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Original research

Breast conserving treatment for ductal carcinoma in situ in the elderly: Can radiation therapy be avoided? Our experience

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ABSTRACT

Introduction: Ductal Carcinoma In Situ (DCIS) is a heterogeneous, pre-malignant disease accounting for 15–20% of all new breast cancers. If appropriately managed, DCIS has a small chance of impacting on patient life expectancy. Despite the possibility of a further recurrence or of a development in an invasive form, we are unable to select treatment of choice especially in the elderly. In particularly we risk an overtreatment of women at low risk of progression to invasive breast cancer. The aim of this study was to retrospectively evaluate the outcome of elderly patients affected by DCIS not undergoing Radiation Therapy (RT) after Breast Conserving Surgery (BCS). **Material and methods**: We reviewed our prospectively-maintained database from 1998 to 2013, selecting all women over 65 years old diagnosed with DCIS who did not receive RT for personal choice. We considered two groups, according to the risk of local recurrence (Low Risk (Group 1) vs. High Risk (Group 2)). **Results**: We identified 44 cases of DCIS treated with surgery alone or with surgery followed by adjuvant tamoxifen. 24 patients presented low risk of local recurrence (Group 1) and 20 had characteristics associated to high risk of local recurrence (Group 2). At a median follow-up of 66.3 months, no local recurrences have been described in group 1. No patients presented distant metastases, while 4 patients died for other causes. At a median follow-up of 72 months we observed 5 local recurrences in the second group ($p < 0.05$). **Conclusion**: Our results suggest that radiation therapy can be safely avoided in a selected group of elderly patients affected by DCIS.

1. Introduction

Ductal Carcinoma In Situ (DCIS) is an early form of breast cancer. It is defined by the World Health Organisation (WHO) as a neoplastic intraductal lesion characterized by increased epithelial proliferation, subtle to marked cellular atypia and an inherent but not necessarily obligate tendency for progression to invasive breast cancer [1]. The widespread adoption of screening mammography in the latest decades has led to a significant increase in the incidence of DCIS that nowadays accounts for about 15–20% of all newly diagnosed cases of breast cancer [2–5]. Main goals of DCIS treatment are maximizing breast conservation, optimizing cosmesis,

List of abbreviations: DCIS, Ductal Carcinoma In Situ; IDC, Infiltrant Ductal Carcinoma; RT, Radiation Therapy; BCS, Breast Conserving Surgery; WHO, World Health Organization; VNPI, Van Nuys Prognostic Index; NCCN, National Comprehensive Care Network; USC, University of Southern California.

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and preventing the development of invasive breast cancer. Women affected by DCIS have two surgical options: simple mastectomy mainly used for extensive DCIS or Breast Conserving Surgery (BCS). The latter, along with the widespread use of oncoplastic techniques, is nowadays considered the procedure of choice and it is followed by Radiation Therapy (RT). RT after BCS has been proved to reduce the rate of both in situ and invasive local recurrence [6–11]; however this reduction has not translated into a survival benefit and proponents of excision alone, in selected cases, have raised [12–17]. First attempts to select low-risk patients who might not benefit from RT have been proposed by Silverstein and colleagues, with the application of the Van Nuys Prognostic Index (VNPI) [17]. In 2002, the University of Southern California updated the VNPI, including the age parameter. Only in 2008, the National Comprehensive Care Network (NCCN) published recommendation on treatment of DCIS presenting surgery alone as an acceptable alternative to excision plus radiation therapy [18]. The NCCN study also presented factors that may affect the rate of local recurrence for DCIS: symptomatic patients for the presence of a palpable mass, tumor size, presence of necrosis, margins width and age younger than 50 years.

Our study examined the effect of surgery alone on local recurrence rates in women affected by DCIS low-risk subtypes.

2. Material and methods

We reviewed our prospectively-maintained database collecting all patients treated for breast cancer from 1998 to 2013 and selected all patients affected by DCIS treated with excision alone because of patients' personal choice not shared by our oncologists. We divided our population in two groups: the first one included all patients with pure ductal carcinoma in situ (no microinvasion), tumor size smaller than 20 mm, nuclear grade 1 or 2, margin not involved after surgery, not palpable mass and age of 65 or older; the second group included all patients affected by DCIS who did not undergo RT therapy not presenting the abovementioned criteria. No systemic or radiation therapy was used in conjunction with surgery for any patient in the two groups.

3. Statistical analysis

Values are expressed as mean ± standard deviation when indicated. A p value of 0.05 or less was considered statistically significant. Kaplan–Meier analysis was used to determine local recurrence. Statistical analyses were performed using SPSS 20 software package (SPSS, Inc, Chicago, IL).

4. Results

A total of 916 patients with the diagnosis of DCIS were identified. 44 patients have been treated with surgery alone. 24 patients presented our inclusion criteria and represented our group 1. Ten patients received surgery alone while 14 received tamoxifen as adjuvant hormonal therapy in group 1. All patients in group 2 received adjuvant hormonal therapy. No patients in both groups underwent systemic therapy. Mean age was 68,6 years (range 65–80) for the first group and 62 years (range 48–74) for the second group. The median time of follow-up was 66,3 months (range 11–137) for the first group and 74 months (range 14–151) for the second group. The median size of disease was 8 ± 2.6 mm and 17 ± 4.7 mm for the first and the second group respectively.

No local recurrences have been described in the first group. No patients presented distant metastases while 4 patients died for other causes (1 liver failure, 1 renal insufficiency, 1 lung cancer, 1 pulmonary emphysema).

We observed 5 local recurrences (2 DCIS and 3 DCI) in the second group with a local recurrence rate of 25%, significantly higher when compared with the first group ($p < 0.05$) (Fig. 1).

5. Discussion

DCIS is a common non-life-threatening breast cancer, usually asymptomatic and diagnosed through mammographic screening programs. The management of DCIS includes mastectomy or lumpectomy followed by radiation therapy. Although many prospective randomized clinical trials prove that the use of RT reduces the risk of a local recurrence in the ipsilateral breast by at least 50% [19–21], other reports show excellent survival rates in DCIS treated without RT. According to this evidence, many authors argued about the possibility of avoiding RT in certain subsets of women affected by DCIS [14,22–36]. The NSABP B-17 trial was the first randomized, controlled trial treating DCIS patients with lumpectomy only [19]. It revealed a 15-year ipsilateral breast recurrence rate of 35% and 19,8% respectively without and with adjuvant RT. Lagios [23,24] presented local recurrence rates decreasing to 9% at 12 years of follow-up selecting low grade DCIS, smaller size (<25 mm) and 1 mm or more of free margins. In 2002 Silverstein [22] reported a local recurrence rate of 6% at 12 years of follow-up adding as a further criteria the age of 50 or older. In our study we respect all the inclusion criteria of the USC/VNPI and NCCN [18], furtherly focusing our attention on patient older than 65, obtaining no local recurrences at a median follow-up of 66,3 months. 4 patients in our second group not meeting two of our inclusion criteria developed a local recurrence in the follow-up. On the other side the possibility of avoiding RT improve patients quality of life, particularly in the elderly.

6. Conclusion

Our study proves that the risk of a local recurrence for DCIS varies by age, grade, size, palpable or no palpable mass and margin status after surgery. Despite the small number of patients and the short follow-up of our study, our findings can be used to guide oncologists and radiotherapists in their treatment decisions for

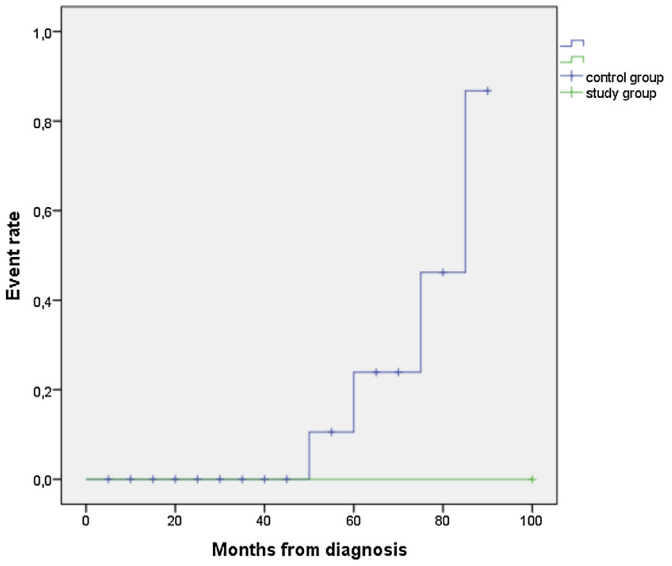

Fig. 1. Risk of local recurrence in the first group (blue line) compared with the second group (green line). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

women with DCIS. Whole breast RT remains the standard of care for the treatment of DCIS in all patients not presenting all the criteria considered in our study. More information is needed to understand the role of an hormonal therapy with tamoxifen when RT is not given.

Ethical approval

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Author contribution

Giuseppe Falco: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data; also participated substantially in the drafting and editing of the manuscript.

Nicola Rocco: Participated substantially in conception and design of the study and in the drafting and editing of the manuscript.

Eugenio Procaccini: Participated substantially in conception and design of the study.

Maria Giulia Sommella: Participated substantially in collecting data.

Daniele Bordoni: Participated substantially in collecting data.

Eugenio Cenini: Participated substantially in collecting data.

Fabio Castagnetti: Participated substantially in conception and design of the study.

Vincenzo Sabatino: Participated substantially in collecting data.

Rita Compagna: Participated substantially in collecting data.

Gianni Antonio Della Corte: Participated substantially in collecting data.

Antonello Accurso: Participated substantially in the drafting and editing of the manuscript.

Bruno Amato: Participated substantially in the drafting and editing of the manuscript.

Guglielmo Ferrari: Participated substantially in conception and design of the study.

Conflict of interest

The authors have no conflict of interest or any financial support.

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