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Original Research Article

The Value of Breast Screening and BIRAD System Application in a Sample of Asymptomatic Iraqi Women

Lamia Ala Al-Attar M.B.Ch.B, CABS[1*]

[1]Pediatric Welfare Hospital / Baghdad Medical City Complex

***Corresponding Author:** Lamia Ala Al-Attar
Pediatric Welfare Hospital / Baghdad Medical City Complex

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Abstract: ***Background***: Breast cancer is the most common cancer worldwide. Mortality have reached a plateau and appear to be dropping this decline has been attributed to several factors, such as early detection through the use of screening mammography and appropriate use of systemic adjuvant therapy. ***Aims***: To assess the value of type breast screening in women more than 40y age group and to assess the value of BIRAD system application in breast screening. ***Patients and methods***: The study was performed during the period covered fourteen months from October 2012 to December 2013 in the Oncology teaching hospital in Baghdad Medical Teaching Complex. The study include 350 females with an age more than 40 years, Mammograms were performed for them and categorized using the Breast Imaging-Reporting and Data System (BI-RADS). Correlations between imaging findings, risk factors and pathological findings were analyzed. ***Result***: Present study show that there was no cancer diagnosed in women categorized as BIRAD I, II and III. However among 8 women with BIRAD IV and V 75% had malignant disease and 25% had benign lesions. Correlation was found between known risk factor (age, menopause, early menarche less than 12years and BMI) and cancer diagnosis. ***Conclusions***: Breast screen is very effective and important in discover breast cancer in asymptomatic women by using the mammogram which is an effective tool in detecting breast cancer in breast screening. BIRAD system minimized both over-utilization and under-utilization of follow-up tests/procedures.

Keywords: Breast cancer, Screening, Mammography, BI-RADS, Risk factors.

1. INTRODUCTION

Worldwide, the most frequent malignant lesion encountered among the women is breast cancer, breast cancer attributed for about 25% of all malignancy [1]. Furthermore, it is the most frequent leading cause of death among female with cancer and the risk continues to elevate, leading to high mortality rates especially in low and middle income countries [1, 2]. In the those countries, the low survival rates are mostly due to the deficiency in awareness, leading to a high rate of delay diagnosis to late stage of the disease and subsequently inefficient multimodality management [3].

In Iraq, breast cancer is the most common cancer encountered and its the major health problem among women; burden of breast cancer grow with the growth of the population [4-6]. The Registry of Iraqi Cancer demonstrated that amongst the ananticipated population size of 32.5 Million, a total of 21101 new cancer cases was recorded in 2012 and out of that, 9268 were encountered among men and 11833 encountered among women [7]. Moreover, still significant percentage of Iraqi patients diagnosed at somewhat later stages [7-9]; and around ninety percent of them notice the disease by themselves accidently [10].

The World Health Organization (WHO) stated that the most practicable method to control breast cancer is by early detection of breast cancer with affording proper management for those patients with early stage [11]. Worldwide, screening mammography is the most common technique used for early detection of breast cancer in asymptomatic women, and it consider the precise imaging modality that had been verified to lower the breast cancer mortality rate significantly [12]. Trials have determined that mammographic methods of screening in women age groups of (50-59) years can decrease

mortality breast cancer by 25% to 30% with reports of variable reduction from 10% to 63% in mortality of breast cancer among the women who undergo screening programs [13].

In Iraq, the National Program for Early Detection of Breast Cancer had been organized since 2001; as the mammographic units were introduced in tertiary hospitals in all provinces of Iraq, providing diagnostic mammographic facilities [7, 8, 10, 15]. The detected breast lesions by mammographic technique were categorized according to breast imaging reporting and data system (BI-RADS) [16]. That study displayed that the overall incident malignancy rate among the total sample was 1.1%; concluding that introducing opportunistic screening could significantly increase the early detection rate of BC and enhance the awareness towards the disease in Iraq.

The current study was conducted to assess the value of breast screening in Iraqi women and to assess the value of BIRAD system application in breast screening in Iraqi females who attended Oncology teaching hospital, Medical City Teaching Complex Baghdad.

2. PATIENTS AND METHODS

2.1. Study design:

This study was cross sectional study collected during the period covered fourteen months from October 2012 to December 2013 in the Oncology teaching hospital, Medical City Teaching Complex Baghdad. The study included 350 female, they were collected according to the following inclusion criteria age 40 years and over (younger ages included if they have family history of breast cancer), asymptomatic and no history of previous breast cancer and any women who were out of the range of age group or present with symptom were excluded from the study. They randomly collected from females employees of ministry of transportation & other females who had come for breast screen and included in the screen program of early detection of the breast cancer.

2.2. Method:

A specially designed protocol was used to assist in the process of data collection. Information was recorded covering the following items of age, marital state, weight, height, lactation, diabetic, details menstrual history and family history of breast cancer.

Patient was schedule for mammography in Oncology teaching hospital in Medical City Teaching Complex Baghdad. The mammography were done by (comet AG CH-3097 Liebefeld-Bern, Switzerland) and those patients were examined with digital mammography by (MAVIG Gmbh, General Electronics Medical system S.C.S. Society). The main technical feature are constant potential high frequency generator, KV 22-35/MAs 40-60, automatic and manual Kv, MAs, Mo filter, and circular gantry with isocentric/ automatic/motorized movements. We used automatic exposure factors. Collimation was used to decrease scattered radiation and compression to reduce movement, thickness & asymmetry of the breast parts.

Mammogram of the both breasts was obtained for all patients with two views:

1. Cranio-caudal projection: was done in standing position with breast on the cassette on the table support adjusted to suitable height for each patient, nipple is in profile and all puckering or skin creases removed. The patient leans forward against the film with her head turned away from localizing cone.
2. Medio-lateral oblique projection: the patient was also in standing position and the x-ray tube rotated so that the beam directed from the medial to the lateral side of the breast centering to the middle of the breast. The radiograph was interpreted by a radiologist with 10 years experience in breast imaging.

Careful and meticulous study using box viewer and magnification glass lens was done to all radiographs. Ultrasonographic examination were performed by a specialist radiologist using an electronically focused near-field probe with bandwidth of 5-11 MHz (Siemens ACUSON X 300), no special preparation was needed; all ultrasonic examination were performed with patient in supine position with raised arm for the medial parts of the breast and in contra lateral posterior oblique position for the lateral parts of the breast. A coupling gel (aqua sonic material) was applied, the transducer manipulated along the skin surface with mild compression while maintaining perfect contact between the probe and the breast skin. The whole breasts were scanned. Pectoralis muscle had to be seen on all images to be sure that the entire breast was examined.

Mammograms were classified into 5 categories according to the Breast Imaging Reporting and Data System (BI-RADS). Those patient who were found to be BIRADS I, II (normal or benign) enter the screen and give them appointment to be exam annually and for patient who's categorized as BIRADSIII; in screening mammography no more use of BIRADS III but instead referee as BIRADS 0 which mean that the mammography is not sufficient to make full diagnosis as their mammography show either masses or lumps, dense areas in the breast and abnormal calcification and need further

evaluation with other imaging such as U/S and they were about 65 women, some of them need further evaluation with FNA(in the results all women with BIRADS III were categorized as BIRADS 0).

Women who classified as BIRADS IV and V where further evaluation after US with an US-guided FNA by 20 gauge needle and women with positive FNA result were refer for surgical department and women with negative FNA result were schedule for short follow up every 3 months.

2.3. Ethical agreement:

The agreement of the Arabic council in Iraq is taken to start this research. The patients has agreed to be included in this study.

2.4. Data management and statistical analysis:

Using Microsoft excel 2010, software and the statistical package EPCalc2000 software, the data of the 350 women were entered and analyzed with appropriate statistical tests and procedure. Descriptive statistics were presented as frequencies and proportions (%). Chi square (X^2) and fisher exact tests were used alternatively to assess the significance of differences and association in between variables and the BIRAD system categories. Level of significance (P value ≤ 0.05) considered as significant and 0.001 considered as highly significant.

3. RESULTS

A total of 350 breast screen women were enrolled in this study, their mammography BIRAD system categories, 149 (42.6%) women were BIRAD I, 130 (37.1%) BIRAD II, 65 (18.6%) BIRAD 0, 4 (1.1%) BIRAD IV and only 2 women (0.6%) BIRAD V.

In Table 1, the demographic and baseline characteristics of the studied group and the percentage of BIRADS IV and V, in present study the BIRADS IV and V calculate together that because most of women with BIRADS IV and all women in BIRADS V show malignanc.

There is no significant association had been found between the age and mammography BIRAD system categories, P>0.05 and this study revealed combine percentage of BIRADS IV and V was more in age group of 40-49% with percentage of 66.6% and about 33.3% in age group 50-59years, no BIRADS IV and V seen in age group 30-39years and 60-69year.

Regarding the marital status, BIRAD V was the more frequent than other categories among married women, followed by BIRAD IV and BIRAD I respectively, (P=0.020), and combine percentage of BIRADS IV and V in married women were 83.3%.

BMI showed a statistically significant association with the mammography BIRAD system categories (P=0.034), in normal weight women BIRAD IV and V were the more frequent (50% for each) than other categories, in overweight women BIRAD II and 0 (57.7% and 52.3%) respectively, Obese women were more likely to have BIRAD I and V (55.7% and 50%) respectively, and combine percentage of BIRADS IV and V were higher 50% for normal weight than overweight and obese women .

Table 1: Demographic and baseline characteristics of studied group by mammography BIRAD system categories

Variable	BIRAD I N=149	BIRAD II N=130	BIRAD 0 N=65	BIRAD IV N=4	BIRAD V n=2	% BIRAD IV AND V N= 6	P.value
Age (years)							
30 - 39	4	5	4	0	0	0	0.86NS*
	2.7%	3.8%	6.2%	0.0%	0.0%	0.0%	
40 – 49	62	59	21	2	2	4	
	41.6%	45.4%	32.3%	50.0%	100.0%	66.6%	
50 – 59	65	52	35	2	0	2	
	43.6%	40.0%	53.8%	50.0%	0.0%	33.3%	
60 - 69	18	14	5	0	0	0	
	12.1%	10.8%	7.7%	0.0%	0.0%	0.0%	
Marital state							
Yes	107	74	34	3	2	5	0.020sig
	71.8%	56.9%	52.3%	75.0%	100.0%	83.3%	
No	42	56	31	1	0	1	

	28.2%	43.1%	47.7%	25.0%	0.0%	16.7%	
BMI(Kg/m^2)							
Normal (18–24.9)	11	13	7	2	1	3	0.034sig
	7.4%	10.0%	10.8%	50.0%	50.0%	50%	
Overweight (25–29.9)	55	75	34	1	0	1	
	36.9%	57.7%	52.3%	25.0%	0.0%	16.7%	
Obese (≥ 30)	83	42	24	1	1	2	
	55.7%	32.3%	36.9%	25.0%	50.0%	33.3%	

Sig; significant, NS; not significant

The distribution of Risk factors by mammography BIRAD system categories revealed a highly significant association between BIRAD system categories and:

Age at Menarche < 12 years, (P<0.001), BIRAD 0 and V were more percentage than other categories, in women who had menarche at age < 12 years, about 33.3% of combine percentage BIRADSIV and V have menarche <12y (Table 2).

Positive family history of cancer was significantly associated with BIRAD system categories, P=0.026, among those with positive family history, BIRADS IV was more percentage (25%) than other categories, and combine percentage of BIRADS IV and V were 16.7% with positive family history.

No significant association had been found between mammography BIRAD system categories and four of the risk factors these are late first birth, lactating, abortion and diabetes mellitus, (P>0.05).

Table 2: Distribution of risk factors of studied group by mammography BIRAD system categories

Risk factor		**BIRAD I N=149**	**BIRAD II N=130**	**BIRAD 0 N=65**	**BIRAD IV N=4**	**BIRAD V n=2**	**BIRAD IV, V % N=6**	**P value**
Menarche <12years	Yes	28	12	24	0	2	2	<0.001 sig
		18.8%	9.2%	36.9%	0.0%	100.0%	33.3%	
	No	121	118	41	4	0	4	
		81.2%	90.8%	63.1%	100.0%	0.0%	66.6%	
Menopause	Yes	71	34	26	2	2	4	0.001 sig
		47.7%	26.2%	40.0%	50.0%	100.0%	66.6%	
	No	78	96	39	2	0	2	
		52.3%	73.8%	60.0%	50.0%	0.0%	33.3%	
Late first birth	Yes	58	37	16	1	1	2	0.20NS
		38.9%	28.5%	24.6%	25.0%	50.0%	33.3%	
	No	91	93	49	3	1	4	
		61.1%	71.5%	75.4%	75.0%	50.0%	66.6%	
Lactating	Yes	73	43	21	1	1	2	0.61NS
		49.0%	33.1%	32.3%	25.0%	50.0%	33.3%	
	No	76	87	44	3	1	4	
		51.0%	66.9%	67.7%	75.0%	50.0%	66.6%	
Abortion	Yes	64	54	39	2	1	3	0.66NS
		43.0%	41.5%	60.0%	50.0%	50.0%	50%	
	No	85	76	36	2	1	3	
		57.0%	58.5%	55.4%	50.0%	50.0%	50%	
Diabetes mellitus	Yes	23	9	11	1	0	1	0.14NS
		15.4%	6.9%	16.9%	25.0%	0.0%	16.7%	
	No	126	121	54	3	2	5	
		84.6%	93.1%	83.1%	75.0%	100.0%	83.3%	
Family history of cancer	Yes	5	5	8	1	0	1	0.026 sig
		3.4%	3.8%	12.3%	25.0%	0.0%	16.7	
	No	144	125	57	3	2	5	
		96.6%	96.2%	87.7%	75.0%	100.0%	83.3%	

Menopause was significantly associated with BIRAD system categories (P=0.001), BIRAD I, IV and V were more percentage than other categories in menopause women, (Table 2) about 66.7% of combine percentage of BIRADS IV and V were menopause.

The age at which menopause started shown in table (3) with higher percentage seen in between age 50-55y with more frequency seen in BIRADS I, 0 and IV with percentage of 78.9%, 76.9% and 75% respectively, the combine percentage of BIRADS IV and V show highest percentage about 66.7% in menopause of 50-55y with 0% in > 50y.

Table 3: The distribution of BIRADS according to age of menopause started

AGE	BIRAD I N=71	BIRAD II N=34	BIRAD 0 N=26	BIRAD IV N=4	BIRAD V N=2	BIRAD IV & V% N=6
40-49y	10 (14%)	12 (35.2%)	4 (15.4%)	1 (25%)	1 (50%)	2 (33.3%)
50-55y	56 (78.9%)	20 (58.9%)	20 (76.9%)	3 (75%)	1 (50%)	4 (66.7 %)
>55y	5 (7.1%)	2 (5.9%)	2 (7.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

BIRAD 0:

Frequency distribution of types of lesion according to mammography results of women with BIRAD 0, the result seen is demonstrated in table 4, it had been observed that 25 women (38.5%) had round oval lesion, 15(23.1%) had dense breast, 10(15.4%) had round lesion slight obscure border, 9(13.8%) mixed finding and 6(9.2%) had asymmetry.

Table 4: Types of lesion according to the mammographic results of women with BIRAD (0)

Lesions	Number of patient	%
Round oval lesion	25	38.5%
Dense breast	15	23.1%
Round obscure border	10	15.4%
Mixed finding	9	13.8%
Asymmetry	6	9.2%

Result OF U/S:-

Types of lesions and BIRAD categories distribution according to ultrasound results of women with BIRAD 0; the number of women who had U/S done for them 65 women and result seen is demonstrated in table (5), it had been observed the that 2 women (3.1%) were normal U/S, 20 women (30.7%) had cystic lesion, 15 (23.1%) fibroadenomas, 14 (21.5%) fibrocystic changes, 7 (10.8%) ductal dilatation, 3 (4.6%) lipoma, 2 (3.1%) inraductal papillomas and 2 women (3.1%) had atypical Fibroadenoma. They were redistribution on the BIRAD categories and found that 2 (3.1%) where BIRAD I, 44(67.7%) BIRAD II, 17 (26%) BIRAD III, 2 (3.1%) BIRAD IV and there were no BIRAD V (0%).

Table 5: Types of lesions and BIRAD distribution according to the Ultrasound results of women with BIRAD (0)

Lesion	BIRAD categories	Number of patient	%
Normal	I	2	3.1%
Cyst	II	20	30.7%
Fibrocystic changes	II	14	21.5%
Duct dilatation	II	7	10.8%
Lipoma	II	3	4.6 %
Fibroadenoma	III	15	23.1%
Intraductal papillomas	III	2	3.1%
Atypical Fibroadenoma	IV	2	3.1%

Final outcome and radiological assessment:

Table 6 summarizes the Final outcome and radiological assessment, women with negative BIRAD (1-2) were 325 represented (92.9%) of the total studied women and schedule as annually as long term follow up.

Regarding the remaining 25 (7.1%), consider as positive BIRAD (3,4,5) those with BIRAD III were schedule for short term follow-up every three month and those with BIRAD IV and V FNA was recommended.

Table 6: Final outcome and radiological assessment of 350 breast screen women according to the mammography BIRAD system categories

BIRAD	No.	%		Follow up	
Negative BIRAD (1-2)	325	92.9%	151 (46.5%)	BIRAD I	Long term follow up annually
			174 (53.5%)	BIRAD II	Long term follow up annually
Positive BIRAD (3-4-5)	25	7.1%	17 (68%)	BIRAD III	Short term follow up every 3 months
			6 (24%)	BIRAD IV	Ultrasound-guided FNA was recommended
			2 (8%)	BIRAD V	Ultrasound-guided FNA was recommended

FNA results:

Table (7) summarized the FNA result, women with BIRAD III were 17, two (11.8%) of them need FNA and the result were negative for malignant cell and keep for short term follow up. Women with BIRAD IV were 6 all of them FNA done for them and the result were negative for two(33.3%) and there were down grade as BIRAD III and schedule as short term follow up and 4 (66.7%) of them were positive for malignant and were referred for surgical unit, while women with BIRAD V were 2, FNA done for them and were positive (100%) for malignant cell and they were referred to surgical department, as a result about 75% of women with BIRAD IV and V were positive for malignant cell.

All women who were positive on FNA which were about 6 (1.7%) mastectomy performed for them and the histopathology result revealed invasive ductal carcinoma stage II.

Table 7: Summarized the US guide FNA result as follow

BIRAD categories	Number of patient	Percentage	Malignant cell	Percentage of malignancy
III (n=17)	2	11.8%	Negative	
IV (n=6)	2	33.3%	Negative	25%
	4	66.7%	Positive	75%
V (n=2)	2	100%	Positive	

4. DISCUSSION

There are two types of screens: opportunistic screen and population base screen [17]. In our country there are no population-based screenings but there is opportunistic screening in the form of employer or random sample of population -provided medical checkups and complete medical examinations.

The state of these types of screening must be ascertained. Thus, the data on opportunistic screening at our facility were compared to population-based screening in the USA and other country in which their screen base on the ACR recommendation and in which screen women age 40-70 year.

The BI-RADS categorization system was introduced to standardize reporting for mammography, and later ultrasound. Its use is now established practice in North America and much of Europe and there is plenty of literature endorsement that enables direct comparison of performance, research and audit [17].

4.1. The distribution of mammography on five categories of BIRAD system

The present study the data collected was distributed as follow BIRAD I 42.6%, II 37.1%, 0 18.6%, IV 1.1% and V 0.6 % these finding near the finding of Ruamsup *et al*., [17] in BIRAD 0 and IV which is 15% and 1.2% respectively and just below the result in BIRAD II (56%) and higher in BIRAD I and V which is 26.7% and 0.2% respectively thus indicating higher percentage of breast cancer in present study.

Table 10: Comparison of the result of BIRAD categories between present study and Ruamsup *et al.*,

Study	I	II	0	IV	V
Present Study	42.6%	37.1%	18.6%	1.1%	0.6%
Ruamsup *et al*.,	26%	56%	15%	1.2%	0.2%

4.2. The risk factors:

Risk factor for developing breast cancer are many although their presence do not mean that cancer is inevitable but identify women who will benefit most from screening or other preventive measure [18].

4.2.1. Age:

In present study the percentage of breast cancer present at 40-49y age group was 66.6% which was higher than the percentage of 50-59y age group which were 33.3% of BIRADS IV and V, this result disagree with result of Suzanne *et al*., study [18] and Margolese *et al*., [19] which stated that overall 85% of cases occur in women 50year of age and older.

In present study no breast cancer were detected in women age 30-39y which was lower than the percentage of previous study which were 5%.

4.2.2. Obesity:

The present study revealed that about 33.3% of BIRAD V and IV were obese , this result disagree with the result of Lori *et al*., [20] study and Nelson *et al*., study [21] which stated that alterations in endogenous estrogen levels secondary to obesity may enhance breast cancer risk. The study which was conducted in UK1996-2001 analyzed data on 1.2 million women in UK between age 50-64y. An increased incidence of breast cancer with increasing body mass index (BMI) was noted.

4.2.3. Marital state:-

The present study revealed that 83.3% of BIRADIV& V women were married and the result showed statistically significant association between BIRAD system categories and marital state with (p value= 0.02), this result disagree with Osbone *et al*., study [22] which study results in a sample consisted of 32,268 women aged 65 years and older who received a diagnosis of breast cancer showed that unmarried women were more likely to be diagnosed with breast cancer.

Older married women were at decreased risk for mortality after a diagnosis of breast cancer. Many of the health benefits enjoyed by married women are likely derived from increased social support and social networks, this disagreement between present study and previous study due to difference in social state between our country and the west in regarding intake of contraceptive pills, in the west country married and unmarried women take pills but in our country only married women take contraceptive pills.

4.2.4. Family history:

The present study there were 16.7% of BIRAD IV and V with positive family history of breast cancer which is slight higher than the result of Lori *et al*., study [20] which stated that although the overall relative risk of breast cancer in a woman with a positive family history in a first-degree relative (mother, daughter, or sister) is 1.7, more in premenopausal and more in bilateral disease, there were less than 15% of women with breast cancer have a family member with this disease, this means that (over 85%) women who get breast cancer do not have a family history of this disease.

4.2.5. Menopause:

The present study revealed that about 66.6% BIRAD IV and V women where menopause at age between 50-55y, 33% were less than 50y and 0% >55y this result less than Lacey *et al*., [23] and correlate wih Lori *et al*., [20] and Collaborative group on hormonal factor in breast cancer [24] studies which stated that going through menopause at a later age increases the risk of breast cancer.

Lacey *et al*., study [23] show that women who go through menopause after age 55 have about a 30 percent higher risk of breast cancer than women who do so before age 45, which same percentage as Lori *et al*., [20] study which found that women who undergo menopause before age 50 have a twofold reduction in breast cancer risk when compared with women who undergo menopause after age 55.

A pooled analysis of data from more than 400,000 women found that for every year older a woman was at menopause, breast cancer risk increased by about three percent [24].

4.2.6. Menarche before 12y:

The present study revealed the percentage of women with menarche before 12y were 33.3% of BIRAD IV and V which is disagree with the result of Lori *et al*., study [20] which stated that menarche before 12year old has been associated with a modest increase in breast cancer risk (twofold or less).

4.2.7. Late first birth:

The present study revealed that about 33.3% BIRAD IV and V had late first birth this result is not consistence with the result of Lori *et al*., study [20] which state that a first full-term pregnancy before age 30 appears to have a protective effect against breast cancer, whereas a late first full-term pregnancy or null parity may be associated with a higher risk that due to increase frequency of period so more estrogen expose during her life.

4.2.8. Lactating:-

The present study show that 33.3% of BIRAD IV and V were lactating and 66.6% were not lactating this percentage consist with the result of New comb *et al*., study [25] which stated that lactating after adjustment for parity, age at first delivery, and other risk factors for breast cancer, lactation was associated with a slight reduction in the risk of breast cancer among premenopausal women, as compared with the risk among women who were parious but had never lactated.

That because there is no reduction in the risk of breast cancer occurred among postmenopausal women with a history of lactation [25].

4.2.9 Abortion:

The present study show that 50% of BIRAD IV and V women have abortion, indicating abortion not associated with breast cancer this result consistence with Linda fars *et al*., [26] study which stated that is no significant association between first-trimester abortion and breast cancer risk.

4.2.10 Diabetes mellitus:

The present revealed that 16.7% of women with BIRAD IV AND V had diabetic mellitus which disagree with the result of Cancer research in UK studies which stated that an overview study (meta analysis) of 20 individual studies reported that women with diabetes mellitus have a small increase in their risk of breast cancer. This may be due to higher levels of insulin during the initial phase of diabetes. But people with diabetes often have a higher body mass index (BMI) and a high BMI increases the risk of breast cancer for some people. So it is not clear why women with diabetes may have an increased risk [27].

In present study show that there is no significant association had been found between mammography BIRAD system categories and diabetic with (p value >0.05).

4.3. BIRAD Category 0:

To evaluate the outcomes and diagnostic performance of ultrasonography of a Breast Imaging Reporting and Data System (Bi-RADS) category 0 mammogram.

In present study, the number of women in BIRAD 0 was 65 (18%) higher percentage than Paulo *et al*., [28] study which stated that 5.4% classified as Bi-RADS category 0.

In present study the result of mammography revealed higher percentage in regard round oval shape (38.5%) and dense breast (23.1%) as compare to Paulo *et al*., study which is (25.7%) and (8.8%) respectively, and present study show lower percentage of round mass obscure margin (15.4%) and asymmetry (9.2%) in compare with previous study which was (33.6%) and (15.7%) respectively, the result of present study were parallel the result of previous study in related to mix finding which were (13.8%) in present study and (11.3%) in previous study.

In present study after the U/S result showed that about 17 (26%) women were reclassified as BIRAD III (15 had Fibroadenoma and 2 inta ductal papillomas) and 3.1% were reclassified as BIRAD IV which were lower percentage than Paule *et al*., [28] study which result was (39.4%and 29.8% respectively), the significant lower percentage in present study than previous study were due to that most of BIRAD IV in present study were classified as BIRAD IV at start and not include in BIRAD 0 categories, the result of BIRAD I, II and IV in present study were 3.1%, 67.7% and 0% respectively which were consistence with previous study result which were 0%,70.2%and 0% respectively, in both study no BIRAD V were detected.

In present study the result of U/S lesions which were reclassifies as BIRAD II categories were cystic lesions seen in (30.7%) which was lower than Paule *et al*., [28] which result was (64.9%), fibroadenoma 23.1% which was slight higher than previous study which was 18.9% and ductal ectasia in present study was about (10.8%) which parallel the result of Paule *et al*., [28] which was (11.7%).

4.5. The final outcome:

The present study the final outcome and radiological assessment after added the result of BIRAD 0, women with negative BIRAD (1-2) were 325 represented (92.9%) which were higher percentage than Omalkhar A *et al*., [29] study result which was 77.7%, those women were schedule for long term annual follow up and women with positive BIRAD (3-4-5) were about 25 (7.1%) which were lower percentage than previous study which result were 11.1%.

4.6. FNA Result:

In present study women with BIRAD III about 11.7% FNA perform for them, no one show positive for malignant cell this result were lower than Omalkahar *et al*., [29] which stated that in their study women with BIRAD III 26% had second imaging procedure and about 0.9% had malignancy.

In present study all women with BIRAD IV and V FNA were performed for them, 75% were positive for malignant cell (66.6% women with BIRAD IV and 100% women with BIRAD V) which higher result than Omalkahar *et al*., which revealed that 50% women with BIRAD IV and V had malignancy of which 28.5% of them were BIRAD IV and 71.4% were BIRAD V.

In present study there were 6 women \ 350 our sample size about 1.7% had malignancy this result higher than UNITE STATE OF AMERICA which was about 2-5 breast cancer in 1000 [30] this higher percentage may be due to small number in our research make more incorrect result.

5. CONCLUSIONS

Breast screen is very effective and important in discover breast cancer in asymptomatic women. BIRAD system minimized both over-utilization and under-utilization of follow-up tests/ procedures. The mammogram is an effective tool in detecting breast cancer in breast screening. The higher the grade of BIRAD system has the higher percentage in having malignancy. There are increase incident of breast among age group 40-49 years.

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