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Study of Screening Mammography Frequency and Related Variables in Women Referring to the Mammography Center, Mousavi Hospital, Zanjan

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ABSTRACT

Background: Breast cancer is the most common cancer found in women, and screening is the best way to make an early diagnosis. The aim of this study was to determine the rate of screening mammography and related variables in the mammography center of Mousavi Hospital, located in Zanjan, Iran.
Methods: This was a prospective descriptive study. Study sample size was 526 women who were selected by a convenience sampling method. Data collection instrument was a multi-section questionnaire and this was completed by a trained radiology technologist through interviews. In cases referred to ultrasonography or histopathological evaluation, follow-up of the women was conducted to obtain their results.
Results: Results showed that the rate of screening mammography was 27.4%. Educated women and women, who had a family history of breast cancer, were more likely to have a screening mammography. Among the referrals, 71% were between the age of 30-50 years and the most common complaint in the diagnostic mammography patients was breast pain. The findings of mammography in 33% of patients were normal, 2.3% were malignant and the rest of the cases were as follows: dense breast, axillary lymph node, benign mass, fibrocystic breast and calcification. For the women who had a further evaluation; 26% were referred to ultrasonography, and 1.4% were referred for a breast biopsy. The findings of ultrasonography and pathology confirmed malignancy in 4 women.
Conclusion: According to the study's results, there is a need to provide information and mass education about screening mammography, breast cancer risk factors and symptoms in Zanjan.

1. Introduction

Breast cancer is the most common cancer in women and the leading cause of death among women aged 40 to 50 years [1]. Every two minutes a new breast cancer case is

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Diagnosed in the United States and every thirteen minutes a woman dies from this disease [2]. Several factors such as age, family history, personal history of breast cancer, and genetic susceptibility, increase the risk of breast cancer [3]. However, in 60% to 70% of breast cancer cases, there is no specific risk factor [4]. Screening for breast cancer in asymptomatic patients, before it causes a palpable mass, results in better outcomes and higher survival rates [5]. Three methods are recommended for screening of breast cancer: breast self-examination, clinical breast examination and mammogram [4].

Mammography is the first choice and most appropriate tool in the evaluation of breast masses [6]. It is an easy and noninvasive method that can detect small and non-palpable cancer tumors [7]. Studies have shown that mammography can reduce breast cancer mortality by 25% [8]. The American Cancer Society recommends an annual mammography for women over 40 years [9].

If there is a history of breast cancer in a patient or bilateral breast cancer before menopause in her mother or sister, the age of first mammogram is reduced to age 30 [10]. According to previous studies, 5% to 15% of masses are not detected by mammogram [11]. The diagnostic accuracy of mammography is 93%, combined with clinical finding and ultrasonography, this rate can be raised to 97% [12]. Studies have shown that breast cancer is the most common cancer among women in Iran [13]. Guidelines for cancer prevention issued by the Center for Non-communicable Disease Control in Iran's Ministry of Health and Medical Education recommends breast cancer screening by mammography. In both rural and urban health centers information about breast cancer screening and mammograms are provided to women. The aim of this study was to determine the frequency of screening mammogram and its related factors, including the demographic and clinical characteristics of women referring to the mammography center of Mousavi Hospital in Zanjan, Iran. The results of this study show the rate of screening mammograms in the mammography center of Mousavi Hospital and the success level of breast cancer prevention programs in health centers, in addition it also provides information about the most frequent breast complaints and its clinical features in Zanjan. The results of this study will be useful in planning future breast cancer prevention programs and the management of breast problems in Zanjan.

2. Materials and methods

This was a prospective descriptive study that was conducted in the mammography center of Mousavi Hospital. The study population was women admitted to the mammography center. Study sample size was 526 women and they were selected by a convenience sampling method. Data collection instrument was a multi-section questionnaire and this was completed by a trained radiology technologist through interviews with the studied population. in the first section of the questionnaire, questions relating to age, education, marital status, number of children, family history of breast cancer, and mammography presentation (screening mammography or diagnostic mammography), were completed. The height and weight of the women were measured by a wall-mounted stadiometer (1 cm accuracy), and a scale (100 gr accuracy), respectively, and then recorded. In the case of a diagnostic mammography, the women were asked about their chief complaint and the site of the lesion, and then this information was recorded. The second section of the questionnaire was completed by the radiologist who interpreted the mammography films. The results of the interpretations were as follows: normal breast, suspected malignant lesions, firm and dense breast, fibrocystic breast, calcification, auxiliary lymph node, and benign mass lesion. This research was conducted with the

approval of the Research Ethics Committee of Zanjan University of Medical Sciences. During the study, women received routine procedures at the mammography center and conducting the study did not interfere with the usual practices of the center.

3. Results

A total of 526 women aged 19 to 79 years, mean age 44.3 years, were studied. Demographic characteristics of the studied population are presented in Table 1. Of the 526 women in the study, 27.4% (144 women) were referred for screening mammography and 72.6% (382 women) were referred for evaluation of breast lesions (diagnostic mammography). The most common complaint among the women with diagnostic mammography was breast pain 60.5%, and the feeling of a lump in the breast 13.5% (Table 2). In 24% of cases, the location of the problem was in the left breast, 16.7% in the right breast and 32% in both breasts. In total, 10% of the women had a family history of breast cancer as follow: 3.6% in their sisters, 1.9% in their mother, 1.9% in their aunt, and 2.6% in their cousin.

Table 1: Demographic Characteristics of Studied Women in the Mammography Center of Mousavi Hospital, Zanjan, 2011.

Variable	Frequency	Percent
Age		
Under20	1	0.2
20-30	29	5.5
31-40	172	32.7
41-50	195	37.1
51-60	106	20.2
Over 60	23	4.4
Marriage		
Married	511	97.1
Single	15	2.9
Education		
Illiterate	154	29.3
Primary	173	32.9
Secondary	47	8.9
High school	83	15.8
University	69	13.1
Number of children		
1	38	7.2
2-4	295	56.1
Over4	154	29.3

Table 2: Frequency of the Chief Complaint in Studied Women with Diagnostic Mammography in the Mammography center of Mousavi Hospital, Zanjan, 2011.

Chief complaint	Frequency	Percent
Pain	318	60.5
Ulceration	7	1.3
Lump in breast	69	13.5
Discharge	57	10.8
Marble-like skin	6	1.1
Dimpling or puckering of the skin	4	0.8
Color change	6	1.1
Size change	24	4.6
Nipple retraction	11	2.1

The most frequent mammogram findings in women who were referred for screening mammography were; normal breast (48.6%) and dense breast 26.4%, and in women who were referred for diagnostic mammography the most frequent mammogram findings were; dense breast 53.7% and normal breast 27.5% (Table 3).

Of the 144 women screened with a mammogram, 31(21.5%) were referred to ultrasonography for further evaluation. Ultrasound findings were as follow: 1 (0.7%) malignant tumor, 12 (8.3%) benign mass and 18 (12.5%) normal breast. Of the 382 women screened with a diagnostic mammogram, 105 (27.5%) were referred to ultrasonography for further evaluation. Ultrasound findings were as follow; 3 (0.8%) malignant tumors, 56 (14.7%) benign mass, and 46 (12%) normal breast. In the screening mammography group, 3 women were referred for a breast biopsy and histopathological evaluation. In these women, 1 woman had a malignant tumor and a benign mass was reported for 2 women. In the diagnostic mammography group, 4 women were referred for a breast biopsy and histopathological evaluation. Of whom, 3 women had a malignant tumor and a benign mass was reported for 1 woman.A chi-square

test was used to evaluate the relationship between the demographic characteristics of the women and the mammography type (screening and diagnostic mammography).

Test results showed that women with a universityeducation and women with a family history of breast cancer were more likely to take part inscreening mammography(Table 4).

Table 3: Frequency of Mammographic Findings in Studied Women in the Mammography Center of Mousavi Hospital, Zanjan, 2011.

Mammographic findings	Screening mammography		Diagnostic mammography	
	Frequency	Percent	Frequency	Percent
Suspected to malignancy	1	0.7	11	2.9
Benign mass	16	11.1	56	14.7
Fibrocystic breast	2	1.4	6	1.6
Dense breast	38	26.4	205	53.7
Axillary lymph node	30	20.8	70	18.3
Calcification	9	6.2	28	7.3
Normal	70	48.6	105	27.5

4. Discussion and Conclusion

In the last two decades, breast cancer has been the first cause of cancer-related deaths among women, while lung cancer was in first place until 1985. Despite the increase in breast cancer rates, its mortality rate has remained constant. This relative reduction in death rate reflects an increase in early stage diagnosis of breast cancer [14]. The incidence of breast cancer is increasing in Iran, as patients are diagnosed in advanced stages of the disease. Studies have shown that breast cancer patients in Iran are about 10 years younger than those in Western countries [15].

Because of the lack of a cancer registration system in Iran, there are no reliable statistics about the incidence, morbidity and mortality of breast cancer in Iran, but informal statistics show that the incidence of breast cancer is 20 women in 100,000 each year. Considering that there are 30 million women living in Iran, there are approximately 6,000 new cases of breast cancer diagnosed a year, and most will die because they are in advanced stages of the disease at the time of diagnosis. The aim of screening programs is to detect a cancer in its early stages and before it leads to clinical signs. Breast self-examination (BSE), clinical Breast examination (CBE), and mammography are the most important screening methods. Overall, 40% of breast cancers by BSE, and 35%-50% by mammography, are detectable.

Mammography can also detect 90% of breast malignancy in older females [16]. The results of this study show that of the women attending the mammography center of Mousavi Hospital, about 27% were referred for breast cancer screening and more than 72% were referred for a diagnostic mammography. Studies in other provinces of Iran have showed the rate of screening mammography to be about 40%- 47% [17, 18]. It seems that screening mammography has a lower rate in Zanjan compared to other provinces of Iran. There is a need to provide greater awareness and information and also several additional mammography centers in order to facilitate better access. In this study, the age of the majority of the women who were referred for diagnostic mammography was 30 to 50 years, and this age group accounted for 70% of all cases. The onset age of breast cancer is over 50 years in other countries, but it is estimated to be over 40

years in Iran, as the majority of malignant breast cases have been found in the fourth and fifth decades of life [19]. A study in Urmia, Iran, indicated that the majority of diagnosed cases of breast cancer were aged between 40 and 49 years-of-age [20]. A study that was conducted in Ilam, Iran, showed that adherence to screening mammography increases with age [21].

Table 4: Relationship between Screening Mammography and Demographic Variables in Studied Women in the Mammography Center of Mousavi Hospital, Zanjan, 2011.

Variable	Screening mammography		Diagnostic mammography		*P*
	Frequency	Percent	Frequency	Percent	
Age					
Under30	0	0	30	7.9	
31-40	29	20.1	143	37.4	0.0001
41-50	66	45.8	129	33.8	
51-60	40	27.8	66	17.3	
Over60	9	6.2	14	3.7	
Marriage					
Single	4	2.8	11	2.9	0.607
Married	140	97.2	371	97.1	
Education					
Illiterate	32	22.4	122	31.2	
Primary	33	22.9	140	36.6	0.0001
Secondary	14	9.7	33	8.6	
High school	35	24.3	48	12.6	
University	30	20.8	39	10.2	
Family history of breast cancer					
Yes	24	16.7	30	7.9	0.003
No	120	82.3	352	92.1	
Body Mass Index					
<20	1	0.7	8	2.2	
20-25	35	26.1	72	20.1	0.293
26-30	59	44	154	43	
Over30	39	29.1	124	34.6	

The most common symptoms that led to the referral of women for mammographic evaluation were as follows: breast pain 60%, the feeling of a lump in their breast 13%, and breast discharge 11%. These results indicate that what is causing concern for women and inducing them to come for clinical evaluation, is breast pain. On the other hand, pain is not a common sign of breast cancer as it is present in only 15% of breast cancer cases. Women should be informed about the common symptoms of breast cancer and consider breast cancer even in the absence of pain. Studies in our country have shown that most women had poor knowledge about the symptoms of breast cancer and screening methods [18, 22-24].

In this study, a family history of breast cancer, and previous breast surgery, had a significant relationship with implementing screening mammography. A study by Mahoori et al. demonstrated a significant relationship between a history of breast disease and a family history of breast cancer, and implementing screening mammography [25]. A study conducted by Routledge et al. showed that women with a history of breast disease and a family history of breast cancer had a higher likelihood to undergo screening mammography [26]. In another study, there was a significant relationship between a history of benign breast lesions and a family history of breast cancer and a screening mammography [27]. More knowledge about breast cancer can increase the perceived risk of illness and consequently encourage women to follow preventive measures. A meta-analysis of 42 studies concerning risk predicting factors revealed that women do not have an accurate estimation of breast cancer risk, but having a positive family history was

associated with a higher perceived risk. Perceived risk is poorly influenced by age and education and there is a relationship between perceived risk and implementing preventive procedures, such as screening mammography [28]. According to the results of this study, there is a need to provide more information and to conduct mass education about screening mammography, breast cancer risk factors and symptoms in Zanjan.

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