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Surgeons' Perspectives on Surgery of Breast Cancer in Iran: The Pattern and Determinants

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ABSTRACT

Background: The purpose of this study was to assess Iranian surgeons' perceptions toward mastectomy and breast conserving therapy (BCT) and determine the contributing factors.

Methods: In this cross-sectional study, a structured questionnaire was devised and hosted on survey.tums.ac.ir and a link to the questionnaire was emailed to surgeons registered in Iranian Medical Council, branch of Tehran. The results of the current study were compared to a similar study which was performed in 2004 on a comparable sample of surgeons in Tehran, Iran.

Results: A total 166 surgeons filled out the study questionnaire. Only 24 surgeons declared that they have not performed BCT before. Variables that showed a significant association with performing BCT were attending a breast surgery or surgical oncology fellowship ($P = 0.010$) and breast surgery workshop ($P = 0.042$). No associations were observed between performance of BCT and age category ($P = 0.951$), gender ($P = 0.416$), duration of practice ($P = 0.821$), number of breast cancer patients per year ($P = 0.083$), and setting of practice categorized as teaching – nonteaching hospitals ($P = 0.417$). Comparing the results of the current study with the study performed in 2004 revealed a significant increase in the frequency of surgeons who performed BCT (85.5% vs 19.3%, respectively) ($P < 0.001$). Participants of the current study were more likely to mention "lack of experience" as the reason for not performing BCT compared to the previous study ($P = 0.004$).

Conclusions: Our results delineated that there was a significant increase in the percentage of surgeons performing BCT compared to the previous study. Factors significantly associated with performing BCT were participating in a surgical oncology or breast surgery fellowship or short courses in breast surgery.

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Introduction

Breast cancer treatment has evolved significantly over the past decades. Several randomized trials with long term follow-up provided evidence for equivalence of breast conserving therapy (BCT) and mastectomy (MT) in terms of overall survival.[1-3] BCT is now considered the standard of care for early

stage breast cancer. Additionally following conserving the breast, patients reported higher short- and long-term quality of life (QOL) at least in some subscales.[4,5]

Several years after introduction of BCT, mastectomy was still the treatment of choice in many countries with substantial geographical variations in the rates of performing BCT.[6-8] This has led to mandating the surgeons to explain treatment options for all patients who could benefit from BCT in 20 states of the United States.[9,10]

Various studies were conducted to assess the factors that might affect both surgeons' and patients' decisions in preferring mastectomy over BCT. The results elucidated that lack of experience of surgeons in BCT; patients' concerns about the survival after BCT, and socioeconomic status of patients were the main predictors of BCT underutilization in different countries.[11-13] One of the important influential factors on patients' choice of surgery is the surgeons' recommendation.[14]

A cross-sectional study conducted among Iranian surgeons in 2004, demonstrated that only 19% of surgeons considered BCT as their preferred method of treatment for breast cancer.[15] According to some reports, breast cancer awareness have increased recently in Iran due to improved general socio-economic status and relevant educational program in the media. Accordingly, a decreasing trend in breast cancer tumor size and downstaging has been detected in the last few years.[16] Thus, it is expected that surgeons' attitude and practice has also improved during the preceding years. The aim of the current study was to assess the perceptions of Iranian surgeons on BCT and mastectomy and the factors influencing their decisions. In an attempt to determine the trend of change in Iranian surgeons' attitude toward BCT and mastectomy during the past decade, we compared the results of the current study with the previous one conducted in 2004.[15]

Methods

Study design

A cross-sectional study was designed and conducted to assess surgeons' perception on breast cancer treatment in 2014. A structured questionnaire was devised and hosted on survey.tums.ac.ir and a link to the questionnaire was emailed to surgeons registered in Iranian Medical Council, branch of Tehran. A Reminder email was sent in two weeks to all the study population. All questionnaires were filled out anonymously and surgeons were informed about the aim of study. The results of the current study were compared to a similar study which was performed in 2004 on a comparable sample of surgeons in Tehran, Iran. Study protocol was approved by the institutional review board of Tehran University of Medical Sciences.

Measured variables

The questionnaire used in the previous study was developed by two qualified breast surgeons and then revised by an epidemiologist and three other surgeons. Minor modifications were made in order to obtain more information about the potential factors contributing to the decision of surgeons on performing BCT (e.g. attending breast surgery fellowship, workshop, etc.).

The questionnaire included data on demographic characteristics (age, gender, and years of practice), setting of practice (teaching versus nonteaching hospitals), approximate annual number of breast cancer patients treated by the surgeon, having a fellowship degree in surgical oncology or breast surgery and attending complementary courses in breast surgery inside the country or abroad. The variable of interest was use of BCT in treatment of breast cancer patients.

Surgeons not preferring BCT in the treatment of breast cancer patients were asked to answer seven questions about the possible reasons for preference of mastectomy over BCT, including lack of experience, increased risk of local recurrence in BCT, lack of confidence in the quality of radiotherapy facilities, unavailability of radiotherapy facilities in the area of their practice, low compliance of patients for completing treatment protocol and low acceptance rate of BCT by patients.

Statistical analysis

The associations between demographic variables and surgeons' preference in performing BCT were assessed by employing Chi-square test. The data of the current study was compared to the study performed in 2004 by using Chi-square test to compare proportions. Analyses were performed using SPSS software version 20.0 (IBM Inc., NY, USA). P value of less than 0.05 was considered as statistically significant in all tests.

Results

One hundred sixty six general surgeons filled out the questionnaires. Mean age of participants was 49.70 ± 11.31 years (ranging from 30 to 81 years) and 62% of them were in the age category of 40 to 59 years. Study population comprised of 131(78.9%) male and 35(21.1%) female surgeons. A total of 105 participants (64.4%) mentioned that they have more than 10 years of practice. The major proportions of subjects worked at nonteaching hospital (private or community hospital) (77.7%). The frequency of having surgical oncology or breast surgery fellowships was 25.3% among the study group. A total of 57 surgeons (34.3%) mentioned that their case load were more than 20 patients annually. Detailed demographic information of the study group is displayed in table 1.

Table 1. The characteristics of study participants

Age	
< 40	25 (15.1%)
40 – 59	103 (62.0%)
⩾ 60	38 (22.9%)
Gender	
Male	131 (78.9%)
Female	35 (21.1%)
Years of practice	
⩽ 10	58 (34.9%)
> 10	105 (63.3%)
Missing	3 (1.8%)
Setting of practice	
Teaching hospital	35 (21.1%)
Nonteaching hospital	129 (77.7%)
Missing	2 (1.2%)
Patients visited per year	
⩽ 20	109 (65.7%)
> 20	42 (25.3%)
Missing	15 (9.0%)
Ever used BCT	
No	24 (14.5%)
Yes	142 (85.5%)
Breast surgery or surgical oncology fellowship	
No	123 (74.1%)
Yes	42 (25.3%)
Missing	1 (0.6%)
Breast surgery workshop	
No	84 (50.6%)
Yes	73 (44%)
Missing	9 (5.4%)

Only 24 surgeons declared that they had not performed BCT before. Variables that showed significant associations with performing BCT were attending a surgical oncology or breast surgery fellowship (P = 0.010) or breast surgery workshop (P = 0.042). No associations were observed between performance of BCT and age category (P = 0.951), gender (P = 0.416), duration of practice (P = 0.821), number of breast cancer patients visited per year (P = 0.083), and setting of practice (P = 0.417) (Table 2).

The most common reasons mentioned for preferring mastectomy over BCT were lack of experience in performing BCT (45.8%), higher risk of local recurrence in comparison to mastectomy (66.7%), lack of confidence in the quality of radiotherapy facilities (33.3%), non-availability of radiotherapy services in their area of practice (16.7%) and low compliance of patients (29.2%).

The participants of the study which was performed in Tehran in 2004 were more commonly classified in higher age categories; 38.6% of them were older than 60 years and 44.6% of them aged between 40 to 59 years. In comparison to the recent study, 22.9% of surgeons aged older than 60 years and most of them (62%) aged 40 to 59 year. There were significant differences between the frequencies of each age category between the two studies (P = 0.019). Female participants were more prevalent in the latter study (21.1% versus 9.6%, P = 0.032). No

Table 2. Comparing participants' characteristics between those who performed BCS versus mastectomy

	BCT (N = 142)	Mastectomy (N = 24)	P-value
Age			0.951
< 40	21 (14.8%)	4 (16.7%)	
40 – 59	88 (62.0%)	15 (62.5%)	
⩾ 60	33 (23.2%)	5 (20.8%)	
Gender			0.416
Male	110 (77.5%)	21 (87.5%)	
Female	32 (22.5%)	3 (12.5%)	
Years of practice			0.821
⩽ 10	49 (34.5%)	9 (37.5%)	
> 10	90 (63.4%)	15 (62.5%)	
Missing	3 (2.1%)	0 (0%)	
Setting of practice			0.417
Teaching hospital	32 (22.5%)	3 (12.5%)	
Nonteaching hospital	108 (76.1%)	21 (87.5%)	
Missing	2 (1.4%)	0 (0%)	
Patients per year			0.083
⩽ 20	88 (62.0%)	21 (87.5%)	
> 20	39 (27.5%)	3 (12.5%)	
Missing	15 (10.6%)	0 (0%)	
Breast surgery or surgical oncology fellowship			0.010
No	41 (28.9%)	1 (4.2%)	
Yes	100 (70.4%)	23 (95.8%)	
Missing	1 (0.7%)	0 (0%)	
Breast surgery workshop			0.042
No	67 (47.2%)	6 (25%)	
Yes	67 (47.2%)	17 (70.8%)	
Missing	8 (5.6%)	1 (4.2%)	

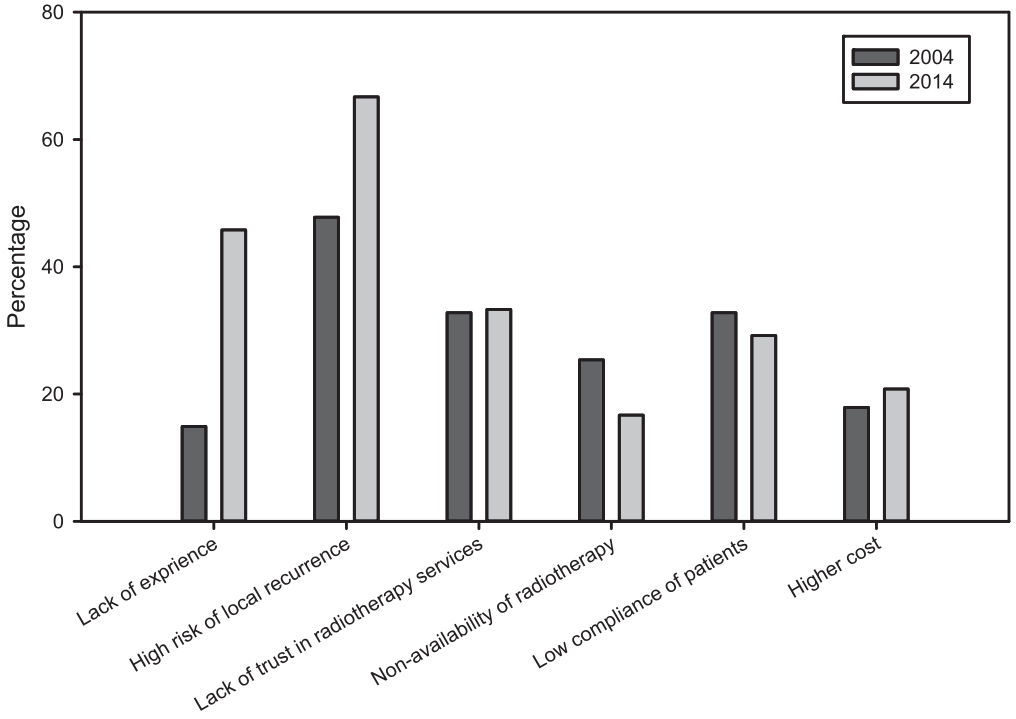

Figure 1. Reasons stated by the surgeons for preferring mastectomy over BCT

differences were observed comparing the two studies regarding years of practice (P = 0.082), practice setting (P = 0.521), and breast cancer patients visited annually (P = 0.247).

The percentage of surgeons who had performed BCT dramatically increased from 19.3% in 2004 to 85.5% in 2014 (P < 0.001). Comparing the reasons for not performing BCT between the two studies showed no significant differences when comparing higher risk of local recurrence after BCT (P = 0.153), lack of confidence in radiotherapy services (P = 0.965), unavailability of radiotherapy in the area of their practice (P = 0.573), low compliance of patients (P = 0.804), and higher cost of BCT (P = 0.765) (figure 1). However, surgeons that participated in the current study more commonly mentioned lack of experience as a reason for not performing BCT compared to the study performed in 2004 (45.8% vs. 14.9%, respectively) (P = 0.004).

Discussion

The aim of this study was to assess Iranian surgeons' perceptions toward mastectomy and breast conserving therapy and determine the contributing factors. We also compared the results of the current study to a similar study which was performed in 2004 on a comparable sample of surgeons in Tehran, Iran.

We found that a considerable proportion of Iranian surgeon performed BCT for breast cancer patients. Variables that demonstrated significant associations with performing BCT were attending a breast surgery or surgical oncology fellowship and short courses in breast surgery. In contrast, age of surgeons, duration of practice, and setting of practice did not have significant relationships with surgeons' preference for BCT over mastectomy. Surgeons with higher number of breast cancer patients per year more commonly reported performing BCS in their practice, but this difference failed to reach statistical significance.

Similar to our findings, another study that assessed American surgeons practice showed that the type of hospitals was not associated with surgeons' method of choice for treatment of breast cancer.[17] Some studies indicated that working in a teaching hospital was significantly associated with higher rates of BCT performance.[18,19] Previous studies have reported controversial results regarding the role of gender of the surgeon on favoring BCT over mastectomy. Mandelblatt *et al.* claimed that female surgeons more commonly favor BCT over mastectomy, while the results of the study conducted by Weinberg *et al.* exhibited that patients who were treated by male surgeons were more likely to undergo BCT (after adjusting for disease stage).[20,21] Our results did not show any association between surgeon's gender and their preference for BCT.

There have been several important changes in the epidemiological characteristics of breast cancer in Iran during the past decades.[22,23] Although the majority of cases are diagnosed in advanced stages, there has been noticeable increase in the proportion of patients diagnosed in early stages of breast cancer.[22]

Since 2004, there has been considerable public and government attention to breast cancer as a major health problem among Iranian women. One outstanding outcome was the downstaging of breast

cancer following increased public awareness and widespread educational programs about breast cancer.[16] On the other hand, the number of conferences held focusing on different aspects of diagnosis and treatment of breast cancer has also increased dramatically in the past decade. Two national conferences are being held annually exclusively focusing on breast cancer including, workshops on new surgical methods and techniques of breast cancer surgery. Additionally, numerous conferences are held throughout the country with the aim of updating physicians on breast cancer treatment (e.g. general surgery, oncology and radiotherapy conferences). Major medical universities in Iran have initiated surgical oncology fellowship programs in the past eight years which include breast cancer surgery as part of the curriculum. Two breast cancer fellowship programs are also initiated in the last 2 years. All of the above mentioned educational programs have contributed to the dramatic increase in the frequency of surgeons performing BCT for patients who could benefit from this less invasive surgical approach. Other studies have also mentioned surgeons subspecialization as a factor contributing to increased use of BCT.[24,25]

Regarding reasons for not performing BCT, participants of the current study were more likely to mention lack of experience as the reason compared to the study performed in 2004. In 2004, in the absence of breast surgery fellowship in Iran and limited number of surgeons who attended such programs abroad, surgeons did not consider BCT as a challenging surgical modality necessitating special skills.

It is worth noting that patients' belief and culture can play important roles in determining the therapeutic choice. For instance, it has been demonstrated that a sample of Chinese women considered BCT as an ineffective treatment and loss of a breast was not a major concern for them.[26] Another study conducted in the USA, surveyed surgeons about the choice of treatment for Asian women.[27] When surgeons were asked about the underlying reasons for higher proportions of mastectomy among the mentioned patients, they cited not willing to preserve a breast as the most common reason, followed by smaller breast size and cultural beliefs.[27] In fact, both the surgeon and the patient are involved in the process of decision making for therapeutic approach. Therefore, one of the shortcomings of the current study might be the absence of data on patients' attitude toward mastectomy and BCT. Further studies should be conducted to assess Iranian breast cancer patients' perception on BCT/mastectomy and the factors that might be associated with preferring one to another.

In conclusion, our observation highlights a significant increase in the frequency of surgeons that perform BCT during the past decade in Tehran, Iran. Factors significantly associated with performing BCT were having a surgical oncology or breast surgery fellowship and participating in short courses in breast surgery. Surgeons who did not perform BCT expressed lack of experience as the most common reason for preferring mastectomy over BCT.

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