Original Article

Care management process of breast cancer in primary health-care system, Golestan Province, Iran, 2013–2014

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ABSTRACT

Introduction: Health-care service processes need to be assessed over time. We aimed to assess the breast cancer care process in primary health system of Golestan Province, North Iran. **Materials and Methods:** To perform a descriptive cross-sectional study, information on breast cancer care processes in primary health-care system was collected using a "collecting form" from 234 health houses, 29 health posts, 44 urban health centers, and 80 rural health centers in Golestan Province. Registered data in the centers and patients' journal were used in data collection. Moreover, we collected data on all women who were diagnosed with breast cancer in 2014 to know the characteristics of the patients. **Results:** Around 50% of health workers at rural or urban area were trained on breast cancer. Moreover, 2% of women from general population in rural area and around 6% of them in urban area have been trained on breast cancer. Mean age of women diagnosed with breast cancer was 48 ± 10 years and 40.2% of them were affected at age between 43 and 52 years. The results showed that 18.9% of women have received their information through self-study before the diagnosis of breast cancer while 53.8% of them received their information from the private clinics after diagnosis of breast cancer. **Conclusion:** The process of breast cancer care in Golestan Province needs to be improved in the primary health-care level. Both inter- and multi-disciplinary activities are needed.

Keywords: Breast cancer, care process, health service management, primary health care

Introduction

The main responsibility of health-care systems is disease management.[1] Disease management starts from the point that the diseases have not even exist (preliminary prevention level), continues with controlling the disease (first prevention level), treating the diseases (secondary prevention level), and reducing the disabilities caused by diseases and rehabilitation (third prevention level). Preliminary and first levels of prevention have a more dominant role in disease management than second and third levels of prevention due to their effects on the population level and higher coverage of population. Training the patients and health providers, establishing the infrastructures, and registering the health information are some of the system strategies to meet their goals in managing the diseases.[2-5]

Breast cancer is the leading cancer among all women cancers and has the first place in mortality of women due to cancer in the world.[6,7] Although the disease is known as a frequent cancer in high-income countries, the incidence of breast cancer is increasing in low-/middle-income countries.[8] Mortality of breast cancer declines in high-income countries since 1990s, but it is increasing in low-/middle-income countries.[8] High-income countries have started on controlling breast cancer by training the general population, establishing the screening methods to find the cancer in early stage,[9] and publishing the guidelines[10-12] to give the same information and the same executive methods to both service providers and service takers. It has been reported that early detection measures and guideline compliant therapy

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have improved 85% in the last decade in Germany.[2] It has been found that the lack of knowledge is one of the first factors influencing the diagnosis of breast cancer.[3] A study conducted by Fotedar *et al.*[4] in India has shown that the knowledge level and attitude of the health providers have an important role in breast cancer patients' treatment. Although many low-/middle-income countries have started to train their staffs and use the guidelines in cancer care field, lack of knowledge and lack of adherence to the guidelines are common problems worldwide.[5]

Breast cancer care was included in the primary health-care system in Iran by establishing the screening system (mammography) since 2006.[13] Although the registration of cancer information, including breast cancer, from the primary health-care system and pathologies has been started since many years ago, training the health workers and women at risk in general population and preparing the guidelines for dealing with this cancer have been started since short time ago.

The aim of this descriptive study was to investigate the process of breast cancer care at the preliminary and primary level of prevention in the Golestan Province, North Iran. We checked the process at the patient, executive, and in diagnosis and registration levels.

Materials and Methods

Through a descriptive cross-sectional study, the health system activities in the breast cancer care process were evaluated in Golestan Province, North Iran, in 2013–2014. This study is part of a thesis performed for a master degree in health management field. We used the information from the thesis to describe the health system function in breast cancer care field in the preliminary and primary prevention disease levels. Data collection was performed using a "data collecting form" prepared by authors. It consists of two parts; the general information part including 15 questions and the executive part including 26 questions. All "collecting forms" were filled out by 14 trained persons. To ensure the quality of data collection, 10% of collected data was rechecked using external validators.

To access the executive activities of the health-care system at the preliminary and primary health levels, 234 out of 608 health houses, 29 out of 36 health posts, 44 out of 47 urban health centers, and 80 out of 97 rural health centers in Golestan Province were included in the study. Using systematic random sampling method, samples of health provider centers have been extracted from the list of health provider centers through the province. The samples were allocated to each town based on the proportion of the town health provider centers in the province.

All women who were diagnosed with breast cancer for the first time in 2014 and have been registered in Golestan Breast Cancer Registry were included in the study. Information on the patients was collected from the Golestan Breast Cancer Registry and were completed using patients' journal at the hospitals. Missing information in the registry or in the patients' journals was collected by calling the patients.

Statistical methods

Descriptive statistics (mean, median, and range) were used to describe health-care providers and patients' characteristics. Age at the diagnosis (≤32, 33–42, 43–52, 53–62, and >62 years) and educational level (illiterate, 5 years, 6–8 years, 9–12 years, >12 years) were used as categorical variables in the study. Moreover, residential place of patients at the diagnosis (urban area, rural area) was used as characteristic variable. Kuder–Richardson method was used to estimate the reliability coefficient of the expertise opinion in validation of the "data collecting form." Ten percent of the samples with 26 questions were piloted to check the reliability of the form. Using Kuder–Richardson method, the coefficient was 93% for both health houses and health posts as well as rural and urban health centers.

All patients were informed about the investigation and verbal consent was obtained. All participants were free to leave the study in any stage of the investigation.

Results

Table 1 shows the characteristics of health provider centers, educational and executive activities before diagnosis of breast cancer. From all health provider centers in the rural and urban areas, 84.2% of the health houses and 88.9% of health centers in rural area and 100% of health posts and 90.9% of health centers in urban area have filled out the "data collecting form" of the study. The results show that around 50% of health workers at rural or urban area are trained on breast cancer. Our study has, moreover, shown that 2% of women in rural area and around 6% of them in urban area have been trained on breast cancer.

Characteristics of patients diagnosed with breast cancer at Golestan Province is shown in Table 2. The results show that the mean age of women diagnosed with breast cancer is 48 ± 10 years and its range is between 28 and 78 years. We found that 40.2% of women affected by breast cancer when they were at age between 43 and 52 years. The results from our study reveal that 18.2% of women diagnosed with breast cancer are illiterate and 35% of them have educated in <10 years. In training on the breast cancer, the results show that just five women (3.8%) have been invited to participate in the specific training on breast cancer, and one of them (0.8) participated.

Table 3 shows the information about the process of diagnosis and registration of the patients in Golestan health system. Sixty-one patients (41.2%) have reported "finding a tumor in their breast" as the first sign of the disease while 26 of them (19.7%) have reported the pain as their first sign of the breast cancer. The results indicate that 73 women (55.3%) visited the private physicians when they suspected to the disease. In addition, it was found that 25 women (18.9%) received their information through self-study before the diagnosis of breast cancer while

Table 1: Characteristics of health provider centers, educational and executive activities before diagnosis of breast cancer in the centers participated in the study

	Health house	Health post	Rural health center	Urban health center
Number of health provider centers	608	36	97	47
Number of health provider centers included in the study	234	29	80	44
Number of health provider centers those filled out the collecting data form	197	29	71	40
Response rate	84.2%	100%	88.9%	90.9%

	Health house and rural health center	Health post and urban health center
The trainers		
Total number of trainers	268	69
Number of trained trainers (%)	136 (50.7%)	38 (52.2%)
Public Training (including just women)		
Total number of classes	12423	833
Number of classes about Breast cancer (%)	254 (2.0)	49 (5.9)
Number of participants in the classes	66260	1330
Executive activities		
Preparing the list of high risk women	92 (39.3)	12
Referring to heath center	122 (52.1)	14
Referring to the second level	53	27
Getting feedback from second level	21 (39.6)	16 (59.3)
Data management		
Data entry	35 (15.0)	11 (37.9)
Monthly follow-up	24 (10.3)	1 (3.4)
Results registration	24 (10.3)	1 (3.4)

Table 2: Characteristics of patients diagnosed with breast cancer at Golestan Province, 2014

	Number	Percent
Total	132	100
Age at diagnosis		
≤32	8	6.0
33-42	31	23.5
43-52	53	40.2
53-62	27	20.4
>62	13	9.9
Mean age	48±10	
Range	28-78	
Educational level		
Illiterate	24	18.2
5 years (Primary school)	36	27.3
8 years (Secondary school)	10	7.6
12 years (High school and diploma)	14	10.6
Upper than diploma	13	9.8
unknown	35	26.5
Mean, year	6.0±5.3	
Median, years	5.0	
Range, year	0-16	
Residential place		
Urban area	83	62.9
Rural area	49	37.1
Trained about breast cancer		
Number of invited women to training classes	5 (3.8)	
Number of women participated in the classes	1 (0.8)	

71 of them (53.8%) received their information from the private clinics after diagnosis of breast cancer.

Discussion

In this cross-sectional study to describe the health-care system function in Golestan Province, North Iran, in breast cancer care process field, we found that around half of the health workers in both rural and urban areas have been trained on breast cancer care. Moreover, very small proportion of women have been educated by the health system on breast cancer. Executive activities, for example, preparing the list of high-risk women, referring to health center and receiving the feedback from second level, and data management, have been done in less than half of the health provider centers. Checking for patients' characteristics, we found that the women were frequently diagnosed with breast cancer in 43–52 years of their age and that around 70% of them have educational level <9 years of official education.

Our findings in training field show that 2% of training classes performed by primary health-care system were specifically on breast cancer. Moreover, we found that around 50% of health workers were trained in breast cancer field. Although we did not find any study which considers the number of classes with breast cancer item, our study was consistent with some previous studies which reported the low level of women information on breast cancer.[14-16] Fazel *et al.*[14] in a descriptive study among women aged older than 20 years in Sabzevar, Iran, showed that only 35% of women have information about the self-breast examination. Ghazanfaree *et al.*[15] in a study among the female teachers in Kerman, South Iran, reported that 60% of teachers have low information on breast cancer. Jahan *et al.*[16] in a study among women aged 20–70 years in Saudi Arabia found that 70%

Table 3: Diagnosis and registration process of breast cancer among women who were diagnosed with breast cancer in 2014

First sign that suspected the women to BC	Number	Percent
Tumor	61	46.2
Pain	26	19.7
Discharge	6	4.5
Checking for other disease	2	1.5
Change in the skin color	3	2.3
Checkup	3	2.3
Uther	27	20.5
Unknown	37	28.0
First center that visited women after suspecting		
Private physician	73	55.3
Health house/post	7	5.3
Health center	8	6.1
Public clinic	1	0.8
Special clinic	1	0.8
Other	1	0.8
Unknown	41	13.1
Time difference between diagnosis date and beginning of the treatment		
≤1 weeks	13	9.8
1-2 weeks	2	1.5
3-4 weeks	44	33.3
1-2 months	9	6.8
>2 months	25	18.9
Unknown	39	29.5
Source of the patients' Information	**Before diagnosis (%)**	**After diagnosis (%)**
Self-study	25 (18.9)	0 (0)
Mass media	13 (9.8)	0 (0)
Health house/post	2 (2)	1 (0.8)
Health center	0 (0)	1 (0.8)
Private clinic	0 (0)	71 (53.8)
Other	3 (2.3)	3 (2.3)
No information	0 (0)	15 (11.4)
Unknown	38 (28.8)	41 (31.1)

of women have low information on breast cancer. Difference between our results and findings from previous studies could be related to the fact that we used number of classes on breast cancer as a proxy of education in this field, but the previous studies have checked for women information directly.

Finding in executive activities demonstrated that 40% of health houses and health posts have a list to show the women at risk of breast cancer. Since health providers in primary health-care system are obligated to have the list of all women who are between 20 and 69 years of their age based on the Ministry of Health Guideline in Iran,[13] it shows that 60% of health providers in Golestan Province has not achieved the goal yet.

Studying on the characteristics of the patients determines that 63% of women were aged between 33 and 52 years and 40%

of them were 43–52 years old, when they were diagnosed with breast cancer. Our finding is consistent with the studies which reported that the age at diagnosis of breast cancer is between 40 and 50 years in Iran, 10 years earlier than the age of diagnosis in developed countries.[17] Furthermore, our results show that more than 53% of women diagnosed with breast cancer in Golestan Province have <10 years of educational level. Getting these two together shows that being younger at the age of diagnosis, worse feature of the disease, lower educational level, and harder to being trained might lead the patients to a worse prognosis. Moreover, it might force the authorities to have a special plan to deal with this problem. This issue makes a worse situation for policymakers in low- or middle-income countries compared with the authorities in high-income countries.

The results show that 15% of health houses and <38% of health posts in the primary health-care system of Golestan Province collected data on the patients' care process. Guidelines of breast cancer screening for health providers[13] emphasize on collecting all data from the breast cancer patients' care in health houses/health posts. We, moreover, found that more than 50% of women visit the physicians in the private sector as the first visit when they suspected to breast cancer. The willingness of patients to visit private sectors instead of public sectors might come from the quality of services provided in private sector. In fact, people prefer to visit the private sectors because these sectors are supposed to provide better services due to higher educated and more skilled personnel and using high-technology equipment. Kumar *et al.* in a study in India have reported that the public health providers have difficulty to prepare the adequate facilities in their centers.[18] Pandian *et al.*[19] have found that increasing the number of public health centers, improving the health delivery systems including good infrastructures, and preparing modern diagnostic equipment have changed the perception of people about the public facilities. Our finding is not consistent with other studies from high-income countries which shows that the primary health sector provides better services than the private sector.[20] The difference might originate from people's attitude; preferring private sector to public sector in middle-income countries compared with high-income countries as Ardey and Ardey[21] have mentioned in their study in India on patients' expectation from primary health-care system. Willingness of people to prefer the private sector to public sector could be a target for authorities in their future plan.

Our study has some strengths. This study, based on our knowledge, is the first study taking the breast cancer care process in preliminary and primary prevention levels in consideration in Iran. We focused on different parts of the process and our results can help the health authorities to know the strengths and weaknesses of the system. Moreover, we were not concerned about recall bias due to collecting data from the patients' journal. All data were collected at the time of event and we used them in the study. We had some weaknesses in our study as well. We considered just 1 year of calendar time to show the process function. It is likely that the results could have changed if we

would have included a longer time period in the study. We, moreover, did not find any study on the process of care among breast cancer patients in the country to compare our results with other parts of Iran. It seems that more studies should be conducted for more accurate results.

Conclusion

The process of breast cancer care in Golestan Province needs to be improved in the preliminary and primary health-care levels. Some parts of the problem can be solved in the health sector, for example, training the health providers/at-risk women, but some other parts of the problem need multidisciplinary attentions, for example, women's educational level.

Conflicts of interest

There are no conflicts of interest.

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