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Original article

Feasibility of tailored follow-up for patients with early breast cancer

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ABSTRACT

As the number of breast cancer survivors increases, this study prospectively examined whether tailored follow-up with differentiated number of visits per risk group, based on a prognostic index for local recurrence, is feasible and acceptable for patients and professionals.

Between March 2007 and March 2010, 180 breast cancer patients (pT1-2N0-2cM0) were included. Primary endpoint was feasibility of tailored follow-up, based on the number of follow-up visits, patient satisfaction, anxiety and attitude towards follow-up. Secondary endpoints were reasons for visits, incidence, time to detection of local recurrences and the use of alternative care.

In the second and third year of follow-up, the results show a 22% reduction in visits per patient in the low-risk group compared to the intermediate-risk group; 2.8 versus 3.6 visits. The majority of interval visits in both groups was initiated by the professional. No significant differences were found in attitude towards follow-up, patient satisfaction, anxiety and depression, alternative health care use or local recurrences between the risk groups.

In conclusion, implementation of a tailored follow-up programme with decreased number of visits for low-risk patients is feasible and acceptable to patients. Appointing one coordinating professional, possibly a nurse practitioner, could further reduce the number of follow-up visits.

Introduction

With the continued decrease in breast cancer recurrence, optimal follow-up for patients with early breast cancer is subject of debate. Initial treatment of breast cancer after diagnosis is individualised based on patient and tumour characteristics. However, this individual approach is not continued throughout the follow-up programme in current practice, as historically all patients followed the same schedule during the years after primary treatment [1–3]. A few more recent guidelines mention individualisation of the follow-up program, without any further specification on how to adapt the schedules, or on which factors this individualisation could be based [4,5]. In the first year of follow-up the emphasis lies on the psychological support and monitoring of treatment side-effects. After this first year, the main goal of follow-up is early detection of second primary tumours and locoregional recurrences (LRR) at an early stage in order to start potentially curative therapy [1,2,6–8]. However, 40–55% of LRR are found on annual mammogram only and 40–50% by the patients themselves [9–12]. These results question the effectiveness of a standard follow-up programme. Follow-up might be more efficient if it is tailored according to a patient's risk of developing a recurrence after curative treatment [13]; follow-up visits for a large group of low-risk patient could then be reduced.

Aim of the study

The aim of this study is to prospectively examine whether a tailored follow-up programme, based on a prognostic index for LRR, is feasible and acceptable for patients and professionals. We hypothesise that patients in the low-risk group can make 67% less outpatient visits per patient in the second and third year of follow-up than patients in the intermediate-risk group, without loss of patient satisfaction or increased anxiety.

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Patients and methods

In March 2007 the breast cancer clinic at the Leiden University Medical Center (LUMC) implemented a tailored follow-up programme in which the number of planned follow-up visits after one year of follow-up depends on patients' risk of LRR, in contrast to the standard follow-up programme suggested by the national guideline with a standard schedule for all patients, independent of patient and tumour characteristics. Patients with breast cancer, stage pT1-2N0-2cM0, who were curatively treated in the LUMC between March 2007 and March 2010 were included in the tailored follow-up programme. Patients were excluded from this programme if they were male, had a high genetic risk profile, LRR in the first year of follow-up or were participating in a trial with conflicting follow-up prescriptions. Approval from the ethical committee was obtained for evaluation of the new follow-up policy and written informed consent was given by the patients for receiving questionnaires.

Primary endpoint was the feasibility of tailored follow-up, based on the total number of follow-up visits per patient (both planned and interval), patient satisfaction, anxiety and attitude towards follow-up. Secondary endpoints were: reason for outpatient clinic visits, incidence and time to detection of local recurrences and the use of alternative care.

When the patients had finished treatment (surgery, radiotherapy or chemotherapy), they were indexed by the nurse practitioner ($t = 0$). The prognostic index accumulates the risk factors for LRR and divides patients with invasive breast cancer in three risk groups; 'low', 'intermediate' and 'high'-risk, based on data of the European Organisation for Research and Treatment of Cancer trials 10801, 10854, 10902 and 22881 (Table 1). All patients with ductal carcinoma in situ (DCIS) were followed according to the low-risk group.

Every risk group followed their own tailored schedule of planned hospital visits for medical history taking and physical examination; in all groups mammograms were performed annually. In the first year of follow-up all patients were seen every three months, from the second year after treatment the frequency of follow-up was based on the index group for LRR (Table 2). After the first year the intermediate-risk group was followed according to the standard schedule of Dutch guideline at the time. For the low-risk group, 67% less visits were planned in the second and third year after follow-up, compared to standard schedule of the intermediate-risk group. The calculated risk group and corresponding follow-up schedule (with indication dates for the planned visits) were clearly visible inserted in the patient records and given to the patients. Additionally, all patients received written information on purpose and planning of follow-up, possible treatment side effects, signs of recurrence and contact information.

Data regarding patient, tumour and treatment characteristics as well as follow-up were extracted from both electronic and paper patient records and checked with the central oncology registry of the LUMC. All patients were followed until the end of November 2012, or until death or recurrence. The duration of follow-up was calculated from the finish of their last treatment. Follow-up contacts were recorded as outpatient clinic visits or telephone calls and scored as either planned (within one month of the time point according to assigned schedule) or interval visits. In addition, reason for visits (routine, patient complaints, initiated by specialist) and by whom the patient was seen was recorded. We were especially interested in the number of interval visits as we did not want these to increase in the 'low' risk group (that could then nullify the reduced planned visits).

Table 1
Risk group definition.

Index points[a]	
Age <35 years	2 points
pN+	1 point
Breast conservative therapy	1 point
No hormonal therapy	1 point

[a] Each factor is a risk factor for LRR. 0-1 points is 'low' risk, 2-3 'intermediate' and 4-5 'high' risk for LRR.

Table 2
Tailored follow-up schedule.

Time after treatment	'Low' risk for LRR (0-1 point)	'Intermediate' risk for LRR (2-3 points)[a]	'High' risk for LRR (4-5 points)
Year 1	4x	4x	4x
Year 2	1x	2x	2x
Year 3	–	1x	2x
Year 4[b]	1x	1x	2x
Year 5[b]	–	1x	2x

[a] The 'intermediate' risk group followed the guidelines.
[b] After 4 years in the 'low' risk and 5 years in the 'intermediate' and 'high' risk group patients were referred to their general practitioner or national screening program.

Questionnaires

Questionnaires on attitude towards follow-up, patient satisfaction, perceived chance of recurrence, health care use and anxiety and depression were sent after one and two years of follow-up.

The first part was a questionnaire on patients' attitude towards follow-up [14,15], consisting of five subscales: fear of recurrence, communication, reassurance, nervous anticipation, and specific perceived disadvantages (range 0–100). The second part examined patient satisfaction with oncologic care using the Dutch version of Ware's Patient Satisfaction Questionnaire III (PSQ III) [16]. This questionnaire (43 items) was designed to measure technical competence, interpersonal manner, and access to care. Higher scores mean more satisfaction with the oncologic care received (range 0–100). In this part, patients were also asked about their health care use and to estimate their chance of recurrence as a percentage. The third part was the Dutch version of the HADS [17] to assess anxiety and depression. The higher the score, the more anxious and depressed the patient (range 0–14).

Statistical analysis

The data were analysed using SPSS 20.0 (SPSS Inc, Chicago, IL, USA). Pearson's chi-square test was used to compare frequencies and *t*-tests or Mann–Whitney *U* tests were done to compare continuous variables. All testing was two-tailed with a *p*-value of 0.05 as level of significance. For all scales, missing data were replaced by the individual mean for that scale, if no more than 50% of the items on the scale were missing; otherwise, the entire scale was considered missing. To obtain estimates of the questionnaires at both time points, a linear mixed model was used with the patient as random effect and time (categoric), risk group, and their interaction as fixed effects. Single items were analysed by using (ordinal) logistic regression with random effects. The difference between the two index groups on attitude, patient satisfaction, anxiety and depression scores was tested by Wald's test in the linear or ordinal logistic mixed model (*p*-risk group). The same test was applied to look for significant changes of scores over time (*p*-time), and score changes over time were compared between both index groups (p-time by risk group). To correct for false-positive results because of