



Original article

The course of Health Related Quality of Life in postmenopausal women with breast cancer from breast surgery and up to five years post-treatment



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ARTICLE INFO

Article history:

Received 10 April 2012

Received in revised form

1 March 2013

Accepted 7 May 2013

Keywords:

Breast cancer

Postmenopausal

Adjuvant treatment

SF-36

HRQOL

Longitudinal

ABSTRACT

Background: Previous studies include too few patients over 70 years to be able to assess treatment effects on Health Related Quality Of Life (HRQOL) in the older age group. We aimed to follow HRQOL in postmenopausal women (55–80 years) with breast cancer receiving adjuvant treatment, until five years post-treatment, and compare with a general population.

Patients and methods: The patient sample included 150 women (adjuvant CT $n = 75$ and RT $n = 75$) and two reference samples from the Swedish SF-36 norm database.

Results: Data from baseline showed significantly higher levels of physical functioning and general health among the patients compared to the reference sample, and significantly lower levels of bodily pain, emotional role functioning and mental health. Longitudinal analyses showed significant changes in all scales, and three different patterns (a decrease-stable, a decrease-increase, and a stable-increase pattern) were identified.

Conclusion: Postmenopausal women seem to successfully manage the effects of adjuvant treatment on HRQOL.

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Introduction

Despite evidence that adjuvant chemotherapy has improved survival among women with early stage breast cancer, breast cancer studies¹ show that studies so far have included too few patients older than 70 years to be able to assess the effects of chemotherapy on Health Related Quality Of Life (HRQOL) in this group effectively. Several studies concerning HRQOL have been performed on younger and middle-aged patients, showing that experiences of symptoms often are related both to the treatment and/or the disease.^{2,3} However, it is questionable whether findings from younger women can be accurately extrapolated to an elderly population.⁴ Advances in the treatment of breast cancer have improved over the last decade and have resulted in an extended survival rate^{5,6} in pre- and post-menopausal patients, at least for the hormone receptor negative patients.¹

The impact of treatment on patients' HRQOL is an important consideration in the adjuvant treatment of operable breast cancer. In general, adjuvant treatment is found to be associated with a decrease in overall HRQOL. In a study by Browall et al.⁷ adjuvant treatment has been described to impact on HRQOL physical and role functioning, anxiety and body image, as well as an increase in fatigue, dyspnea, pain, nausea/vomiting, constipation and systemic treatment side effects over time. In the same study women receiving chemotherapy, better emotional functioning and less pain at baseline predicted better overall HRQOL at the end of treatment. For women receiving radiotherapy, better physical and emotional functioning, less breast symptoms and tumor stage at baseline predicted better overall HRQOL at the end of treatment.⁷ In a study by Cella et al.,⁸ the impact of anastrozole and tamoxifen on overall HRQOL showed that at the 2- and 5-year follow-up time points, endocrine treatment had significant impact on patient-reported side effects such as diarrhea, vaginal dryness, diminished libido and dyspareunia.

HRQOL outcomes have been tested as predictors of breast cancer recurrence⁹ and results indicate that baseline HRQOL outcomes do not predict breast cancer recurrence. However, some evidence

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suggests that changes over time in HRQOL, such as physical wellbeing and nausea/vomiting, may predict recurrence in women with breast cancer. Women who reported greater deterioration in physical wellbeing and more improvement in nausea/vomiting had a higher risk of recurrence within 3 years of primary diagnosis.¹⁰ The issue of 'survivorship' has become an important topic in breast cancer care that demands the investigation of long-term effects of breast cancer diagnosis and its treatments.¹¹ There is paucity in the literature on long-term follow-up on HRQOL for women with breast cancer, especially for those in older ages.

Aim

The aim of this study was to compare HRQOL in postmenopausal women with breast cancer receiving adjuvant treatment after surgery and after five years post-treatment, with a general population and, further, to explore the course of HRQOL from breast cancer surgery, after treatment, and up to five years post-treatment.

Our hypothesis was that aspects of HRQOL would be significantly negatively impacted at baseline and after the completion of treatment but that the impact on HRQOL would have resolved at 5 years post-treatment.

Materials and methods

Procedure

Data for this study were obtained from a longitudinal project on experiences of adjuvant treatment among postmenopausal women with breast cancer.¹² The project was carried out at two Swedish university hospitals (Sahlgrenska University Hospital: Department of Breast Surgery, Gothenburg; and Karolinska University Hospital: Department of Oncology, Stockholm) and one county hospital (Skövde Hospital, Department of Surgery, Skövde). Data were collected on women newly diagnosed with histologically confirmed stage I–III breast carcinoma. The inclusion criterion of age cut-off ≥ 55 years was adopted to ensure that the participants were homogeneous with respect to menopause. After surgery, women scheduled to receive chemotherapy (CT) were consecutively invited to participate in the project. For each CT patient enrolled, an age-matched woman about to receive radiotherapy (RT) was asked to participate.

This study utilizes longitudinal data collected the week before treatment was started (T1), at one to two weeks (T2), and at five years after completion of treatment (T3). The T1 data collection was conducted 4–6 weeks (CT) and 8–10 weeks (RT) post-surgery depending on treatment. Data for T2 were collected one week after the last CT cycle or two weeks after completed RT. Ethical approval was obtained from the Research Ethics Committees at University of Gothenburg and Karolinska Institute, Stockholm. (No. Ö 049-02 and 03-390).

Sample

Of 80 consecutive patients who met the inclusion criteria and about to receive CT, only 5 refused participation ($n = 75$). Among the women about to receive RT 88 were invited to participate and 13 refused participation ($n = 75$). The total patient sample (PS) included 150 women (adjuvant CT $n = 75$ and RT $n = 75$). Sociodemographic characteristics of the patient sample at T1 are presented in Table 1.

Cross-sectional samples

To compare the women's HRQOL at T1 with that of the general population, the total PS ($n = 150$) was utilized. For comparisons at T3, data from the 102 women in the PS who had completed the

Table 1
Sociodemographic characteristics of the patient sample at T1 ($n = 150$).

	Postmenopausal women
Mean age (year range)	65 (55–80)
	<i>n</i> (%)
Single/divorced/widowed	56 (37)
College/graduate degree	73 (49)
Employed full time or at least part time	53 (35)
Old age retirement	86 (57)
Swedish born	128 (86)
Co-morbidities	
Cardiovascular disease	43 (29)
Musculo-skeletal problems	46 (31)
Respiratory problems	46 (31)
Psychiatric disease	10 (7)
Surgery	
Total mastectomy	48 (30)
Sector resection	100 (67)
Missing	2 (1)
Axillary exploration	
Axillary clearance	81 (54)
Sentinel node biopsy	71 (47)
Positive lymph nodes	
None	26 (17)
1–3	33 (22)
≥ 3	3 (2)
Data missing	
Treatment	
Chemotherapy (CT) ^a	12 (16)
CT + Radiotherapy (RT) ^a	26 (35)
CT + RT + Endocrine ^a	33 (44)
CT + Endocrine ^a	4 (5)
RT ^b	39 (52)
RT + Endocrine ^b	8 (11)
Endocrine + RT + Endocrine ^b	28 (37)

Note: RT to the chest wall was offered after mastectomy, if the tumor size was >50 mm. Both local (breast or chest wall) and lymph node radiotherapy were offered if more than 3 lymph nodes were involved, irrespective of type of surgery to the breast.

Adjuvant endocrine treatment was part of the planned treatment for 30 out of the 75 RT patients. No endocrine treatment was used during RT; however, in 28 patients, endocrine treatment had been initiated while on the waiting list to start RT, these patients then discontinued endocrine treatment between one or two weeks before start of RT until the end of RT (no concomitant treatment). Eight patients commenced endocrine treatment first after RT was completed.

^a Treatment for adjuvant CT group over time (The adjuvant CT regime used was mainly FEC ($n = 72$) or CMF ($n = 3$)).

^b Treatment for adjuvant RT group over time. The target of the RT was mainly the breast, after breast conserving surgery ($n = 69$), but a few patients also had locoregional RT after mastectomy ($n = 5$).

questionnaire at this time point were included in the analysis. Two exact age and gender-matched reference groups were randomly drawn from the Swedish SF-36 norm data base ($n = 8930$); one reference sample (RS) to correspond to the PS at T1 and one to PS at T2 (RS_1 at T1 $n = 565$, RS_2 at T2 $n = 217$).

Longitudinal sample

To study the course of HRQOL from T1 to T3, a group was constituted including the women who completed the questionnaire at all three time points, T1, T2 and T3. Between T2 and T3 in the CT group 12 patients had deceased and 16 were missing (did not sent in the questionnaires at T3) in the RT group there were eight patients that had deceased and 12 missing, leaving a total of 102 women. Of these 102 patients in total 96 completed the questionnaires at all three time points, T1, T2, and T3.

Instruments

HRQOL was assessed with the Short Form (SF-36) Health Survey, version 1.0 measuring the following eight domains of health:

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