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Breast Cancer in Thi-Qar 2018, it's determinants, histopathological presentation and six years' time trends, A comparative study

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Abstract:-

Objectives : to assess the soscio-demographic characteristics, clinico-pathological presentations, and important determinant of breast cancer patients counseling breast disease center in Thi-Qar 2018, to study and compare the yearly time trend of breast cancer in Thi-Qar from 2013-2017.

Methods: A cross sectional analytical design was used. all women presented with breast mass at defined age, at the time of study, were included.

Results: About (59.5%)of malignant masses were moderately differentiated and (32%) of them were poorly differentiated (8.5%) were well differentiated at the time of study, Also about half of patients presents at late stages, while only 10% at early stages , in other word. The age was strongly correlated factor and about 57.5% of the malignancies were above 45.

Recommendations : 1.Further studies with different design permit longer duration, are required and preferred to be follow-up type to determine the effect of confound risk factors as age, stress and radiation rather than defined ones, also studies required about response to therapy and follow the complication. 2.Regular programmed screening required to detect the cancer in the earlier stage, and facilitate the availability of screening tools at the health care centers and in peripheries hospitals of Thi-Qar.

Keywords: Breast mass, breast cancer, Staging and Grading.

Introduction:-

The most common symptom of breast cancer is a new mass, where its regarded as one most important indicators of breast disorders may be discovered by patients incidentally with breast self-examination or by the clinician during routine physical examination (Harris *et al.*, 1996 ; Shah *et al*., 2004).

Also It has been recorded that many of the patients consulting breast clinics belong to the group of benign breast conditions; so it's essential that the health care provider experienced in diagnosing breast diseases to accurately checking any new breast change or mass, that may help in diminishing anxiety about breast cancer and select those patients with an increased risk of malignancy, can be given a suitable management, a proper follow-up and increasing their awareness regarding the risk of such condition (Shah *et al*., 2004 ; Yang *et al*., 2010).

Breast masses have a wide diversity of etiologies, commonly benign cause, fibrocystic changes are the most common breast disorder, while fibro adenoma is the most common benign breast mass; invasive ductal carcinoma is the most common malignancy (Gaaib *et al*., 2014; Tonape *et al*., 2018). The risk of breast cancer rises with age. The main factors that increase the risk of breast cancer in women include certain inherited genetic mutations, a personal or family history of breast cancer, and biopsy confirmed hyperplasia (Schoonjans *et al*., 2001).

Since breast cancer is a highly progressive disease, small tumors are more probable to be at an early stage and their early detection is more likely to have more fruitful treatment and a better prognosis

(Rezaianzadeh *et al*., 2015). Although most masses was benign, but breast cancer is the most common cancer in female worldwide and the commonest factor of cancer related death among female in developed and developing countries including Iraq (Schoonjans *et al*., 2001 ; Rezaianzadeh *et al*., 2015).

Breast mass is the most common appearance of breast cancer, other signs include persistent changes to the breast, such as condensing, swelling, distortion, skin irritation, redness, and nipple abnormalities or spontaneous discharge (Naif *et al*., 2012).

Surviving of life level of breast cancer patients associate critically with the cancer phase; the prior the malignancy is noticed and treated, the well the forecast and the greater the Surviving of life rate, Women's orientation about breast cancer and its management may relate substantively to medical aid searching behaviors, on other hand lack of knowledge may result in delayed presentation with advanced stages when little or no benefit is derived from any way of management (Tabar *et al*., 1999 ; Karim *et al*., 2015).

The objective of this study to assess the soscio-demographic characteristics,clinico-pathological presentations, and important determinant of breast cancer patients counseling breast disease center in Thi-Qar 2018, to study and compare the yearly time trend of breast cancer in Thi-Qar from 2013-2017.

Materials and Methods:-

This is a cross-sectional analytical hospital based target population study, conducted at Al-Hussein teaching hospital in Thi-Qar governorate, The duration of study was extended from first week of January 2018 to the second week of September 2018, the collection of the sample extended from (15/4 – 15/8), 181 patients were collected within time cut of study.

Ethical consideration:-

Necessary permissions were obtained from the Thi-Qar Health Directorate ,breast clinic, pathological and histological units in Al Hussein teaching hospital. Consent also taken from all participants.

The questionnaire:-

Data collection was done by using a pre-designed pre-studied Performa, revised by three experts (family and community physician, pathologist and general surgeon) for testing its validity.

Anthropometric measurement:-

Including height and weight, with scales, and calculating the BMI (body mass index) by the following formula → BMI = weight (kg)/ height $(m)^2$.

Diagnostic procedure:-

It was mainly done based on triple assessment including examination of mass then radiological investigations (ultrasound and or mamography) then confirm the diagnosis with cytological and or Histopathologicl diagnosis.

Documentation of the diagnosis:-

The result of investigation were taken when completed and documented by picturing with personal phone.

Results:-

Demographic characters:-

Age:-

Table (3-2) shows the relationship of socio-demographic characters and the type of tumor, about 1/2 of the studded population were at age interval of 30-45, the other halve concluded <30 and >45.

The relation appear significant statistical association with p value of (0.001) and confirmed with statistical correlation . The rate of malignancy increased with age; at ages >45 years about half of cases were malignant (47%), and constitute(57.4%) of the total malignancies, while the other ages categories of $\leq$ 45 years, the proportion of malignancy among cases of the same categories about (16%) ,and constitute (25%), (17%) for ages interval (30-45), (<30) respectively (Table 3-2).

Residence:-

Regarding the residence, the study including 122 (67%) women were from Nasiriya counties, and the least (1%) were from Chibaish counties. The distribution of malignancies in Thi-Qar as following: about more than half of the malignancies were from Nasiriya counties (57.4%), the second was the Shatra (19%), then Refai (10.6%), Souq-Alshoyokh (8.8%) and Chibaish (4.2%), (Table 3-2).

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Table(1): Relationship between type of tumor and socio-demographic characters

Characters		type of tumor		Total	X^2 P value
		Benign	malignant		
Age	18-29	41 (83.7%)	8 (16.3%)	49 (100.0%)	
	30-45	84.0%63	12 (16.0%)	75 (100.0%)	
	>45	30 (52.6%)	27 (47.4%)	57 (100.0%)	19.825
	Total	134 (74.0%)	47 (26.0%)	181 (100.0%	0.001
Address	Nasiriya	95 (77.9%)	27(22.1%)	122 (100.0%)	
	Shatra	19 (67.9%)	9 (32.1%)	28 (100.0%)	
	Soq-Alshuokh	13 (72.2%)	5 (27.8%0	18 (100.0%)	
	Refai	6 (60.0%)	4 (40.0%)	10 (100.0%)	5.129*
	Chebaish	1 (33.3%)	2 (66.7%)	3 (100.0%)	0.269
Total		134 (74.0%)	47 (26.0%)	181 (100.0%)	

Effect of body mass index:-

Effect on the type of masses:-

There was significant relation of BMI and tumor's type, where the proportion of malignancy to the total masses were (12.8%, 24.10% and 43.5%) for normal weight, overweight and obese respectively (Figure 3-2).

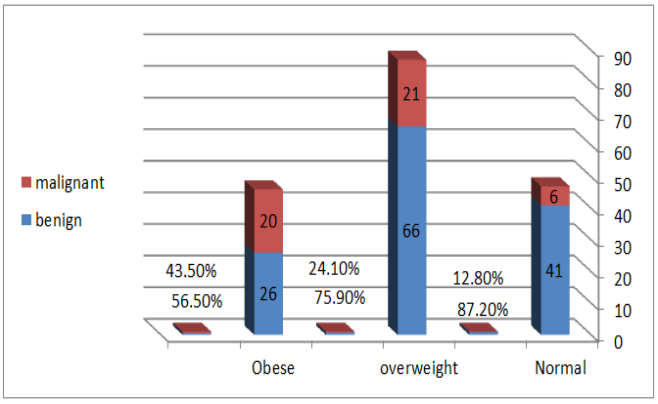

Figure (1): BMI * type of tumor.
Pearson Chi-Square 11.705, Significance.003

Duration of breast feeding:-

The proportion of malignancies decreasing with increasing the duration of breast feeding and the proportion after 6 years feeding seams the same, (Table 3-6).

Table (2): Duration of breast feeding (years)*

Duration	Benign	Malignant	Total	X^2, p value
≤ 2	18 (64%)	8 (36%)	26 (100.0%)	
- 5	25 (75.8%)	8 (25.2%)	33(100.0%)	
- 10	38 (83.3%)	19 (16.7%)	57 (100.0%)	6.364
>10	8 (83.3%)	2 (16.7%)	10 (100.0%)	0.013
Total	87 (70.2%)	37 (29.8%)	124(100.0%)	

* duration of the total breast feeding for all born in years.

Menstrual history:-

age of menarche:-

Most common ages for menarche from the studied population were at interval (12-14) about 74.5% , the proportion of malignancy to the total masses for the same interval was at < 11 years and the relation are non-statically related. (Table 3-7).

Regularity of MC:-

The proportions of malignancy to the total masses were about 22% among female with regular cycle and 15% for irregular ones. In consequence to these readings the proportions of benign mass to the total masses were equal to 85.1% among female with irregular cycle, with very significant relation (Table3.7) statistical While for **postmenopausal** the proportion of malignancy to the total masses was equal to 47.5% and about 40% of the total malignancies, the statistical relation was a very significant **(**Table 3-7).

Table(3): Menstrual history

Age of menarche*	Benign	malignant	Total	X^2, p value
<12	26 (70.3%)	11 (29.7)	37 (100.0%)	
12-14	101 (74.8%)	34 (25.2%)	135 (100.0%)	4.376
>14	7 (77.8%)	2 (22.2%)	9 (100.0%)	0.497
Total	134 (74.0%)	47 (26.0%)	181 (100.0%)	
regularity of cycle**				
	73 (77.7%)	21(22.3%)	94(100.0%)	
irregular	40 (85.1%)	7(14.9%)	47(100.0%)	13.289
-menopausal	21 (52.5%)	19(47.5%)	40(100.0%)	0.001
Total	134 (74.0%)	47 (26.0%)	181 (100.0%)	

* age at first menstrual period in years.
** regularity in time interval (monthly at nearly constant duration).

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Changes of the masses with the menstrual cycle:-

Cyclical changes of the mass usually associated with benign histology, where (92%) of that having cyclical changes were benign, while 25% of those having no changes were malignant, with extremely high statistical correlation. (Figure 3.4).

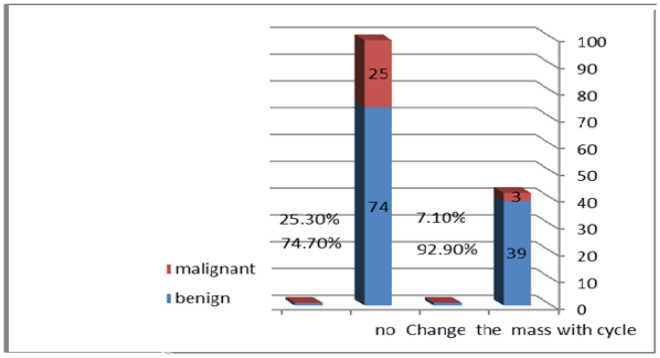

Figure (2): Change the mass with cycle and type of tumor Pearson Chi-Square=17.416 Significance=0.0001

Staging and grading:-

The most malignant masses were found at stage III (46%) of malignant masses, the other (36%) at stage II, while (10.6%) at stage I and (6.4%) at stage VI.

For grading 8.5% well differentiated, about (59.5%) moderately differentiated and 32% of them was poorly differentiated. 25.5% of the total malignancies were at stage II and grade II, while 23.4 % of the total malignancies present at grade II and stage III together.

staging and grading: Table (4)

		Grading			Total
		I	II	III	
Staging	I	1	3	1	5
	II	1	12	4	17
	III	2	11	9	22
	VI	0	2	1	3
Total		4	28	15	47

Six years trends of breast cancer in Thi-Qar (2013-2018):-

Distribution of the breast cancer according to the past 5 years and this year:

The breast cancer hasn't seasonal variation; the frequency of cases the same for all months as average.

So we suppose the total cases for 2018 were = 141 (As 47÷ 4 × 12) in comparing between proportion for these 6 years, it's as follows: (12.6%, 14.7%, 14.7%, 16.3%, 21.4%, 20.3%) for the years (2013, 2014, 2015, 2016, 2017 and 2018) respectively.

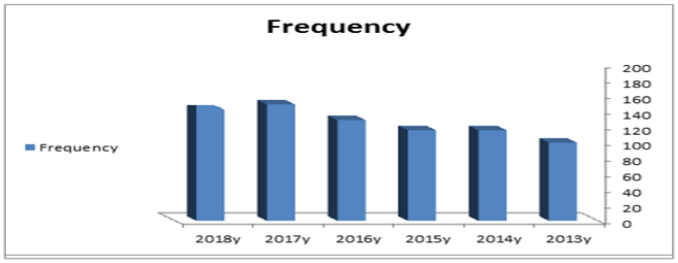

Figure (3): Distribution of the breast cancer according to the past 5 years and this year

Place of distribution:-

Regarding the residence, the study including 122 (67%) women were from Nasiriya counties, and the least (1%) were from Chibaish counties, and about more than half of the malignancies were from Nasiriya counties (57.4%), the second was the Shatra (19%), then Refai (10.6%), Souq-Alshoyokh (8.8%) and Chibaish (4.2%). The distribution of malignancies in Thi-Qar was similar for distribution of attenders during the past five year who included in this study with little differences as the proportion nearly equal for Refai and Souq-Alshoyokh, thus because cofounders variation.

Age distribution:-

Explain the, age distribution of Cancer breast from 2013-2017, the relation displayed very high significant statistical association, with p value (0.0001), the mean for age about(48.9) ± 13 (Table 3-6).

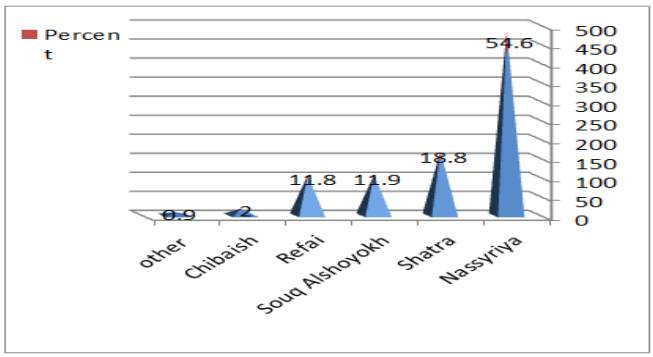

Figure (4): Distribution of the attenders according to their place of residence (including the past 5 years)

Table (5): Age distribution of Ca breast from 2013-2018

Y	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	ANOVA
					Lower Bound	Upper Bound			P value
2013	100	48.4600	10.28819	1.02882	46.4186	50.5014	30.00	77.00	25.017
2014	116	51.1207	11.90335	1.10520	48.9315	53.3099	24.00	77.00	
2015	116	51.9483	11.73093	1.08919	49.7908	54.1058	20.00	77.00	0.0001
2016	129	51.9612	13.47417	1.18633	49.6139	54.3086	27.00	94.00	
2017	149	48.8389	11.55718	0.94680	46.9679	50.7099	25.00	87.00	
2018	181	39.2376	13.63956	1.01382	37.2371	41.2381	16.00	81.00	
Total	791	47.8938	13.22010	.47005	46.9711	48.8165	16.00	94.00	

Discussion:-

Sociodemographic characteristic:-

In the current study the breast cancer most commonly affects forty years and above, where > 45 years group constitutes (57.4%) of cases, and the proportion of malignant mass among the total mass was (47.4%) within this ages interval, Age matched multiple logistic regression model point to the is the most important risk factor for female in Thi-Qar and previous studies in Iraq support that, one of them in south of Iraq (Abbas, and Ajeel, 2012).

Regarding the residence of population under the study about more than half of the malignant female were from Nasiriya counties (57.4%), the second was the Shatra (19%), then Refai (10.6%), Souq-Alshoyokh (8.8%) and Chibaish (4.2%), This distribution was similar for distribution of attenders during the past five years who included in this study with little differences as the proportion nearly equal for Refai and Souq-Alshoyokh, thus because cofounders variation.

On other hand the ratio of malignancy to the total breast masses was vice versa (22%, 32%, 27.8%, 40, 66.7) in Nasiriya, Shatra, Souq-Alshoyokh, Refai, and Chibaish respectively, the explanation may be due to most of benign masses either weren't referred to Al-Hussein teaching hospital, and managed locally with radiological follow-up, or the patient delayed to consult but came in advanced stage of malignancy when the symptoms threaten the life, the second expectation supported by increasing the proportion of invasive cancer among other histological variants.

Important determinant factor:-

The current study showing over body weight and obesity, significantly associated with breast cancer, previous studies also appeared this association, where regarded the obesity in adulthood as an essential element of breast cancer risk. (Feigelson *et al*., 2004; Slattery *et al*., 2007 ; Ahn *et al*., 2008).

Also the study showed that the proportion of malignancies was decreasing with increasing the duration of breast feeding, and no valuable difference in the proportion after 6 years feeding, that result similar to a case control study that show such reduction for premenopausal women and that justify insignificant effect after 6 years as after this duration most of females were at postmenopausal. (Vendhan Gajalakshmi *et al*., 2009).

Menstrual history:-

A woman with early menarche (age less than 12y increased risk of breast cancer when compared with a woman with late menarche , as this similar to the result of a case control study. (Henderson, B.D. et. al., 1995).

The results of our study indicating breast cancer proportion was higher among those with regular cycle, A case-control study indicated that the establishment of regular menstrual cycles doubled the risk of breast cancer when compared to taking irregular one especially at younger age group (Santen, R.J. et. al., 2005), on other hand irregularity of the cycle usually associated with benign mass as the most causes of benign masses(fibroadenoma, ductectasia and fibrocystic changes) usually presented with regular cycle (Santen, R.J. et. al., 2005).

Staging and Grading:-

The most malignant masses in the current study were found at stage III (46%) of malignant masses, the other (36%) at stage II, while (10.6%) at stage I and 6.4% at stage VI, that result differ slightly from previous study in Basra, were about (47%) a stage II, (33%) a stage III (6%) had a stage I disease, and 14% are stage IV at time of diagnosis, thus difference decrease when add the stage III and VI together the proportion about 50% , about half of patients presents at late stages, while only 10% at early stages for both studies (Abood *et al*., 2016).

While for grading , our study showed about (59.5%) moderately differentiated and (32%) of them

were poorly differentiated (8.5%) were well differentiated these results were approximated to that previous study of Basra where 61% of the cases were moderately differentiated. 36% were poor differentiated, and only 3% were well differentiated (Abood *et al*., 2016).

Conclusion:-

The findings of the current work suggested that the following

1. About (59.5%)of malignant masses were moderately differentiated and (32%) of them were poorly differentiated (8.5%) were well differentiated at the time of study, Also about half of patients presents at late stages, while only 10% at early stages , in other word.
2. The age was strongly correlated factor and about 57.5% of the malignancies were above 45.
3. about more than half of the malignancies were from Nasiriya counties (57.4%), the second was the Shatra (19%), then Refai (10.6%), Souq-Alshoyokh (8.8%) and Chibaish (4.2%), The distribution of malignancies in Thi-Qar was similar for distribution of attenders during the past five years who included in this study with little differences as the proportion nearly equal for Refai and Souq-Alshoyokh.
4.The over body weight and obesity, was significantly associated with breast cancer.
5. The proportion of malignancies was decreasing with increasing the duration of breast feeding.
6. A woman with early menarche (age less than 12y increased risk of breast cancer.

Recommendation:-

1.Further studies with different design permit longer duration, are required and preferred to be follow-up type to determine the effect of confound risk factors as age, stress and radiation rather than defined ones, also studies required about response to therapy and follow the complication.
2.Regular programmed screening required to detect the cancer in the earlier stage, and facilitate the availability of screening tools at the health care centers and in peripheries hospitals of Thi-Qar.
3. Although many of the risk factors are not modifiable, a number of modifiable lifestyle risk factors smoking, postmenopausal obesity, physical inactivity. Avoiding weight gain, exercising, smoking cessation, and breast feeding have been promoted to reduce breast cancer.

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