



Determinants of mastectomy in breast conservation therapy candidates

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Manuscript received June 5, 2005; revised manuscript June 10, 2005

Presented at the Sixth Annual Meeting of the American Society of Breast Surgeons, Los Angeles, California, March 16–20, 2005

Abstract

Background: Although underused, breast conservation therapy (BCT) is an accepted method for treatment of noninvasive and early breast cancer. The purpose of this analysis was to identify factors associated with receiving mastectomy when eligible for BCT.

Methods: From a recent experience, 397 patients at the University of Texas M. D. Anderson Cancer Center presented with clinical stage 0, I, or II breast cancer. Demographics and tumor characteristics of patients who underwent BCT versus mastectomy were compared.

Results: Of 293 BCT candidates, 203 patients (69%) underwent BCT and 90 patients (31%) received a mastectomy. Of those 90 patients, 66 patients (73%) had documented concerns about receiving BCT. Multivariate analyses showed that widow status was a factor associated with receiving mastectomy at presentation ($P = .04$).

Conclusions: The majority of BCT candidates with early stage breast cancer undergo BCT. In our study, widow status was a predictive factor of mastectomy in BCT candidates. © 2005 Excerpta Medica Inc. All rights reserved.

Keywords: Breast conservation treatment; Breast conservation therapy; Mastectomy; Early breast cancer

Six prospective randomized trials have shown that breast conservation treatment (BCT) is an acceptable method of treating early stage breast cancer [1–6]. This approach preserves the breast, maintains self-esteem, and, above all, is a sound oncologic approach that does not compromise overall patient survival. Yet, some BCT candidates still undergo mastectomy. To determine factors associated with eligible BCT patients receiving mastectomy, we conducted a retrospective analysis of BCT candidates at the University of Texas M. D. Anderson Cancer Center to investigate potential factors associated with receiving mastectomy.

Methods

Data collection

After obtaining approval from the internal review board at the University of Texas M. D. Anderson Cancer Center,

records of women presenting with stage 0, I, or II breast cancer during 2002 and 2003 were analyzed. This period was chosen because it represents a contemporary surgical experience. We excluded patients who received their definitive surgical procedure outside of M. D. Anderson Cancer Center, those with locally advanced disease or recurrent breast cancer, and those who received preoperative chemotherapy and/or radiation therapy.

Definition of variables

BCT candidates for this analysis included patients without absolute or relative contraindications (Table 1). BCT-eligible patients were divided into 2 groups: (1) BCT candidates who underwent BCT (BCT group), and (2) BCT candidates who received mastectomy (MAST group). Patients in the BCT group underwent segmental mastectomy with or without axillary evaluation. Patients in the MAST group underwent total mastectomy with or without axillary evaluation.

We collected the following data for both groups: patient demographics (age, self-reported race, body mass

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Table 1
Absolute and relative contraindications for BCT used in this analysis

Absolute contraindication
History of therapeutic chest wall radiation
Radiation during pregnancy
Multicentric disease
Diffuse malignant-appearing calcifications
Persistent positive margins after reasonable attempts
Relative contraindication
Collagen vascular disease (scleroderma, active lupus)
Unfavorable breast size: tumor size
Extremely large breast size
Multifocal disease

index, zip code, annual income, religion, marital status, insurance status), breast cancer risk factors, clinical and radiographic tumor features, findings from the final pathologic analysis (final tumor size, size of ductal carcinoma in situ, hormone receptor status, histology), and reasons for receiving BCT or mastectomy. The reasons eligible BCT patients underwent mastectomy included radiation-related concerns, fear of cancer, cosmesis, and fear of finding cancer on a follow-up examination. The preoperative mammographic tumor size was defined according to the sixth edition of the American Joint Committee on Cancer [7]. The mammographic size of calcifications was divided into the following: less than 2 cm, 2 to 5 cm, and greater than 5 cm.

Statistical analysis

Univariate analysis was performed using the chi-square test. The Fisher exact test and logistic regression were used to assess the association of the various clinical and pathologic factors between the BCT and MAST groups. Factors with *P* values of less than .05 in univariate and multivariate analysis were considered significant. All *P* values presented were 2-sided. Statistical analyses were performed using SAS 8.2 (SAS Institute Inc, Cary, NC).

Results

Of the 397 M. D. Anderson Cancer Center patients with stage 0, I, or II breast cancer who presented, 293 were eligible for BCT. Of these patients, 203 (69%) received BCT and 90 (31%) underwent mastectomy. Of the 90 patients in the MAST group, 41 received breast reconstruction (46%), 38 (42%) had reconstruction performed at the time of their mastectomies, and 3 patients (3%) received reconstruction in the delayed setting. Clinical and pathologic features of both BCT and MAST groups were tabulated (Table 2). Documented reasons were found in the charts of 66 (73%) of the 90 patients who underwent mastectomy; fear of cancer (46%) and

Table 2
Clinical features including univariate analysis BCT candidates

Factor	BCT, N = 203 No. (%)	MAST, N = 90 No. (%)	<i>P</i> value
Race			
White	162 (79.8)	69 (76.6)	
Hispanic	15 (7.4)	13 (14.4)	.08
African-American	18 (8.8)	4 (4.4)	.25
Asian	8 (3.9)	4 (4.4)	.8
BMI			
Underweight (BMI < 18.5)	2 (.9)	3 (3.41)	
Average (BMI 18.5–24.9)	72 (35.4)	25 (28.4)	.12
Overweight (BMI 25.0–29.9)	61 (30)	22 (25)	.13
Obese (BMI > 30.0)	58 (28.5)	35 (39.77)	.33
Unknown	5 (2.4)	3 (3.3)	
Marital status			
Married	135 (66.5)	60 (66.6)	
Divorced	26 (12.8)	7 (7.7)	.27
Separated	0	1 (1)	.99
Widower	22 (10.8)	20 (22.2)	.04
Single	18 (8.8)	2 (2.2)	.07
Unknown	2 (.9)	0	
Menopausal status			
Premenopausal	46 (22.6)	15 (16.6)	
Postmenopausal	148 (72.9)	73 (81.1)	.21
Perimenopausal	5 (2.4)	2 (2.2)	.82
Annual income			
<20k	2 (1)	1 (1.1)	.80
20–40k	81 (40)	39 (43.3)	.38
40–50k	41 (20.4)	19 (21.1)	.52
>50k	63 (31.3)	23 (25.5)	
Unknown	14 (6.9)	8 (8.8)	
Level of education			
Less than high school	7 (3.4)	1 (1.1)	.37
High school	42 (20.7)	11 (12.2)	.37
College	30 (14.8)	17 (18.9)	.33
Advanced degree	52 (25.3)	20 (22.2)	
Unknown	69 (33.9)	39 (43.3)	
Insurance coverage			
Standard coverage	181 (89%)	75 (83%)	
Nonstandard coverage	18 (8.9%)	14 (15.5%)	.10
Prior history of breast cancer	8 (3.9)	5 (5.6)	.54
Bilateral breast cancer at diagnosis	8 (3.9)	9 (10)	.048
Mammographic T status			
T1	113 (55.7)	38 (42.2)	
T2	22 (10.8)	17 (18.9)	.03
Unknown	25 (12.3)	22 (24.4)	

BMI = body mass index

radiation-related issues (26%) were the most common reasons reported.

Univariate analysis showed that the factors associated with BCT candidates undergoing mastectomy were as follows: being a widow (*P* = .04), bilateral synchronous breast cancer at presentation (*P* = .048), and mammographic tumor size (*P* = .03; Table 2). However, multivariate analysis showed that the only significant predictor for receiving mastectomy over BCT was being a widow (*P* = .04; Table 3).

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