

Effect of cosmetic outcome on quality of life after breast cancer surgery



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Accepted 6 December 2014

Available online 19 December 2014

Abstract

Purpose: Studies regarding the effects of aesthetic outcomes after breast cancer surgery on quality of life (QoL) have yielded inconsistent results. This study analyzed the aesthetic outcomes and QoL of women who underwent breast conserving surgery (BCS) or total mastectomy with immediate reconstruction (TMIR) using objective and validated methods.

Patients and methods: QoL questionnaires (EORTC QLQ-C30, BR23, and HADs) were administered at least 1 year after surgery and adjuvant therapy to 485 patients who underwent BCS, 46 who underwent TMIR, and 87 who underwent total mastectomy (TM) without reconstruction. Aesthetic results were evaluated using BCCT.core software and by a panel of physicians. Patients' body image perception was assessed using the body image scale (BIS).

Results: QoL outcomes, including for social and role functioning, fatigue, pain, body image, and arm symptoms, were significantly better in the BCS and TMIR groups than in the TM group ($p < 0.05$ each). BIS was significantly better in the BCS than in the TM or TMIR group ($p < 0.001$ each). In the BCS and TMIR groups, general QoL factors were not significantly associated with objective cosmetic outcomes, except for body image in the QLQ-BR23. In contrast, patients with poorer BIS score reported lower QoL in almost all items of the QLQ-C30, BR23, and HADS ($p < 0.05$ each).

Conclusion: In conclusion, BCS and TMIR enhanced QoL compared with TM. Among BCS and TMIR patients, objectively measured cosmetic results did not affect general QoL. Self-perception of body image seems to be more important for QoL after breast cancer surgery. © 2014 Elsevier Ltd. All rights reserved.

Keywords: Quality of life; Cosmetic result; Breast cancer; Body Image Scale; BCCT.core

Introduction

Treatment for breast cancer frequently results in marked changes to the physical appearance of patients. The overall

safety of breast conserving surgery (BCS) and reconstruction surgery, as well as improvements in long term outcomes of breast cancer treatment, have enhanced concerns about esthetic results. However, despite efforts to preserve their breasts for cosmetic reasons, a substantial percentage of patients are not satisfied with the esthetic result of surgery. For example, one study reported that 28.3% of patients who underwent BCS were dissatisfied with the cosmetic results.¹ Moreover, unlike oncologic outcomes, there are no standard and objective methods for

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evaluating esthetic outcomes. An objective measure of assessing breast cosmetic results after BCS or reconstruction is needed to improve surgical strategies and to identify factors that affect esthetic outcomes.

The extent to which cosmetic results affect the quality of life (QoL) of breast cancer patients remains unclear. QoL is an important endpoint of breast cancer treatment, and the effects of various interventions on the QoL of these patients are of major interest. However, studies to date of the effects of esthetic outcomes on postoperative QoL have yielded inconsistent results.^{2–6} Evaluation using standardized and validated methods may justify efforts to improve cosmetic outcomes of breast cancer surgery, as well as being essential for patients to make an informed choice of surgical options.

The aim of this study was to investigate patient QoL after breast cancer surgery and to correlate these QoL results with subjectively and objectively measured breast cosmetics. We therefore analyzed and compared esthetic results and patient QoL in women who underwent BCS and those who underwent total mastectomy followed by immediate reconstruction (TMIR).

Methods

Patients

This study was approved by the Institutional Review Board (IRB) of Seoul National University Hospital (IRB No. 1206-120-416). We surveyed all women who underwent BCS or TMIR at Seoul University Hospital by a single surgeon (Han W) between January 2007 and September 2011. Women were included if they had: 1) primary, unilateral, histologically proven invasive or in situ breast cancer; 2) clear resection margins at final surgery; 3) no evidence of disease recurrence or metastasis during the follow-up period; and 4) concluded adjuvant chemotherapy and radiotherapy at least one year earlier. Eligible women were enrolled during visits to the outpatient clinic for routine follow-up monitoring. Among 878 eligible women who were asked to participate in this study, 531 patients agreed. Decline rate was 39.52%. Of the 485 women who underwent BCS, 55 had undergone oncoplastic BCS using volume displacement techniques. Based on the interdisciplinary guidelines of our center, postoperative radiotherapy and systemic adjuvant treatment were administered to patients who needed these treatments.

All patients provided written informed consent for participation in this study. Patients were asked to complete the European Organization for Research and Treatment of Cancer, EORTC QLQ-C30 and QLQ-BR23 questionnaires; as well as Body Image Scale (BIS) and Hospital Anxiety and Depression Scale (HADS) questionnaires. At the same time, digital photo images of the upright upper body of each patient was taken in a standardized manner using a digital camera with a resolution of at least 4 megapixels. Photographs taken in four positions: front with arms

down; front with arms up; left side with arms up; and right side with arms up, were used for the BCCT.core and panel evaluation of cosmetic outcome.

The control group consisted of 87 stage matched women who underwent total mastectomy (TM) without reconstruction during the same period of time. These women filled out the same questionnaires as the women in the other groups, but were not assessed by photo images and cosmetic outcomes.

Quality of life

Quality of life was measured using the Questionnaire of EORTC QLQ-C30 and the BR23 module (supplementary questionnaire specific for patients with breast cancer).⁷ All interviews were conducted face-to-face by a trained researcher.

The EORTC QLQ-C30, a validated questionnaire translated into Korean,⁸ is composed of five functional scales (covering the physical, role, emotional, cognitive, and social aspects), symptom scales and items (fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation, diarrhea, financial difficulties), and global health. The scores on the QoL were calculated as described with lower scores indicating better QoL for symptom scales and higher scores indicating better QoL scores for global health and functional scales. The symptom scale was reversed, so that higher scores indicated better results. The EORTC QLQ-BR23 instrument (BR23) is a 23-item, breast cancer-specific module of 5 QoL dimensions: four functional scales (body image, future perspective, sexual functioning, and enjoyment) and symptom scales (systemic therapy side effects, breast and arm symptoms, upset by hair loss). Each item is rated on a 4-point Likert scale from 1 (not at all) to 4 (very much). The BR23 has been tested in a previous study with adequate internal consistency.⁹

Anxiety and Depression Scale

Severity of anxiety and depression was assessed using the Hospital Anxiety and Depression Scale (HADS), a 14-item self-rating scale that assesses the severity of depression and anxiety, with each dimension scored between 0 and 21 points. The HADS has been widely used and validated in cancer patients, has been shown reliable and valid, and is useful for screening of depression. Anxiety disorder was defined as a score ≥ 8 on the HADS-A and depression as a score ≥ 8 on the HADS-D.¹⁰

Cosmetic results and patients' body image perception

The BCCT.core (Breast Cancer Conservative Treatment cosmetic results) is a computer system that objectively and automatically evaluates breast aesthetics of women who underwent BCS for breast cancer.^{11,12} This program provides an overall esthetic assessment based on symmetry, skin

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