusing on the demographic and clinico-pathological profiles.

2.Materials and Methods

This retrospective study was conducted among Iraqi Arab patients entered the Oncology Teaching Hospital of the medical city in Baghdad.from May 2019 to February 2020. A total of 60 female breast cancer patients were seen(mean age 51.18±10.64). the age range between 30-71 years. The diagnosis was made by the consultant medical staff at the Oncology teaching hospital according to the clinical mamographic, histological findings. Patients were early detected, none of the patients received chemotherapy or radiotherapy or treatment with mastectomy . In addition to patients , 40 healthy women (controls) (mean age 45.30 ± 9.36), matched patients for ethnicity (Iraqi Arabs), Their aged range between 30-64 years. All examined women were residence in different areas of Baghdad, and other governorate. The analyzed sample comprised the questionnaire . The questionnaire was designed and conducted at the oncology teaching hospital, included a set of questions that displayed the correlation of several demographic and clinical characteristics of the affected patients of breast carcinoma. Histopathology reports and immunohistochemical (IHC) results to confirm patients' hormonal status, including ER, PgR, and HER-2/neu results, were obtained. The women enrolled in this study had already been newly diagnosed with breast cancer . Data for most women were obtained from the Oncology Teaching Hospital laboratory, the cancer registry, and patients records, which included histopathological reports confirming their diagnosis with regard to breast cancer subtypes, grading, and radiological staging. Were data identified and collected from the patient files . The studied variables were recorded from the database of the information system and the case sheet records of the oncology teaching hospital of the medical city in Baghdad, the referral center for early detection of breast tumors. Demographic and Clinico-pathological parameters included the age of patients at the time of diagnosis, body mass index, tumor side and tumor location,tumor size, lymph node metastasis, marital status, menstruation, hormonal intake, smoking, educational level, family history of breast or any other tumor . World Health Organization WHO histological typing of breas carcinoma [15]. Tumor grade (following modified Nottingham Bloom Richardson) [16]. And the clinical stage of the disease at presentation (defined according to the UICC TNM Classification System) [17]. The IBM SPSS version 26.0 computer program was used . For non-parametric data, Pearsons chi-square (χ^2test) used to calculate the probability. A Pearsons correlation used to determine the relationship between the studied parameters

3. Results and Discussion

Table (1) and figure (1-A) illustrates the demographic characteristics of the studied patients. With average age (51) years range (between 30-71 years). The peak age frequency has occurred with the age group (=> 50 years) were 56.7% . Only 18.33% were under the age of 40 years, while 25.0% were aged 40-49 years . The body mass index (BMI) average was (30.5) Kg/m2 with range (between 18.97-45.9), and the percentage were (11.7%,33.3% , 55.0%) respectively . The results of current study showed that most patients carried the lesion of the tumor in the left breast 50 % and 45 % in the right breast and only 5% carried lesion in bilateral . The upper outer quadrant (UOQ) was the most common location of a tumor in

breast , it was found in 28 cases (46.7%) followed by the retroareolar region in 12 cases (20 %),other locations are summarized in Table (1). Approximately 95% of the patients were married . Results confirmed that the percentage of breast cancer was 36.7% in illiteratedwomen ,whereas 63.3% in educated women. There were 51.7% of breast cancer women in premenopausal age and 48.3% of women were in postmenopausal age. History family of breast cancer and other cancers registered positively in 31.7% and 36.7% respectively , while 68.3% and 63.3% of patients have no history of breast cancer and other cancers(negatively). The percentage of smokers was observed in 8.3% of patients , while the nonsmoker was 81.7% and 10% in passive smoker. Hormonal intake was demonstrated in 48.3% of patients while 51.7% of patients have not hormonal intake. There were highly significant differences recorded between the most demographic characteristics of breast tumor women at $p \leq 0.05$.

Table 1. The distribution of breast tumor women according to demographic characteristics.

Variables	Patients (N=60)	Percentage%	Chi-square P-value
All patients	60	-	
Average age	51	-	
Age mean±SD	51.18±10.64		
Age(years)	60(30-71)		
<40	11	18.3	22.650*
40-49	15	25.0	1.2×10^{-5}
=>50	34	56.7	
Body mass index /BMI (Kg/m2)	60(18.97-45-91)		
Normal	7	11.7	40.950*
Overweight	20	33.3	1.2×10^{-9}
Obese	33	55.0	
Tumor site			
Right	27	45.0	32.850*
Left	30	50.0	7.4×10^{-8}
Bilateral	3	5.0	
Tumor location			
Upper outer quadrant (UOQ)	28	46.7	36.042*
Upper inner quadrant (UIQ)	8	13.3	2.8×10^{-7}
Lower outer quadrant (LOQ)	5	8.3	
Lower inner quadrant (LIQ)	7	11.7	
Retroareolar	12	20.0	
Marital status			
Married	57	95.0	97.20*
Single	3	5.0	6.3×10^{-23}
Educational level			
Illiterated	22	36.7	8.533*
Educated	38	63.3	0.003
Menstruation			
Premenopausal	31	51.7	0.133
Postmenapausal	29	48.3	0.715 NS
Family history of BC			
YES	19	31.7	16.133*
NO	41	68.3	5.9×10^{-5}
Family history of other cancer			
YES	22	36.7	8.533*

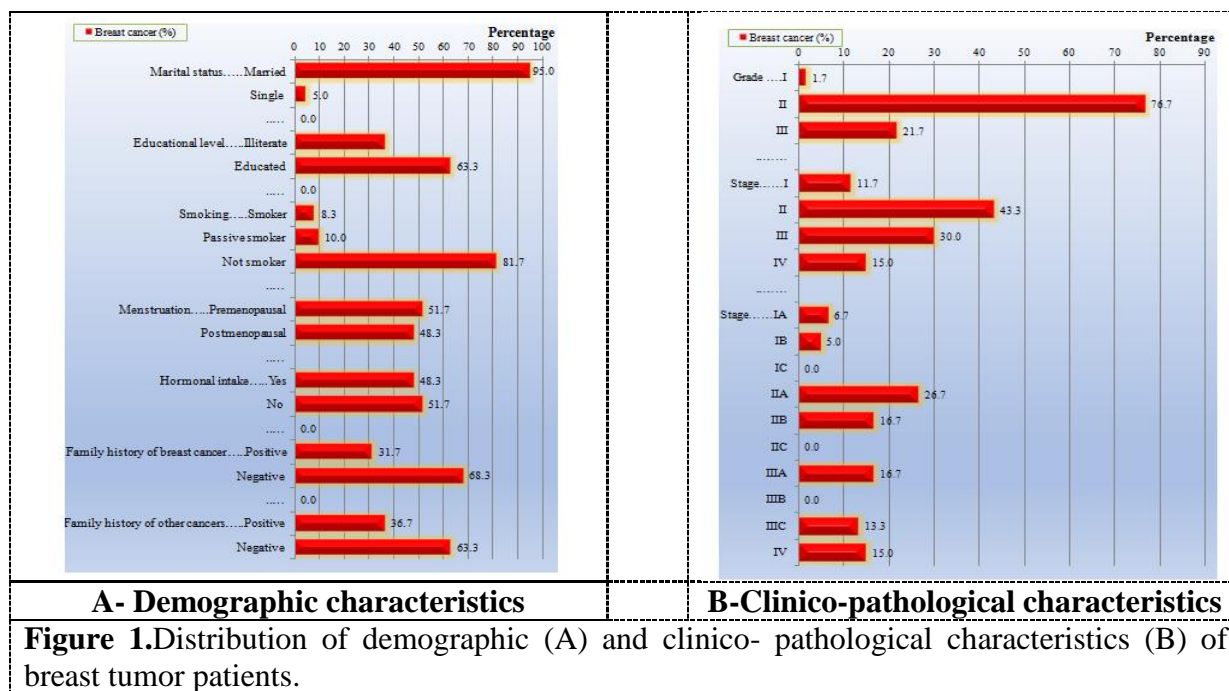|			
NO	38	63.3	0.003
Smoking			
Yes	5	8.3	94.650*
NO	49	81.7	2.8×10^{-21}
Passive	6	10.0	
Hormonal intake			
YES	29	48.3	0.133
NO	31	51.7	0.71 NS

*Significant difference between percentages using Pearson Chi-square test (χ^2-test) at 0.05 level.

The clinico-pathological characteristics of the patients are summarized in Table (2) and figure (1-B). The patients were divided into two groups according to clinical characteristics, Invasive ductal carcinoma (IDC) and Invasive lobular carcinoma (ILC),the number and percentage for each type was 55(91.7%) and 5(8.3%) respectively. Histological tumor grades were (1.7%,76.7% and 21.7%) for well differentiated (GI), moderately differentiated (GII) and poorly differentiated (GIII) respectively. Stage II and stage III were 43.3% and 30 % respectively. While stage IV (15 %) , and stage I (11.7%) . High percentage of patients 46(76.7%) were with more than 2 cm tumor size. Therty –seven patients 61.7% had lymph node metastasis ,while 38.3% had not. There were highly significant differences recorded between the most clinico-pathological characteristics of breast tumor women at p≤0.05.

Table 2. Clinico-pathological characteristics of breast tumor patients.

Characteristics	Patients (N=60)	Percentage %	Chi-square P-value
Tumor type			
Invasive ductal carcinoma (IDC)	55	91.7	83.333*
Invasive lobular carcinoma (ILC)	5	8.3	6.9×10^{-20}
Tumor grade			
Grade I (Well differentiated)	1	1.7	
Grade II (Moderately differentiated)	46	76.7	81.450* 2.1×10^{-18}
Grade III (Poorly differentiated)	13	21.7	
Tumor stage			
Stage I	7	11.7	
Stage II	26	43.3	20.444*
Stage III	18	30.0	1.4×10^{-4}
Stage IV	9	15.0	
Tumor Size(cm)			34.133*
≤2cm	14	23.3	5.1×10^{-9}
>2cm	46	76.7	
Lymph Node Metastasis			
Positive	37	61.7	6.533*
Negative	23	38.3	0.011

*Significant difference between percentages using Pearson Chi-square test (χ2-test) at 0.05 level.

Figure 1. Distribution of demographic (A) and clinico- pathological characteristics (B) of breast tumor patients.

According to the TNM staging of this study , the T2 was predominant stage 37 (61.7%) , followed by T1 and T3 as 14(23.3%), 8(13.3%) respectively .The T4 stage is only seen in 1(1.7%). The results showed a high percent of N0 stage in 23 (38.3%) and were followed by N1 in 17 (28.3%) , N2 in 11 (18.3%) , and N3 in 9 (15%) . also the results showed a high percent of M0 stage in 51(85%) and were followed by M1in 9(5%). As shown in Table (3). There were high significant differences recorded between Tumor-Node-Metastasis characteristics at (p≤0.05).

Table 3. Distribution of breast tumor women depend to Tumor-Node-Metastasis characteristics (TNM).

Characteristics	Patients (N=60)	Percentage(%)	Chi-square P-value
TNM stage			
Tumor size			
T0	0	0.0	
T1	14	23.3	
T2	37	61.7	94.792^* 1.3×10^{-19}
T3	8	13.3	
T4	1	1.7	
Nodal status			
N0	23	38.3	
N1	17	28.3	10.667^*
N2	11	18.3	0.014
N3	9	15.0	
Metastases			
M0	51	85.0	58.800^*
M1	9	5.0	1.7×10^{-14}

*Significant difference between percentages using Pearson Chi-square test (χ^2-test) at 0.05 level.

The stage and grade of the different types of breast cancer were illustrated in Table (4). In respect to IDC, (12.7%) of which were discovered at the first stage I ,and the rest at the second stage II (43.6%),third stage III (29.1%) and forth stage IV (14.5%) respectively. Similarly, 78.2% of IDC at intermediate grade (GII) and 21.8% at high grade (GIII). While 60 % of ILC discovered in intermediate grade (GII) and the rest were discovered at high and low grade (20%) respectively . The majority of ILC were discovered at second and third stage (40 %), while the minority of ILC were discovered at fourth stage (20 %). There were high significant differences between the grade of the different twokinds of breast tumor at (P≤0.05), while no significant differences between stage of the different two kinds of breast tumor at (P≤0.05).

Table 4. The major types of breast cancer according to histological classification.

Variables		Types of breast cancer				Chi-square P-value
		IDC Total no=55		ILC Total no=5		
		NO	%	NO	%	
Stage	I	7	12.7	0	0.0	0.923 0.820 NS
	II	24	43.6	2	40.0	
	III	16	29.1	2	40.0	
	IV	8	14.5	1	20.0	
Grade	I	0	0.0	1	20.0	
	II	43	78.2	3	60.0	11.205*
	III	12	21.8	1	20.0	0.004

*Significant difference between percentages using Pearson Chi-square test (χ^2-test) at 0.05 level.

This study included different stages and grade. The result of stage was : I A (4/60, 6.7%), I B (3/60, 5%), IIA (16/60, 26.7%), IIB (10/60, 16.7%), III A (10/60, 16.7%), III B (0/60, 0 %), III C (8/60, 13.3%) and IV (9/60, 15 %). There was a high significant difference recorded in different stages and grade at (P≤ 0.05) as shown in (Table 5).

Table 5. Distribution of study samples according to stage and histological grade.

Characteristics		Number (N=60)	Percentage (%)	Chi-square P-.value
Stage	IA	4	6.7	26.819* 3.6 x 10⁻⁴
	IB	3	5.0	
	IIA	16	26.7	
	IIB	10	16.7	
	IIIA	10	16.7	
	IIIB	0	0.0	
	IIIC	8	13.3	
	IV	9	15.0	
	Total	60	100	
Histological grade	I	1	1.7	81.450* 2.1 x 10⁻¹⁸
	II	46	76.7	
	III	13	21.7	
	Total	60	100	

*Significant difference between percentages using Pearson Chi-square test (χ^2-test) at 0.05 level.

The hormone receptor status for Estrogen (ER), Progesteron (PR) and Epidermal growth factor receptor (HER2/neu) are 80%, 75% and 23.3% have positive hormone receptors, respectively, While 20% , 25% , 76.7% have negative hormone receptors , respectively as shown in Table (6). There were high significant differences recorded between hormone receptor status for ER, PR and HER2/neu at (P≤0.05).and there were high significant differences according to the immunohistochemistry IHC score for ER,PR and HER2/neu at (P≤0.05) as shown in Table (6).

Table 6. Distribution of sample study according to results of hormones and IHC score.

Hormone	Patients (N=60)	Percentage (%)	Chi-square P-value
Estrogen receptor (ER)			
Positive	48	80.0	43.200*
Negative	12	20.0	4.9×10^{-11}
Total	60	60%	
Strong +ve	36	15%	56.0*
Moderate +ve	9	5%	4.2×10^{-12}
weak positive +ve	3		
Progesteron(PR)			
Positive	45	75.0	30.0*
Negative	15	25.0	4.3×10^{-8}
Total	60		
Strong +ve	24	40%	13.484*
Moderate +ve	15	25%	3.7×10^{-3}
weak positive +ve	6	10%	
HER-2/new receptor			
Positive	14	23.3	34.133*
Negative	46	76.7	5.1×10^{-9}
Total	60		
Score 0 (-ve)	36	60%	
Score+1(-ve)	10	16.7	59.200*
Score+2(weak-ve)	1	1.7	8.7×10^{-13}
Score+3(+ve)	13	21.7	

*Significant difference between percentages using Pearson Chi-square test (χ^2-test) at 0.05 level

Patients age was ranged from (30-71) years , women < 40 years were 11 cases , women from 40-49 years were 15 cases and women =>50 were 34 cases. The age distribution in the present study results showed that a peak age frequency of tumor occurred in the category of =>50 years at the percentage (56.7%).And was followed by the category 40-49 years (25%) . while in control the most common age belonging to group 40-49 years 15 (37.5%), followed by group =>50 years 14(35%) and 11(27.5%) from control < 40 years old. As shown in Table (7) and figure (2) . There were no significant differences recorded between ages in patients and control (study groups)at (P≤0.05).
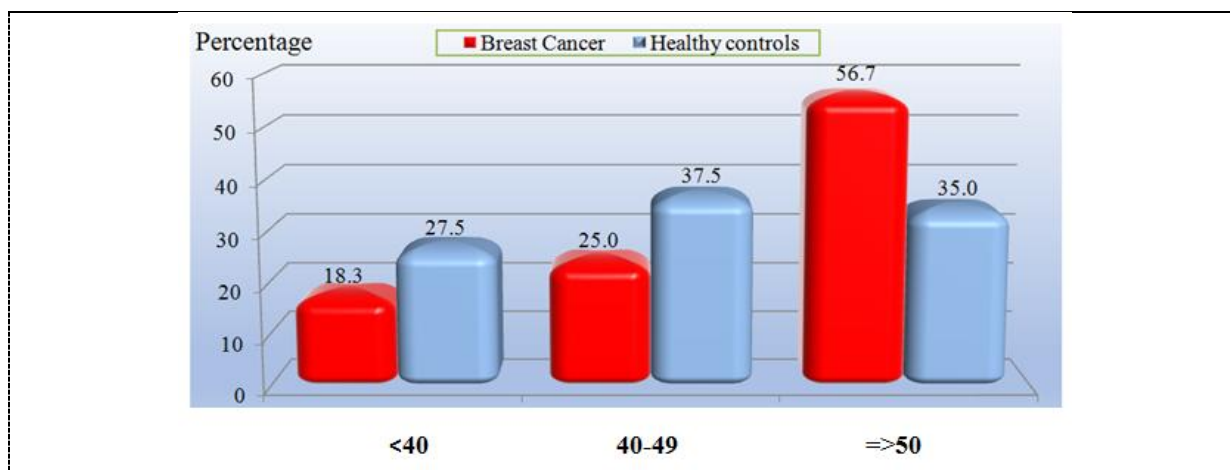
Figure 2. Distribution of breast tumor according to age in study group.

Body mass index (BMI) of women revealed that the majority of the patients and control were either obese (=>30 Kg/m^2) found in (33/60, 55%) in patients and (19/40, 47.5%) in control or had overweight (25-29.9 Kg/m^2) found in (20/60 33,3%) in patients and (13/40 32.5%) in control respectively. The normal BMI (18.5-24.9 Kg/m2) was found in (7/60, 11.7%) of patients and in (8/40, 20%) of control. As shown in Table (7) and figure (3). There were no significant differences between BMI in patients and control under (P≤0.05).The current study recorded the most common age in patients belonging to group =>50 years 34(56.7%) , followed by group 40-49 years as 15(25 %) and 11(18.3%) from patients were <40 years. while in control the most common age belonging to group 40-49 years 15(37.5%), followed by group =>50 years 14(32.5%) and 11(27.5%) from control <40 years. There were no significant differences between the study group in age and BMI under (P≤0.05). as shown in (Table 7).

Table 7. Comparison between patients and control in Age and BMI.

Variables		Patients Total NO=60		Controls Total NO=40		Chi-Square P-value
		NO	%	NO	%	
Age (years)	<40	11	18.3	11	27.5	
	40-49	15	25.0	15	37.5	4.514
	=>50	34	56.7	14	35.0	0.105NS
	Mean ±SD (Range)	51.18 ± 10.64 (30-71)		45.30 ± 9.36 (30-64)		0.005*
BMI (Kg/m^2)	Normal (18.5-24.9)	7	11.7	8	20.0	
	Overweight (25-29.9)	20	33.3	13	32.5	1.376 0.503
	Obese (=>30)	33	55.0	19	47.5	
	Mean ±SD (Range)	30.78 ± 5.66 (18.97-45.9)		29.69 ± 5.36 (20.0-39.5)		0.337NS

*Significant difference between percentages using Pearson Chi –square test (χ2 -test) at 0.05 level. Significant difference between two independent means using Student-t –test at 0.05 level
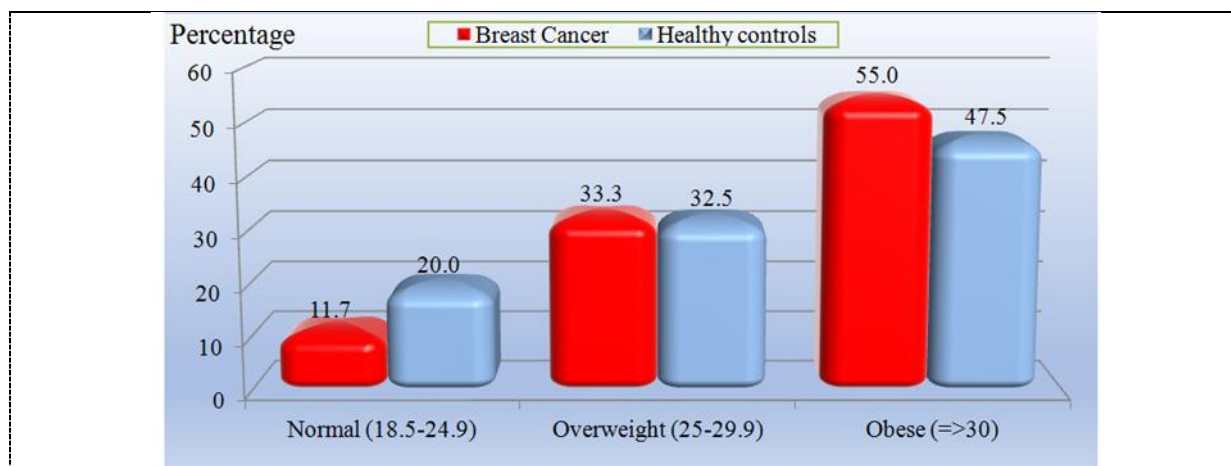
Figure 3. Distribution of breast tumor according to BMI in study group.

Age Property showed the highest significant increase in the patient (mean) (51.18 ± 10.64) as compared with control (45.30 ± 9.36) (P≤0.01). Body mass index (BMI) recorded a non-significant increase in patient (30.78 ± 5.66) compared to control (29.69 ± 5.36) as shown in (Table 7).

4. Discussion

The In Iraq breast tumor considered the most common carcinoma [9]. The incidence of breast tumor in Iraqi female increased in the last two decades and forms one of the major threats to female health [18] . The results of the current study noted that breast tumor is more frequent in the left breast, this result agreed with other studies indicated that Iraqi patients mostly carried the tumor on the left side [19, 20, 21, 22, 23]   . And disagreed with other study indicated the common patients carried tumor on the right side [24, 25, 26, 27, 28].The upper outer quadrant (UOQ) was the most common location of tumor in breast 46.7% ,followed by the retroareolar region 20% This result agreed with other Iraqi studies [24, 29] which indicated that tumor location in Iraqi patients women mostly found in The upper outer quadrant (UOQ). Age remains the number one independent risk factor associated with breast tumor [30]. Breast tumor is rare in women under the age of 35 years ,however, after that age the incidence begins to increased. More than 80% of cases occur in women over 50 years of age [31]. The age distribution in the present study results showed that a peak age frequency of tumor occurred in the category of => 50 years at percentage (56.7%).and followed by the category 40-49 years (25%) . This result agreed with other Iraqi studies that pointed to the height percentage of patients in category of =>50 years such as [28, 32, 33, 34, 35, 36]. In contrast, this study results has been disagreeing with the other Iraqi studies such as [19, 21, 23, 26, 37, 38]   which illustrated that the most patients with breast tumor noted in the category of 40-49 or 40-50 year. In Iraq in this time ,breasttumor developed at an early age about 25 years (personal communication). Breast tumor in younger women appear in advanced stages, large size , weaker survival , and positive lymph nodes [14]. Women more than 50 years of age accounted for approximately 78% of new breast tumor cases and 87% of breast tumor-related deaths in 2011 in the United States [39], however, the worldwide prevalence of breast tumor among younger women has increased [40, 41]. As shown in Table (7) the anthropometric parameters which included age and BMI in patients and control , the mean for the two properties were (51.18 ± 10.64, 30.78 ± 5.66) respectively in patients as compared with control (45.30 ± 9.36, 29.69 ± 5.36) respectively. The results noted that there were highly significant increase recorded in age mean for patients compared to control by using T test (P≤ 0.05), but in the BMI there were no significant differences in patients as

compared to control. This study has been agreement with another study illustrated the high significant between patients and control and highest percentage of patients were obese [32, 36]. And disagreed with other study indicated the highest percentage of patients were overweight [26, 42]. This study found that the tumor largest diameter percentage in cases were 76.7 % for > 2 cm and 23.3 % for ≤ 2 cm and these results consistent with [43] and [44] which showed 90% ; 91.9% of cases had tumor size more than 2 cm , while 10%; 8.1% had tumor size less than 2 cm. The findings obtained in this study could be explained by poor health education and the ignorance of the Iraqi women to the importance of breast self-examination and early medical consultation. These results also were in concordance with results observed by [45] and [46]. In contrast to our study a result from a Western society indicates that the largest percent of the breast cancer tumors were predominantly less than 2 cm [47]. This may due to the early detection programs that are prevalent in the Western countries. The histological examination showed that the invasion of axillary lymph nodes were seen in 37 cases (61.7%), while 23 cases (38.3%) had no lymph node tumor invasion .The status of the axillary lymph nodes is the most important single prognostic factor for all except a small subset of breast carcinomas. Nodal metastasis are strongly correlated with tumor size and other number of invasive carcinoma [48]. This result agreed with other Iraqi studies [20, 44, 49]. And disagreed with other study such as [19]. The majority of breast tumor in Iraqi women included in this study was invasive breast carcinoma (100 %) in which invasive ductal carcinoma constitute 91.7 % and invasive lobular carcinoma about 8.3 % . and this result agreed with other Iraqi studies [26, 36, 50, 51, 52, 53, 54] and other Arabic study,77.1% in Morocco , 78.2% in Saudi Arabia [55, 56] that mentioned to the IDC is the common histological type in breast tumor patients. While the histological tumor type Invasive lobular carcinoma ILC in present study was a lower compared with other studies and the percentage was (15.3%) in Morocco, (3%) in Saud Arabi, (4.2%) in Korea(4.5%) in Iraq [51, 56, 57, 58]. According to the TNM staging of this study , the T2 was predominant stage 37 (61.7%) , followed by T1 and T3 as 14(23.3%) , 8(13.3%) respectively .The T4 stage is only seen in 1(1.7%). The results showed a high percent of N0 stage in 23 (38.3%) and were followed by N1 in 17 (28.3%) , N2 in 11 (18.3%) , and N3 in 9 (15%) . Also the results showed a high percent of M0 stage in 51(85%) and were followed by M1in 9(5%). This result agreed with other Iraqi studies [34, 51, 52, 53, 58]. This study showed that 43.6% of invasive ductal carcinoma found in stage II and 78.2% in grade II ,while 40% of invasive lobular carcinoma showed in stage II,III and 60% in grade II. This result consistent with [50] which showed 59.2% of invasive ductal carcinoma in stage II and 50% in grade II . while invasive lobular carcinoma showed 100% in both stage and grade II. As shown, grade II has the highest frequency followed by grade III. The results of the present study expressed that at the time of diagnosis the most of the patients were in stage II followed by stage III and stage IV in addition to the pathological changes in the cancer cells that indicated the highest percentage of patients in grade II followed by grade III at the time of diagnosis . These results agree with Iraqi studies that pointed to the high percentage of patients in stage II and grade II followed by patients with stage III and grade III [9, 24, 26, 50, 51, 52, 53, 59]. In contrast, these results disagree with the other Iraqi study that pointed the most of patients with stage III and grade III followed by patients with stage and grade II [20]. The current study revealed from all of the 60 cases were tested for ER by IHC method, results showed that 12 cases (20 %) stained negative whereas , (48) cases 80 % showed positive expression, In positive cases, 5 % were showed weak positive, 15 % were moderate positive and 60 % were strong positive for ER as shown in the Table (6). There were highly significant differences under (P≤0.05).The women with ER-negative tumors have very early recurrence,also poor response to endocrine therapy and survival rate decrease compared to ER-positive tumors. From total 60 breast carcinoma of breast stained for PR, 15 cases (25 %) were negative for PR

expression. and 45 cases (75 %) were positave for PR expression. In positive cases 40 % were strong positive ,25 % moderate staining and 10 % were weak staining by immunohistochemistry. There were highly significant differences under (P≤0.05). The presence of the hormone receptors estrogen and progesterone in a patients breast tumor is an example of a weak prognostic but strong predictive biomarker. If a patients tumor expresses estrogen and /or progesteron ,we can predict that this patient will positively benefit from endocrine therapy [60]. From total 60 cases of breast carcinoma cases, 14 (23.3%) were completely stained cell membrane (positive for HER2/neu expression), 46 (76.7%) were negative (score0 and score1).From 14 positive (1) cases (1.7%) were complete however there were weak or moderate membranous staining In >10% of tumor cells (score 2+) and 13 cases (21.7%) were strong complete membranous staining in >10 of cancerous cells (scored 3+), as shown in the (Table 6). There were highly significant differences recorded under (P≤0.05). The overexpression of the Oncogene HER2/neu in a patients breast tumor is an example of both a prognostic and predictive biomarker.HER2/neu expression is associated with poor prognosis (high risk of recurrence), it also predicts that a patient will more likely benefit from anthracycline and taxane –based chemotherapies and therapies that target HER2/neu,but not to endocrine-based therapies [60].

5. Conclusion

Breast tumor has become a major threat to female in Iraq . highest incidence of breast tumor in the studied patients was seen =>50 years (56.7%) in 6th,7th decades of life and the most common tumor size according to the TNM staging system was T2 (61.7%), beside the most common assessed axillary lymph nodes was N0 and N1 (38.3%; 28.3%) respectively. The IDC was most common histopathology. The hormonal positive recorded more frequent than negative, while inverse in the HER2/neu .the breast cancer more distribution in grade II and stage II. Most patients carried lesion of the tumor in the left breast (50%). There were a highly significant differences recorded at p≤0.05 between the most demographic and clinic-pathological characteristics of breast tumor women.

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