Pergamon

European Journal of Cancer Vol. 32A, No. 9, pp. 1612–1615, 1996

Printed in Great Britain
0959–8049/96 $15.00+0.00

PII: S0959-8049(96)00134-7

Short Communication

The Impact of a Psychological Intervention on Quality of Life in Non-metastatic Breast Cancer

G. Marchioro, G. Azzarello, F. Checchin, M. Perale, R. Segati, E. Sampognaro, F. Rosetti, A. Franchin, G.L. Pappagallo and O. Vinante

Centro Oncologico Multizonale, ULSS No.13, 30033 Noale (VE), Italy

The aim of this study was to determine whether psychological intervention had a beneficial effect on the quality of life and behaviour of women diagnosed with breast cancer. 36 consecutive patients with non-metastatic breast cancer assigned to surgery and systemic chemotherapy were randomised to receive either psychological intervention (weekly cognitive individual psychotherapy and bimonthly family counselling) or standard follow-up. Personality (16-PF and IIQ), quality of life (FLIC), and depression (BDI) scores were the endpoints for this study, and the questionnaires were completed by the patients at diagnosis, and up to 9 months after diagnosis. Cognitive psychotherapy and family counselling improved both depression and quality of life indexes compared with the control group. Better emotional coping behaviours were also revealed by some changes in personality traits in the intervention group. Copyright © 1996 Elsevier Science Ltd

Key words: psycho-oncology, medical oncology, quality of life, breast
Eur J Cancer, Vol. 32A, No. 9, pp. 1612–1615, 1996

INTRODUCTION

Psychological studies suggest that 20 to 30% of women with breast cancer experience disruption in their quality of life through loss of roles, functional abilities and problems with social relationships [1]. Emotional morbidity has been reported in 20 to 30% of women 1–2 years after diagnosis, 46% with psychological distress and 12% with major sexual problems [2]. Stage of disease, treatment modalities, symptom status and personality traits have been investigated, but there is still inadequate understanding of how these factors affect psychological adjustment [3, 4]. It is also important to know whether psychological support has any beneficial effects on the quality of life and behaviour of the patient. Therefore, we conducted a prospective randomised clinical trial comparing psychological intervention with no intervention in a sample population of newly diagnosed women with non-metastatic breast cancer.

PATIENTS AND METHODS

The main objective of the present study was to evaluate the efficacy of a psychological intervention—in terms of improvement of quality of life and coping behaviours—in a sample population of newly diagnosed women with non-metastatic breast cancer assigned to adjuvant chemotherapy after surgery. Endpoints related to this objective were the scores obtained by the administration of self-appraisal questionnaires for depression and quality of life, as collected at initial evaluation ($t = 0$), and after 1, 3, 6 and 9 months, and personality tests, as collected at initial evaluation and after 9 months (Figure 1).

Selection criteria were: proven diagnosis of non-metastatic breast cancer, upper age limit 65 years, no prior history of cancer, ability to read and communicate in Italian, availability for follow-up, ability to give informed consent and no prior psychiatric morbidity.

After initial psychological evaluation (self-appraisal questionnaires and personality testing), patients underwent surgery. Patients postoperatively allocated by the oncologist to systemic chemotherapy were considered eligible for randomisation. Patients were randomly assigned (by stratifying for age at diagnosis) to psychological intervention (Group A) versus no psychological intervention (Group B) (Figure 1).

The Beck Depression Inventory (BDI) [5] and the Functional Living Index Cancer (FLIC) [6] were selected to measure depression and quality of life, respectively. The personality evaluation tests were represented by the 16-PF, A-form and the Interx Introject Questionnaire (IIQ), which were chosen

---

Correspondence to O. Vinante.
Received 24 Jan. 1995; revised 8 Feb. 1996; accepted 25 Mar. 1996.

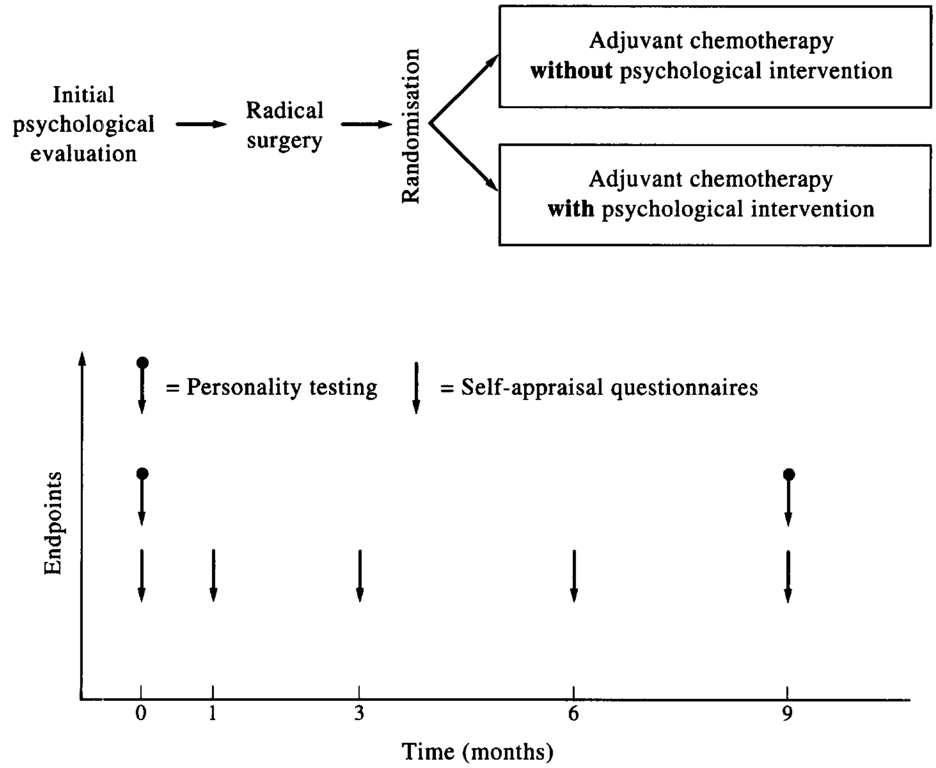

Figure 1. Study design, study endpoints and time of administration.

to evaluate adaption to neoplastic disease in terms of both personality traits and self-introjection.

16-PF is a major extension of the research on self-report data by Cattel, based on the establishment, by factor analytical means, of independent dimensions of personality within behaviour-rating data [7].

The IIQ, based on the Structural Analysis of Social Behaviour (SASB) approach [8], analyses personality traits in terms of introjection. This well-validated instrument comprises 36 items each corresponding to 1 of 36 introjective behaviours that compose the introject circumplex of the SASB model [8]. They may be described by eight clusters—(1) spontaneous self, (2) self-accepting and exploring, (3) self-loving and cherishing, (4) self-nourishing and enhancing, (5) self-monitoring and restraining, (6) self-indicting and oppressing, (7) self-rejecting and destroying, (8) daydreaming and neglecting of self—to be drawn as a line-plot, with cluster category on the x-axis and cluster value on the y-axis.

The psychological intervention, administered to Group A, consisted of weekly 50 minute individual cognitive psychotherapy sessions with a psychologist. All sessions were performed by the same psychologist. Cognitive psychotherapy was aimed at analysis and relief of major problems related to cancer diagnosis and therapy: anxiety and/or depression (cognitive triad of depression according to Beck) [5], loss of behavioural and emotional control, altered cognitive functioning, social and role limitations, and physiological symptoms. Family counselling with the same psychologist, involving the partner and/or close relatives was conducted bimonthly. Group B patients underwent only self-appraisal questionnaires and personality testing during a schedule oncological examination, but they did not receive any psychological intervention.

The self-appraisal test scores were analysed using ANOVA procedures for repeated measures; within-subject changes as well as differences between groups were tested. Conservative testing of the repeated measures factor was performed as reported by Greenhouse and Geisser [9].

RESULTS

40 consecutive patients were candidates for the study; of these, 36 were considered eligible for randomisation. 3 patients showed low compliance to initial psychological evaluation and 1 refused consent. 18 patients (median age: 53 years) were assigned to Group A and 18 (median age: 52 years) to Group B. Demographic characteristics of the sample population were as follows; age, median 52 years (range 35–65); education, 62.5% primary, 32.5% secondary, 5% university; marital status, 81% married, 19% widows; professional status, 85% housewives, 15% employees (3% factory workers); average economical status, geographic area: 80% rural, 20% urban. The CMF (cyclophosphamide/methotrexate/5-fluorouracil) scheme was generally used as systemic chemotherapy.

Regarding personality analysis at $t = 0$, we were able to describe the sample population as having high rates of anxiety-depression supported by introjection of aggressive traits, such as self-blame and expiation proneness, as revealed by 16-PF low mean scores for factors C (ego strength, 75% of patients), F (surgency, 91%) and M (bohemianism, 61%) and high mean scores for factors L (paranoid trends, 91%), O (guilt proneness, 86%), Q3 (will-control, 88%), Q4 (conflict pressure or identity demand, 88%), E (dominance, 80%) and G (superego, 91%). The line-plot of initial IIQ evaluation for the entire sample population (Figure 2) was similar to the reference plot N 6 (clusters N 5, 6, 7), with a correlation index of 0.83 ($P < 0.01$): devaluation of their own needs, caution in relationships, suspicion, distrust and negative expectations

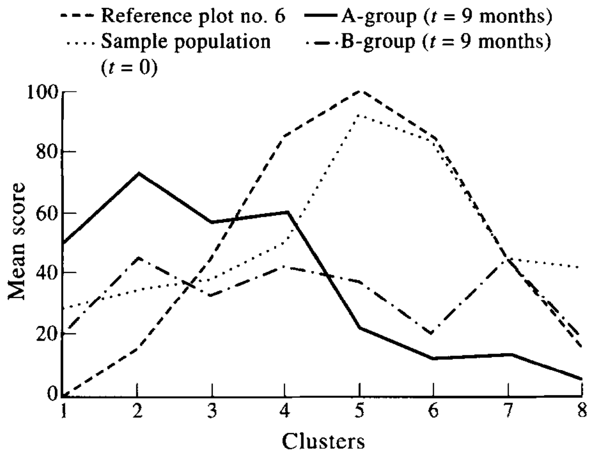

Figure 2. Intrex Introject Questionnaire (IIQ) line-plots.

were prevailing. A change in some personality and introjection features at $t = 9$ months was observed, compared with the initial evaluation: Group A patients experienced 10 and 12% increases in mean scores for factors A and C, and 15 and 20% decresase in mean scores for factors L and Q4, respectively. By analysing the 9-month self-introjection plot, a difference in regression traits such as self-blame proneness, need of expiation (see clusters *N* 6, 7, 8) and an improved self-awareness between the two groups, was observed (Figure 2). BDI and FLIC mean scores, at the time of administration of questionnaires (0, 1, 3, 6 and 9 months from enrolment) and by treatment assignment (A and B group), are reported in Table 1. At the time of enrolment (before treatment and psychological intervention) the two groups revealed similar depression and quality of life indexes. As follow-up proceeded, both indexes evolved from the basal equivalence toward a benefit in favour of the intervention group, although the depression status, at $t = 1$ month, was better in the B group. ANOVA of BDI scores showed that differences in the grouping factor (i.e. psychological intervention) were not significant ($P = 0.2530$). The difference in repeated factor analysis was highly significant ($P < 0.0000$), indicating that depression differs significantly across time; the BDI variation pattern also differed significantly between the two treatment groups ($P < 0.0000$). Differences in FLIC scores, between groups A and B ($P = 0.0053$), as well as within-subject differences ($P = 0.0283$), and the test for interaction ($P = 0.0001$) were all significant.

Table 1. *Results of self-appraisal questionnaires, by treatment group*

	Group A Mean value	Group A (S.D.)	Group B Mean value	Group B (S.D.)
BDI				
Basal ($t = 0$)	12.00	(6.09)	12.11	(7.98)
$t = 1$ month	11.11	(4.43)	8.94	(5.32)
$t = 3$ months	8.05	(2.86)	9.78	(5.25)
$t = 6$ months	6.28	(2.27)	8.94	(4.30)
$t = 9$ months	4.83	(1.82)	8.17	(4.05)
FLIC				
Basal ($t = 0$)	58.44	(22.39)	57.72	(20.25)
$t = 1$ month	54.17	(16.90)	56.33	(17.72)
$t = 3$ months	48.72	(12.22)	60.78	(14.85)
$t = 6$ months	44.72	(9.18)	60.78	(13.26)
$t = 9$ months	41.17	(6.91)	60.28	(13.33)

$t = 0$, time of enrolment. BDI, Beck Depression Inventory; FLIC, Functional Living Index Cancer; S.D., standard deviation.

Lowering of BDI and FLIC scores corresponds to reduction of depression and improvement of quality of life, respectively.

DISCUSSION

Psychosocial disturbances are common sequelae to a diagnosis of breast cancer and its treatment. The first year following the diagnosis of cancer can be seen as a process of adaptation, involving adjustment to uncertainty, anxiety, loss or changes in bodily functions and roles. Thus, these patients are eligible for an intervention programme aimed at minimising, through personal psychotherapy and family counselling, the impact on the patient's quality of life. Even if breast conserving techniques could protect women from psychological distress, few benefits in terms of psychiatric morbidity have been reported [10], and adjuvant chemotherapy may also have an adverse impact on a patient's quality of life during treatment [11, 12]. Psychological intervention has been associated with improved psychosocial outcomes in some studies, even if very few of them were of the randomised type and specifically related to breast cancer [13–15]. The aim of this study was to evaluate in a prospective randomised trial the impact of psychological intervention on quality of life. The initial psychodiagnostic evaluation revealed dysthymiac personality, organised as adaptation disorder with depressed mood according to the Diagnostic and Statistical Manual (DSM-IIIR). Therefore we moved from these traits or personality characteristics to explore the behavioural strategies employed to cope with the stress of illness, using a cognitive weekly psychotherapy approach and family counselling for the treatment group. Cognitive psychotherapy was addressed to maladaptive coping behaviours and depressive thoughts, such as removal of sexual, feeding, sleeping and self-preservation instincts. Special attention was paid to disruption of cognitive triad that sustains depression proneness. The group receiving psychological intervention, when compared with no intervention in the control group, had improved depression and quality of life indexes.

The more favourable BDI index for Group B observed at $t = 1$ month probably reflects a paradoxical effect of psychological intervention, where the patient is prompted to confront herself with the disease along with both real and imaginary sense of loss more so than in the control group. Some changes in personality traits were also noted, more significant in the intervention group, suggesting a better psychosocial adjustment. Finally, quality of life assessment is an increasingly important component of clinical research. Our results demonstrate that this parameter and the way patients cope with breast cancer can be enhanced by active intervention of the cognitive, affective and social components of the illness, with significant reduction in mood disturbances and maladaptive behaviours.

---

1. Irvine DRN, Brown B, Crooks D, Roberts J, Browne G. Psychosocial adjustment in women with breast cancer. *Cancer* 1991, **67**, 1097–1117.
2. Morris T, Greer HS, White P. Psychological and social adjust-

ment to mastectomy: a 2-year follow-up study. *Cancer* 1977, **40**, 2381–2387.

3. Silberfab PM, Maurer LH, Crouthamel CS, *et al.* Psychosocial aspects of neoplastic disease: I. Functional status of breast cancer patients during different treatment regimens. *Am J Psychiatry* 1980, **137**, 450–455.
4. Taylor SE, Lichtman RR, Wood JV, Bluming AZ, Dosik GM, Leibowitz RL. Illness-related and treatment-related factors in psychological adjustment to breast cancer. *Cancer* 1985, **55**, 2506–2513.
5. Beck AT, Ward CH, Mendelsohn M, Mock J, Erbaugh J. An inventory for measuring depression. *Arch Gen Psychiat* 1961, **4**, 561–571.
6. Schipper H, Clinch J, McMurray A, Levitt M. Measuring the quality of life of cancer patients: the functional living index-cancer. Development and validation. *J Clin Oncol* 1984, **2**, 472–483.
7. Cattel RB. *The Scientific Analysis of Personality*. Chicago, Aldine Publishing Company, 1966, 53–102.
8. Benjamin LS. Use of the SASB dimensional model to develop treatment plans for personality disorders. I. Narcisism. *J Personality Disorders* 1987, **1**, 43–70.
9. Greenhouse SW, Geisser S. On methods in the analysis of profile data. *Psycometrika* 1959, **24**, 95–112.
10. Fallowfield LJ. Psychosocial adjustment after treatment for early breast cancer. *Oncology* 1990, **4**, 89–97.
11. Levine MN, Guyatt GH, Gent M, *et al.* Quality of life in stage II breast cancer: an instrument for clinical trials. *J Clin Oncol* 1988, **6**, 1798–1810.
12. Campora E, Vitullo MT, Naso, *et al.* Impact of disease and chemotherapy on quality of life of breast cancer patients. *Ann Oncol* 1990, **1** (Suppl.), 31.
13. Maguire P, Tait A, Brooke M, Thomas C, Sellwood R. Effect of counselling on the psychiatric morbidity associated with mastectomy. *Br Med J* 1980, **281**, 1454–1461.
14. Maguire P, Brooke M, Tait A, Thomas C, Sellwood R. The effect of counselling on physical disability and social recovery after mastectomy. *Clin Oncol* 1983, **9**, 319–325.
15. Evans DL, McCartney CF, Haggerty JJ, *et al.* Treatment of depression in cancer patients is associated with better life adaptation: a pilot study. *Psychosom Med* 1988, **50**, 72–78.