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Original article

Quality of life in elderly patients with localized breast cancer treated with radiotherapy. A prospective study

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ABSTRACT

Purpose: There is a debate on the role of adjuvant Radiotherapy (RT) in elderly breast cancer patients. The aim is to study Quality of Life (QL) throughout the treatment and follow-up periods in early stages breast cancer patients who have started radiotherapy, and to compare the QL of axillary surgery groups.
Methods: 173 patients, ≥65 years completed the EORTC QLQ-C30 and QLQ-BR23, and the Interview for Deterioration in Daily Living Activities in Dementia(IDDD) questionnaires three times throughout treatment and follow-up periods. Linear mixed effect models were used to evaluate longitudinal changes in QL, and whether these changes differed among axillary surgery groups.
Results: QL scores were high (>70/100 points) in most QL areas, with moderate limitations (>30) in sexual functioning and enjoyment, future perspective and global QL.
In six areas there was a decline at the RT sessions end, that after 6 weeks was recovered. For three areas, there was an improvement in the follow-up measurement compared to the previous assessments. Changes in seven areas were <5 points.
Axillary node dissection patients had a body image decrease (6 points) in the follow up period. The lymphadenectomy group had more fatigue (10 points, $p = 0.078$) than the other two axillary surgery groups.
Conclusions: Results orientate towards good patients' adaptation to their disease and treatments, and to administering RT in early stages breast cancer patients. QL differences between the axillary surgery groups and in their evolutions were few but have appeared in key QL areas.

Introduction

Elderly patients constitute the largest group in oncologic medical practice [1]. Breast cancer is most prevalent in elderly patients [2,3], as the risk of breast cancer increases significantly with age [4,5]. Its management is becoming more important [3]. The number of older women with breast cancer who may be eligible for adjuvant irradiation is rising [6].

There is considerable controversy about what constitutes appropriate care for older breast cancer patients. This controversy is reflected in the persistence of age-dependent variations in care, with older women being less likely to receive standard therapies such as adjuvant Radiotherapy (RT) [6–8]. Physicians' and patients' assumptions might be misleading, including that elderly patients are unable to withstand treatments. Ballinger et al. [5] consider that older patients are a heterogeneous group, and that other variables, like functional and cognitive abilities, may be a more useful indicator for suitable treatments than age. Browall et al. [9] consider that age should not be used in isolation in decisions about adjuvant

Abbreviations: RT, radiotherapy; QL, quality of life; ALND, axillary node dissection; SLNB, sentinel node surgery.

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treatment in elderly breast cancer patients. Age based differences have been found in some Quality of Life(QL) dimensions in breast cancer patients [10,11], not necessarily indicating elderly people have more limitations than younger ones.

Elderly patients(>70) are usually excluded from clinical trials [5,7]. More clinical research is considered necessary in elderly breast cancer patients [8,12–14].

QL is considered a key aim in elderly patients [8]. QL assessment has an important role in elderly breast cancer patients, as it can be helpful in aspects like determining the optimal adjuvant regimens for this patient population or offering better supportive care [2,5,15,16].

There has been a debate in the last years about the possible negative role of adjuvant RT in elderly breast cancer patients' QL [7]. Several studies have shown that omission of RT might not increase elderly breast cancer patients' QL [5]. More studies on QL in adjuvant RT are needed to provide a more robust basis for RT practice [2,6].

QL studies on surgery in elderly breast cancer patients are considered useful: more evidence-based surgical options in elderly cancer patients might lead to an increase in their overall cancer survival and QL [17,18].

Axillary node dissection (ALND) was initially compared with no surgery in the axille in elderly patients, and was associated with limitations in QL and no clear clinical benefits [19,20]. Sentinel node surgery (SLNB) is agreed to be an important advance in breast cancer in general, which may cause fewer long-term adverse outcomes than ALND: lower arm morbidity and better QL [21,22]. More research in QL after different axillary procedures is advised [23], especially in elderly patients, as they are not frequently included in these studies.

Comprehensive Geriatric Assessment is an interdisciplinary evaluation of the heterogeneity of elderly patients. It includes measurements that are related to QL. Its use with cancer patients is recommended [5,24–26]. A preliminary study was carried out by our group in a small part of the present sample, which we aim to confirm [27].

The aims of the present study were to assess QL in a sample of elderly early stages breast cancer patients treated with adjuvant RT; to evaluate their QL changes throughout the treatment period, and the differences between axillary surgery groups.

We expected QL scores to be high, with small limitations in emotional and physical areas and with small changes during the treatment period, that improved in the follow-up. We expected differences in the axillary surgery groups to appear in a few emotional and physical areas.

Materials and methods

Participants

A consecutive sample of breast cancer patients who initiated treatment in the Radiotherapeutic Oncology Department of the Complejo Hospitalario of Navarra (Spain) between December 2004 and December 2011 were invited to participate in the study.

Inclusion criteria were breast cancer in stages I–III, 65 years of age or older, and starting radiotherapy. Two main groups of patients were selected: newly diagnosed, and those with exclusively local or regional relapses, with a negative extension search and without having undergone radiotherapy previously in the area. For the latter, data regarding the treatment for the relapse were recorded.

The criteria for exclusion were treatment that included chemotherapy, cognitive state that did not permit treatment evaluation, or a life expectancy of less than 3 months.

Treatment

Patients initiated radiotherapy with or without endocrine therapy. They may have previously undergone surgery for breast cancer (breast conserving surgery or mastectomy). Radiotherapy was given with conventional fractionation organized into three main groups: (1) breast/chest wall local irradiation; (2) breast/chest wall and supraclavicular and axillary level III nodal area irradiation if axillary node affection; (3) regional exclusive in selected relapses. Patients treated with endocrine therapy had, as a general rule, already started this treatment before beginning radiotherapy.

Patients could have received surgery in the breast, radical or conservative, combined or not with a mode of surgery in the axille (SLNB, ALND).

Measures

All patients completed the EORTC questionnaires QLQ-C30 version 3.0 [29] and QLQ-BR23 [30], which had been translated into Spanish following the EORTC Quality of Life Group translation procedure [31] and that our group have validated for use in our country [32,33]. The structure of these questionnaires is shown in Table 1. QLQ-C30 evaluates areas common to different tumour sites and treatments, whereas QLQ-BR23 evaluates the areas associated with breast cancer and its treatments. Questionnaires with less than 70% of the items answered were excluded.

A scale of daily activities (DA), the Interview for Deterioration in Daily Living Activities in Dementia (IDDD) [34] and a physician's assessment of limiting comorbidity were added to approximate the QL evaluation to Comprehensive geriatric assessment. The IDDD scale evaluates patients' views on their personal care and complex DA. Values from 33 to 36 are considered normal.

The treating physician assessed toxicity levels through selected items from the National Cancer Institute (NCI) Common Toxicity Criteria version 4.0 scale [35], and performance status using the Karnofsky scale [36].

Data collection procedures

Those patients who provided informed consent were invited to complete the QL and DA questionnaires at three points during the treatment and follow-up periods: the first and final day of radiotherapy, and the follow-up consultation, 6 weeks after finalizing treatment. This study followed the recommendations of the Declaration of Helsinki, and was approved by the Ethics Committee of the Complejo Hospitalario of Navarra.

Statistical analysis

Descriptive statistics such as means with standard deviations and frequencies with percentages were used to summarize the sample characteristics. Statistical tests such as Anova, Kruskal-wallis, X^2 test and Fisher test (depending on the nature of the variable) were used to carry out to compare the characteristics of the axillary surgery groups (SLNB, ALND or without surgery) in patients with conservative surgery.

Linear mixed effect models were used to evaluate longitudinal changes in QL for the global sample, including time as fixed effect and individual as random effect to account for the intra-correlation structure of the data. When significant, age was also included as an adjusting variable. To evaluate if longitudinal changes in QL differed among groups of axillary surgery in patients with conservative surgery, the same methodology was used, adding to the time effect the fixed effect of type of axillary surgery, and an interaction term between them. When the interaction term was significant, it was