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Quality of life following total mastectomy with and without reconstruction versus breast-conserving surgery for breast cancer: A case-controlled cohort study☆

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Summary *Background:* Patient-reported outcomes and quality of life following mastectomy are not well understood. This study evaluates the quality of life following surgery for breast cancer and compares outcomes following breast-conserving surgery versus total mastectomy with or without reconstruction.
Methods: A case-controlled cross-sectional study was conducted using the validated BREAST-Q™ questionnaire and a study-specific questionnaire to determine patient's views about surgical outcomes. Questionnaires were completed by patients following breast-conserving surgery and total mastectomy with or without reconstruction and by controls without breast cancer. A one-way ANOVA was used to compare mean BREAST-Q™ scores between groups and post hoc analysis using Tukey's and Kruskal–Wallis tests.
Results: BREAST-Q™ questionnaires were completed by 400 women (123 controls, 97 breast conservations, 93 mastectomies without reconstruction, 87 mastectomies with reconstruction). Women who had undergone mastectomy and reconstruction had higher scores in satisfaction with breast and sexual well-being domains compared with women who had breast-conserving surgery, and women who had total mastectomy without reconstruction had the lowest scores in these two domains. There was no difference in psychosocial well-being between the groups. Women who had undergone breast-conserving surgery scored the lowest in the physical well-being chest domain and the majority reported breast asymmetry.

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Conclusion: Our study suggests that women who undergo total mastectomy and breast reconstruction for cancer achieve a quality-of-life outcome that is at least as good as that following breast-conserving surgery. Furthermore, breast conservation has been found to be associated with lower physical well-being (i.e., more pain and discomfort) in the chest area and poorer sexual well-being outcomes.

Introduction

Breast-conserving surgery followed by radiotherapy is the current standard of care for most small breast cancers.[1] Evidence for this approach has been established by various trials, including the United States National Surgical Adjuvant Breast trials (NSABPB04, NSABPB06), which have demonstrated equivalent survival outcomes,[2,3] although the quality of life was not evaluated in these trials. Recent reports have shown that an increasing proportion of women with breast cancer are actually choosing mastectomy and reconstruction.[4] Whether this option yields good quality-of-life outcomes, it has not been established.

The development of oncoplastic surgical techniques[5,6] and the increased awareness of genetic risks for breast cancer[7] are factors that might be affecting current treatment patterns in women at high risk. Albornoz et al.[4] recently hypothesised that testing for BRCA mutations is contributing to an increase in rate of bilateral mastectomy and reconstruction in women with breast cancer. What is not known, however, is whether this type of surgery can deliver as good a quality-of-life outcome as breast-conserving surgery and radiotherapy. In addition, only a few studies have compared patient-reported outcomes following breast-conserving surgery versus mastectomy with and without reconstruction.[8,9]

To evaluate this further, the current study was conducted to evaluate the quality-of-life outcomes in a group of women with no history of breast cancer, women who had undergone breast-conserving surgery, women who had undergone total mastectomy without breast reconstruction and women who had undergone total mastectomy with breast reconstruction.

Methods

A case-controlled cross-sectional study was conducted, comparing four groups of women:

1. controls — women who had never been diagnosed with breast cancer or had breast cancer surgery

Women who had undergone

2. breast-conserving surgery for breast cancer;
3. total mastectomy without breast reconstruction;
4. total mastectomy and breast reconstruction procedure(s).

Pre-existing, prospectively collected quality-of-life datasets were available for the two total mastectomy groups, and these datasets were analysed for this study. These data were collected prospectively from 1 January 2009 to 31 December 2013 when these women attended the Flinders Breast Reconstruction Service at Flinders Medical Centre, Adelaide, South Australia. At the visit to the clinic, women completed the BREAST- Q™ questionnaire, a previously validated, disease-specific quality-of-life measure. Scores were collated and stored in a database. For these groups, demographic and BREAST-Q™ data were extracted from the database.

For this study, additional data were collected from the other two groups. Women who had undergone a single-sided breast-conservation operation for cancer at Flinders Medical Centre from 1 January 2009 to 31 December 2013 were identified from the multidisciplinary team meeting records and invited to participate in the current study. Patients who had died, those who had proceeded subsequently to total mastectomy, those who had undergone reconstructive surgery after breast conservation and those who had undergone a bilateral procedure were excluded. These patients were mailed an explanatory letter, the BREAST-Q™ patient-reported outcome measure, a study-specific adjunct questionnaire and a reply paid envelope for return of the questionnaire.

A control group of women (aged 20—87 years) was recruited by nurses and volunteers at Flinders Medical Centre. Nursing coordinators and the president of the Hospital Volunteer Service assisted in recruitment by placing notices explaining the study in communal areas, along with the questionnaires and instructions for their return.

The study-specific questions asked whether patients thought they had asymmetry between their two breasts following surgery and whether they would consider surgical remediation for any asymmetry. To ensure individuals with breast cancer were not included in the control group, the control version of this questionnaire also asked whether they had had breast cancer surgery. If a questionnaire was not returned, it was followed up with one telephone call. For the post-reconstruction group, data were extracted from the same source. Demographic information, details of surgery and histopathology were obtained from hospital records for all groups.

The BREAST-Q™ is a validated patient-reported outcome measure developed by the Memorial Sloan Kettering Cancer Institute and the University of British Columbia. It contains 36 questions, and the raw scores are converted to summary scores out of 100 for three satisfaction and three well-being