Breast cancer screening in Egypt, why not?

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Abstract: Background and aim: Breast cancer is one of the most common cancers that women may face in their lifetime. The best defense is to find breast cancer as early as possible when it is easier to treat **Material and Methods:** Breast cancer screening among 107 females at Assiut University Hospital, in collaboration with the Office of healthy woman in Egypt, data of all females were collected and analyzed**. Results:** thirty females their age Range (45-57 years) accept to do screening while the others refused, Mean age was 49 years and 33% of patients were overweight. A positive Family history in 13% patients and 17% of patients had an irregular menstrual cycle. 27% were hypertensive under treatment; only 7% under calcium channels blocker for more than ten years, while 17% were diabetic (type II). 17% of patients were BI-RAD3. One of them had a defiant right retoareolaer breast mass from which a biopsy was taken and was malignant; while the others were free. There were a positive relation of screening mammography results with BMI (*p*-value was 0.041); with a history of irregular menstrual cycle (*p*-value was 0.000). **Conclusion:** Health education about breast cancer risk factors, how to avoid, how to detect and the benefit of early detection via health teaching program should be encouraged in the future.

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Keyword: Breast; screening mammography; Egypt; health

Introduction:

Breast cancer is the most common cancer in women worldwide. Breast Screen Program aims to reduce illness and death from breast cancer through an organized, systematic approach using screening mammography. Once we say Breast Screen Program different questions needs answer:

What is breast cancer screening; who should has breast cancer screening, what is screening mammography and what are the risk factors?

Breast screening is a safe, easy way for women to be sure they stay healthy, by screening for cancer before there are any symptoms. Mammography is the process of using low-dose X-rays (usually around 0.7 mSv) to examine the human breast, it is the most effective breast cancer screening tool used today. Current evidence supporting mammograms is even stronger than in the past. In particular, recent evidence has confirmed that mammograms offer substantial benefit for women in their 40s.

Mammography should be done independent of a woman's age and if she does not have serious, chronic health problems such as congestive heart failure, end-stage renal disease, chronic obstructive pulmonary disease, and moderate to severe dementia. Age alone should not be the reason to stop having regular mammograms. Women with serious health problems or short life expectancies should discuss with their doctors whether to continue having mammograms [(1)].

Women age 40 and older should have a mammogram every year while women aged 50-74 should have a screening mammogram every two years this is because more than 75 per cent of breast cancers occur in women aged over 50 [(2)].

Mammography in women ages 40 to 49 may save lives, but the benefit is less than for older women. [(3, 4)]

Findings from the U.S. Preventive Services Task Force meta-analysis (that combined the results from eight randomized controlled trials) showed that women ages 39 to 49 who got mammograms on a regular basis had a 15 percent lower risk of dying from breast cancer than their peers who did not get mammograms [(6)].

When a radiologist interprets a mammogram, he or she assigns a score to it used to communicate with doctors about how concerned he or she is about the findings. Did anything look abnormal? How serious is the abnormality that was found? This and other information is efficiently summed up in one number, called the Breast Imaging Reporting and Data System (BI-RADS) score.

BI-RADS scores range from 0 to 6:

0: This score identifies a mammogram study that is still incomplete. The X-ray may have been cloudy, making it difficult to read the images. This can happen, for example, if you moved at the precise moment the picture was taken. In any case, further information is needed to make a final assessment and assign the true BI-RADS score. If you've received a BI-RAD score of 0, you need to make sure that additional imaging is done, such as some extra mammography views or an ultrasound [(5)].

1: This score is good news! It means that your mammogram is negative (that is, no evident signs of

cancer were found) and that you should continue to have routine screenings.

2: This score also means that your mammogram is normal, with no apparent cancer, but that other findings (such as cysts) are described in the report. You'll be instructed to continue your routine screening.

3: Now we are entering a gray zone. A BI-RADS score of 3 means that your mammogram is probably normal but that there's an approximately 2 percent chance of cancer. You'll be asked to follow-up with a repeat mammogram in six months. And if you have a family or personal history of breast cancer, the radiologist may opt to do more tests now rather than wait.

4: This score means that the findings on your mammogram are suspicious and that there is an approximately 20 percent to 35 percent chance that a breast cancer is present. To make a diagnosis, the doctors will need to perform a biopsy to get a small tissue sample. More than 90 percent of women with a BI-RADS score of 4 can have a core biopsy performed without the need for general anesthesia or an incision in the breast. At our Breast Center, if a biopsy is warranted they are commonly performed the same day the mammogram is read. Nationally, the rate of open excisional biopsies is much higher than necessary. Our rate is very low; more than 90 percent of biopsies done here are core biopsies.

5: This score means that your mammogram results are highly suspicious, with a 95 percent chance of breast cancer. You will need to have a biopsy for diagnosis. Talk to your doctors about what course of action to take.

6: This means that you have already been diagnosed with breast cancer and the pathologist has confirmed the diagnosis

A radiology doctor (radiologist) may see the following types of findings on a mammogram:

- A well-outlined, regular, clear spot (this is more likely to be a noncancerous condition such as a cyst)
- Masses or lumps.
- Dense areas in the breast that can be breast cancer or hide breast cancer.
- Calcifications, which are caused by tiny deposits of calcium in your breast tissue. Most calcifications are not a sign of cancer.

While mammography remains the most cost-effective approach for breast cancer screening, the sensitivity (67.8%) and specificity (75%) are not ideal. Mammography combined with clinical breast examination (CBE) slightly improves sensitivity (77.4%), with a modest reduction in specificity (72%). Clinical breast exam (CBE) is done along with mammograms and offers a chance for women and their doctor to discuss changes in their breasts, early detection testing, and factors in the woman's history that might make her more likely to have breast cancer.

Women in their 20s and 30s should have a clinical breast exam (CBE) as part of a periodic (regular) health exam by a health professional preferably every 3 years. From the age 40, women should have a CBE by a health professional every year [(7)].

Combined with mammography and clinical breast exam, breast ultrasound may be useful in detecting cancer in some women with dense breasts, however, adding breast ultrasound to screening increases false positive results [(8)].

Adult women of all ages are invited to perform a breast self-exam at least once a month, *Premenopausal women:* Do your exam toward the end of your menstrual period as hormonal changes have the least influence on breast tissue, and the breasts are the least tender.

Postmenopausal women: Choose a day of the month (e.g., the 1st or 15th of the month) and consistently perform your breast self-exam on that same day every month. Examine your breasts in the shower- Use circular motions to identify the geography of your breasts & perform the exam again that same day but lying down.

Breast self-exam (BSE) is an option for women starting in their 20s. Women must be informed about the benefits and limitations of BSE. Women should report any breast changes to their health professional right away [(9)].

Women who are at high risk for breast cancer based on certain factors should get an MRI and a mammogram every year.

This includes women who:

- Have a lifetime risk of breast cancer of about 20% to 25% or greater, according to risk assessment tools that are based mainly on family history.
- Have a known BRCA1 or BRCA2 gene mutation.
- Have a first-degree relative (parent, brother, sister, or child) with a BRCA1 or BRCA2 gene mutation, and have not had genetic testing themselves.
- Had radiation therapy to the chest when they were between the ages of 10 and 30 years.

If MRI is used, it should be in addition to, not instead a screening mammogram. This is because even if MRI is a more sensitive test (it's more likely to detect cancer than a mammogram), it may still miss some cancers that a mammogram would detect [(10, 11)].

Women with diabetes have higher breast cancer incidence and mortality. It is unclear why women with diabetes may have a higher risk of being diagnosed with more advanced-stage breast cancer. The Higher insulin levels may be part of the reason. Insulin is a hormone that helps our bodies regulates blood sugar. Insulin also helps cells grow. People with diabetes tend

to have insulin levels that are higher than normal. Some experts believe that higher insulin levels in people with diabetes may help breast cancer cells develop and grow, which could increase the risk of a later-stage diagnosis [12].

Early detection through appropriate screening methods in patients with diabetes should be important element of clinical management and investigation. A more aggressive screening plan may include screenings every 6 to 12 months-possibly an annual mammogram and an annual breast MRI or ultrasound.

A significant association was found between hypertension and breast cancer, researchers found women who had been taking calcium-channel blockers to treat high blood pressure for more than 10 years were 2.5 times more likely to have breast cancer, compared to women who do not use blood pressure medication, or who used other types [13].

Several studies have examined the relationship between oral contraceptive pill (OCP) use, abortions and breast cancer, with mixed results. Prolonged use of OC (more than 10 years) can be associated with increased risk of breast cancer [14].

The World Cancer Research Fund has determined that the evidence is convincing that what we call body fatness increases the relative risk of postmenopausal breast cancer. In the meta-analysis of 34 studies including over 2.5 million women. Renehan ***et al.,*** reported that each 5 kg/m^2 increase in body mass index was associated with a 12% (95% confidence interval (CI): 8, 16) increased relative risk of postmenopausal breast cancer, whereas each 5 kg/m^2 increase in body mass index was associated with an 8% (95% CI: 3, 12) decreased relative risk of premenopausal breast cancer [15]. The World Cancer Research Fund has determined that the strength of the evidence suggests that the inverse association between body fatness and premenopausal breast cancer is likely [16].

The biological mechanisms underlying the association between body mass index and breast cancer are thought to primarily involve sex hormone pathways [17]. Estrogen levels are positively associated with breast cancer among postmenopausal women [18].

Material and Methods:

In 2013, Breast cancer screening among 107 females working at Assuit University Hospital In collaboration with the Office of healthy woman in Egypt, only thirty females their age above 45 years old accept to do screening and the others refused.

Data of all females were collected and analyzed as regard: age, family history, history of diabetes mellitus, hypertension, contraceptive pills & radiation exposure.

Screening mammography, clinical breast examination, monitoring of blood pressure & random blood sugar were done. Breast mammography BI-RADS3 should be kept under follow up with a repeat mammogram in six months for two years, and if you have a family or personal history of breast cancer, breast sonography should be done rather than wait & biopsy from a suspicious breast mass.

Results:

Breast cancer screening among 107 females working at Assiut University Hospital, only thirty females their age range (45.0- 57.0) years old accept to do screening & the others refused.

We classified them into two age groups: 60%was (45-50 years) while 40% was >50 years, Mean age ± SD was 49.17 ± 3.62 years, 93% was married while 7% was single. AS regarded BMI, they were classified into four groups: Overweight in 33% of patients, obese I, obese II in 23% of patients and Obese III in 20% of patients (figure 1). Only 13% patients had a family history and 17% had an irregular menstrual cycle (table1).

As regarded contraceptive history 60% of patients had a history of contraception (figure 2) as follow: mainly IUD in 72 % of patients & hormonal in 28% of patient and the range of hormonal contraception (1-7 years) Mean ± SD 5.00 ± 2.45 years (table 2).

27% were hypertensive under treatment; only 7% under calcium channels blocker for more than ten years, while 17% were diabetic (type II). As regard Mammography results: 17% of patients were BI-RAD3 (either rounded soft tissue mass or cluster of microcalcifcation), correlation with breast sonography was done, one of them had a defiant right retoareolaer breast mass (1x1.5 cm) from which a biopsy was taken and it was malignant. Table (3) .

Relation of Mammography results to **Patients characteristics** was:

There was a significant relation with overweight specifically (p-value was 0.001) and with BMI in general (*p*-value was 0.041) (table 4). Also there was asignificant relation with a history of irregular menstrual cycle (*p*-value was 0.000) (table 5).

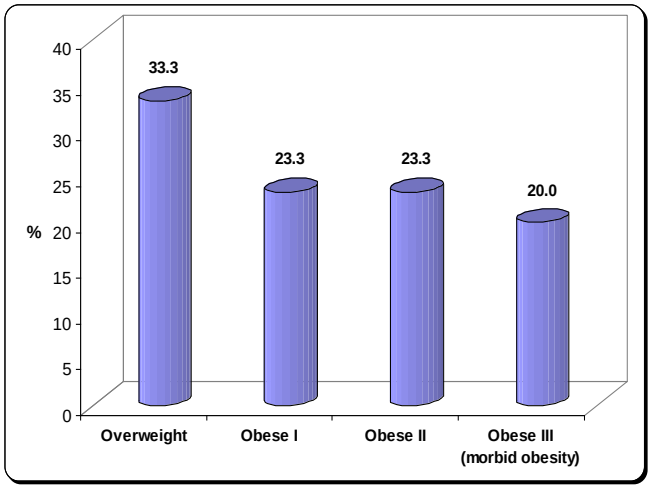

Figure 1: BMI distribution in screened females

Table (1): Patients characteristics

	No. (n= 30)	**%**
Age:		
45 - 50 years	18	60.0
> 50 years	12	40.0
Mean ± SD (Range)	49.17 ± 3.62 (45.0 – 57.0)	
Marital status:		
Single	2	6.7
Married	28	93.3
BMI:		
Overweight	10	33.3
Obese I	7	23.3
Obese II	7	23.3
Obese III (morbid obesity)	6	20.0
Family history:		
Family history	4	13.3
No family history	26	86.7

Table (2): Contraceptive history in screened females

	No. (n= 30)	**%**
Contraceptive history:		
Contraceptive	18	60.0
No contraceptive	12	40.0
Contraceptive type:		
Contraceptive injection	1	5.6
Contraceptive pills	4	22.2
IUD	13	72.2
Contraceptive duration: (years)		
Mean ± SD	5.00 ± 2.45	
Range	1.0 – 7.0	

Table (3): Mammography results in screened females

Mammography results	**No. (n= 30)**	**%**
BIL-RAD 3	5	16.7
BIL-RAD 1,2	25	83.3

Table (4): Mammography results in relation to Patients characteristics

	Mammography results				***P*-value**
	Positive (n= 5)		**Negative (n= 25)**		
	No.	**%**	**No.**	**%**	
Age:					
45 - 50 years	2	40.0	16	64.0	0.617
> 50 years	3	60.0	9	36.0	
Mean ± SD	51.00 ± 4.42		48.80 ± 3.43		0.221
Marital status:					
Single	0	0.0	2	8.0	0.513
Married	5	100.0	23	92.0	
BMI:					
Overweight	0	0.0	10	40.0	0.001*
Obese I	2	40.0	5	20.0	0.421
Obese II	1	20.0	6	24.0	0.108
Obese III (morbid obesity)	2	40.0	4	16.0	0.667
Mean ± SD	42.79 ± 18.02		33.78 ± 8.15		0.041*
Family history:					
Family history	0	0.0	4	16.0	0.810
No family history	5	100.0	21	84.0	

Table (5): relation of mammography results to menstrual cycle history and **Menopausal status**

	Mammography results				***P*-value**
	Positive (n= 5)		**Negative (n= 25)**		
	No.	**%**	**No.**	**%**	
Menstrual cycle:					
Regular	0	0.0	25	100.0	0.000*
Irregular	5	100.0	0	0.0	
Menopausal status:					
Pre-menopausal	3	60.0	18	72.0	0.593
Post-menopausal	2	40.0	7	28.0	

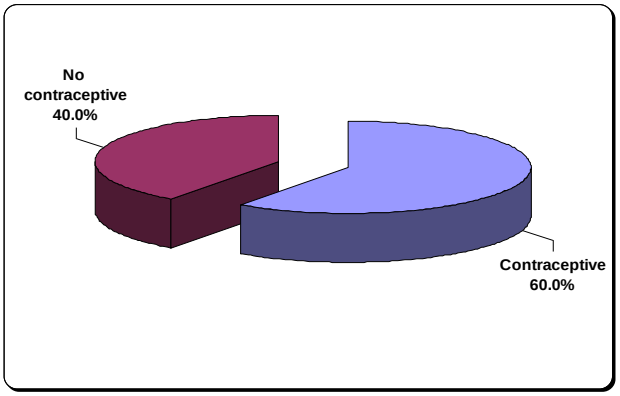

Figure 2: contraceptive history in screened females

Discussion:

Early detection of breast cancer remains the main defense available to patients in preventing the development of life-threatening breast cancer. Breast cancers that are smaller or non-palpable are more treatable when detected and are associated with a more favorable prognosis. The survival benefit of early detection with mammography screening has been demonstrated. In Egypt, BC is the most common cancer among women, representing 19% of total cancer cases. Currently, it is the leading cancer among Egyptian females, and its incidence is projected to increase by 1-2% every year. The disease is usually diagnosed at an advanced stage among the Egyptian women. The median age at diagnosis is 49 years, a decade younger than age matching in Europe and north America [19, 20].

Reduction of mortality from BC depends largely on interventions aimed at the early detection and treatment, including breast self-examination, clinical breast examination, and mammography [21].

In our study 28% of patients accepted to do mammography, the rest refuse although they have a high education level. Personal barriers either due to: they will not go to the doctor unless they were ill, fear of exposure to radiation and fear of pain or facing facts that they have breast cancer and that still agree with what reported with Younes *et al.*, stated that many Egyptian women suffered in silence, endured much pain and discomfort before they would admit to being ill, and would mostly only seek treatment when their symptoms became sever [23]. During health education meeting before and after mammography, we observed that, knowledge of the participants in our study about the risk factors of BC was generally poor. This may reflect low public awareness and understanding of the disease. Poor knowledge of the current group of women regarding the risk of BC was one of the underlying reasons for not seeking cancer screening service which still agree with past studies reported that lack of knowledge of BC as the factor that inhibited mammography screening [24].

Theirs is a relation of BI-RAD3 mammography results and overweight specifically (*p*-value was 0.001) and with BMI in general (*p*-value was 0.041) in our study, but only one of them positive for malignancy which agree with the fact that an Obese women had more than a 20% increased risk of having false-positive mammography results compared with underweight and normal weight women, although sensitivity was unchanged.

Health education about breast cancer risk factors, how to avoid, how to detect and the benefit of early detection via health teaching program should be encouraged in Egypt in the future.

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