Degree of satisfaction with social support and degree of information provided: The degree of satisfaction with social support and the degree of information provided were measured by the Likert scale from 1 to 4.

Interest and reasons for participation/non-participation in group intervention

When being asked to participate in this study, patients were interviewed on why they wanted to participate or not participate, what knowledge they had about group intervention and their awareness of their stress level at that time, and what their interest and reasons were for their participating or not participating in group intervention.

Analyses

Comparison of baseline data among the intervention, non-intervention and refusal groups

For sociomedical variables that allowed comparison among the 3 groups, one-way analysis of variance was conducted after confirming data distribution. In comparison of sociomedical variables and scores on each scale between the intervention and the non-intervention groups, we used either the chi-square test or the *t*-test (after checking for regularity of data).

In all tests, $P < 0.05$ (both sides) was regarded as statistically significant. The Statistical Package for the Social Sciences, version 11.5J (SPSS Japan, Tokyo, Japan) was used for all statistical analyses.

Analysis of interest in the intervention and psychological factors in determining the intervention

In the interviews with patients, they variously expressed their motives for intervention. First, we arranged their self-expressions into several groups by similarity. Next, we analyzed the self-expressions by groups to designate categories with more popular sounding names. Whole responses were classified into several categories. Then, the percentage of a category was calculated by dividing the number of entry subjects allocated to the given category by the whole number of subjects.

Ethical considerations

This study was performed in accordance with its protocol after approval was obtained from the Ethics Committee of the National Hospital Organization Shikoku Cancer Center, enrolling only those patients who gave informed consent in writing. Each candidate was well informed as to the study design and purpose through a pamphlet containing the following information: i) the patient can consent or refuse participation in the study at her own discretion; ii) the patient will suffer no disadvantage related to her care even if she does not participate in the study; iii) the personal information of the patient will not be disclosed when the results of the study are published; iv) the patient's visits to the clinic for the purpose of this study may place physical stress on the patient and v) discussions during group intervention or surveys using scales for psychological aspects may cause discomfort or stress to the patient. Efforts were thus made to obtain consent from patients after providing adequate explanatory information.

Results

Participation in the study

During the enrollment period, there were 80 patients who had developed recurrence of breast cancer for the first time 3 to 12 months previously. Of these patients, 58 eligible subjects referred by their attending physicians were well informed about the study. Twenty-eight patients (48%) gave written consent to participate in group intervention. Of the 30 patients (52%) who refused to participate in group intervention, 11 had an interest in group intervention and gave written consent to cooperate with the self-administered questionnaire survey to be conducted at 3 time points.

Comparison of characteristics between participants and non-participants

Among the intervention, non-intervention and refusal groups, we compared sociomedical vari-

Table 1. Characteristics of group participants and non-participants

		Intervention group [$n = 28$]	Non-intervention group [$n = 11$]	Refusal group [$n = 19$]	P
Age (yr)		53.57 ± 12.91	57.18 ± 10.20	55.58 ± 10.00	0.65
Post-recurrence period (mo)		7.14 ± 3.30	6.09 ± 3.30	7.84 ± 3.39	0.38
Disease-free period	≤ 24 mo	12	4	4	
	> 24 mo	16	7	15	0.30
Chemotherapy ongoing treatment	Present	16	6	9	
	Absent	12	5	10	0.80
Performance status†	0	19	8	11	
	≥ 1	9	3	8	0.66
Marital status	Married	18	9		
	Single/divorced/widowed	8	2		0.68
Educational history	≤ 12 yr	16	4		
	> 12 yr	10	7		0.27
History of psychiatric treatment	Present	3	0		
	Absent	23	11		0.54
Time needed to get to hospital	≤ 30 min	13	2		
	> 30 min	13	9		0.14
Occupation status	Present	8	4		
	Absent	18	7		1.00
Profile of mood states	Tension-anxiety	10.85 ± 5.84	13.91 ± 8.35		0.20
	Depression-dejection	13.73 ± 9.89	17.73 ± 16.64		0.47
	Anger-hostility	9.08 ± 7.28	10.91 ± 13.51		0.67
	Vitality	11.58 ± 5.58	11.00 ± 7.84		0.80
	Exhaustion	9.00 ± 6.59	10.82 ± 8.68		0.49
	Confusion	9.24 ± 5.41	11.82 ± 6.97		0.31
	Total mood disturbance	40.73 ± 34.77	54.18 ± 57.89		0.48
Impact of event scale-revised		18.65 ± 13.76	25.91 ± 12.81		0.14
Mental adjustment to cancer	Fighting spirit	46.50 ± 6.91	48.09 ± 6.66		0.52
	Hopelessness	10.08 ± 3.59	12.45 ± 5.43		0.20
	Anxious preoccupation	23.12 ± 4.62	25.36 ± 2.87		0.14
	Fatalism	19.96 ± 4.94	23.00 ± 4.12		0.08
	Avoidance	1.77 ± 0.77	1.82 ± 1.40		0.91
QLQ-C30/Br23‡	Comprehensive health/QOL	65.69 ± 21.43	60.09 ± 17.87		0.45
	Physical function	77.96 ± 14.92	69.64 ± 22.61		0.09
	Role-playing function	76.35 ± 23.59	78.73 ± 22.49		0.90
	Emotional function	78.27 ± 18.31	75.09 ± 20.06		0.56
	Cognitive function	70.5 ± 25.07	65.27 ± 18.73		0.07
	Social function	77.62 ± 16.19	69.73 ± 29.60		0.88
	Fatigue	38.73 ± 25.08	49.45 ± 21.54		0.86
	Vomiting	3.38 ± 11.82	6.00 ± 13.35		0.37
	Pain	23.08 ± 22.59	22.73 ± 25.05		0.96
	Difficulty breathing	24.27 ± 27.60	21.27 ± 30.95		0.38
	Sleep disorder	16.54 ± 19.35	12.09 ± 22.49		0.94
	Appetite	24.23 ± 25.91	27.18 ± 32.74		0.49
	Diarrhea	17.85 ± 25.31	15.00 ± 17.23		0.33
	Constipation	3.85 ± 14.41	15.09 ± 22.92		< 0.01**
	Economic impulses	30.73 ± 29.79	30.27 ± 40.73		0.17
QLQ-C30/Br23‡	Body images	36.54 ± 23.36	62.82 ± 28.90		< 0.01**
	Sexual function	9.62 ± 17.10	6.09 ± 11.22		0.53
	Sexual pleasure	33.14 ± 19.34	33.00 ± 0.00		–
	Future perspectives	51.31 ± 21.81	72.73 ± 29.24		0.01*
	Reactions to treatment	21.08 ± 17.53	28.45 ± 16.81		0.24
	Breast symptom	16.65 ± 16.21	21.91 ± 23.77		0.44
	Arm symptom	22.12 ± 24.16	22.09 ± 19.85		0.99
	Confusion of hair loss	51.78 ± 33.92	73.20 ± 36.70		–
Rosenberg self-esteem scale		27.96 ± 4.36	29.27 ± 6.99		0.57
General self-efficacy scale		9.23 ± 2.58	8.45 ± 3.64		0.46
Satisfaction with social support		4.77 ± 0.43	4.82 ± 0.41		0.74
Degree of information provided		2.69 ± 0.61	2.64 ± 0.67		0.80

Shown are mean ± SD.
QOL, quality of life.
Statistical significance was examined with one-way analysis of variance, t-test or chi-square test. *$P < 0.05$; **$P < 0.01$.
† Performance status by the Eastern Cooperative Oncology Group.
‡ European Organization for Research and Treatment of Cancer QOL questionnaire-cancer 30/breast cancer module 23.

Table 2. Psychological factors of group participants and non-participants

	Intervention group [$n = 28$]	Non-intervention group [$n = 11$]	Refusal group [$n = 19$]
Reasons for participation			
Group intervention is attractive	11 (39.3)	5 (45.5)	1 (5.3)
Want to try relaxation	5 (17.9)	2 (18.2)	4 (21.1)
Want to talk with someone who has the same disease	17 (60.7)	3 (27.3)	1 (5.3)
Need information	7 (25.0)	0 (0.0)	
Wish to cooperate with the survey	6 (21.4)	8 (72.7)	
Need mental support	8 (28.6)	1 (9.1)	1 (5.3)
Recommendation by other participants	1 (3.6)	0 (0.0)	
Recommendation by her family members	1 (3.6)	0 (0.0)	
Reasons for non-participation			
The hospital is too far away	1 (3.6)	6 (54.5)	9 (47.4)
Work		2 (18.2)	4 (21.1)
Caring for children		1 (9.1)	1 (5.3)
Caring for family members		0 (0.0)	1 (5.3)
No interest in group therapy		0 (0.0)	1 (5.3)
No need for mental support		0 (0.0)	9 (47.4)
Poor physical condition		4 (36.4)	3 (15.8)
Don't like to talk with other patients suffering from the same disease		3 (27.3)	1 (5.3)
Others			
Have knowledge of group therapy	6 (21.4)	2 (18.2)	1 (5.3)
Feel stress at present	9 (32.1)	4 (33.3)	7 (38.9)

( ), percentage.

ables, scores of profile of mood states, impact of event scale-revised, mental adjustment to cancer, QLQ-C30/Br23, Rosenberg self-esteem scale and general self-efficacy scale, degree of satisfaction with social support and degree of satisfaction with information provided at the baseline. This analysis revealed significant inter-group differences in the QLQ-C30/Br23 scores for constipation ($P < 0.01$), body image ($P < 0.01$) and future perspectives ($P = 0.01$), as shown in Table 1.

Analysis of interest and reasons for participation/non-participation in group intervention

Table 2 shows the results of analyzing interest in group intervention and the reasons for participation/non-participation in such intervention, conducted at the time of enrollment. Knowledge about group intervention was self-reported by 9 patients (15.5%), including 6 patients (21.4%) from the intervention group, 2 patients (18.2%) from the non-intervention group and 1 patient (5.3%) from the refusal group. Among all patients, 20 patients (34.4%) were aware of some stress, including 9 patients (32.1%) from the intervention group, 4 patients (33.3%) from the non-intervention group and 7 patients (38.9%) from the refusal group.

Major reasons for participation in group intervention were "I want to talk with someone who has the same disease" in 17 patients (60.7%), "Group intervention is attractive" in 11 patients (39.3%) and "Need mental support" in 8 patients (28.6%) (Table 2). In the non-intervention group, major reasons for non-participation were "The hospital is too far away" in 6 patients (54.5%) and "Don't like talking with anyone suffering from the same disease" in 3 patients (27.3%). In the refusal group, major reasons for non-participation were "No need for mental support" in 9 patients (47.4%) and "The hospital is too far away" in 9 patients (47.4%). Among the patients who did not participate in group intervention,

there were some who gave the following answers: "Group intervention appears to be attractive" in 5 patients (45.5%) of the non-intervention group and 1 (5.6%) of the refusal group; "Want to talk with someone with the same disease" in 3 patients (27.3%) of the non-intervention group and 1 (5.6%) of the refusal group; "Need mental supports" in 1 patient (9.1%) of the non-intervention group and 1 patient (5.6%) of the refusal group.

Of the patients who participated in group intervention, 7 patients (25.0%) answered that they needed information, while none of the non-participants gave such an answer.

Discussion

Interest in group intervention and percentages of participants: When the subjects of this study were assessed for knowledge of group intervention, only 15% were found to have such knowledge. In Western countries, studies on group intervention have been conducted since 1970s, and knowledge of this intervention has spread considerably among the general public. In Japan, on the other hand, the therapeutic efficacy of group intervention with cancer patients has begun to be evaluated just recently. The low percentage of patients who had knowledge of group intervention in the present study seems to reflect the current status in Japan, i.e., group intervention has not yet become widespread.

However, of all patients eligible to participate in this study, 67% had an interest in group intervention and 48% actually participated in the intervention. Thus, a relatively high percentage of patients had an interest and participated in group intervention. In Western countries, the percentage of patients with metastatic breast cancer who participate in group intervention is reportedly 50% to 78% (Spiegel et al., 1981; Fukui et al., 2001; Goodwin et al., 2001). The percentage in the present study was close to that in Western countries. Despite the previous report that the Japanese tended to dislike talking about personal matters in the presence of other people (Spiegel and Classen, 2000), most of the group intervention participants in the present study wanted to have discussions with other patients suffering from the same disease. This suggests that the Japanese also have a desire to share experiences with other patients suffering from the same disease, as is the case with cancer patients in Western countries (Cope, 1995).

The percentage of breast cancer patients who participated in group intervention in the present study was higher than the previously reported in Japan (35%) (Fukui et al., 2000). In consideration of the report that patients who wanted to participate in group intervention were often facing strong mental stress (Thiel de Bocanegra, 1992), the high percentage of the present participants indicated that there were many patients who wanted psychosocial intervention. In the literature, the psychological stress associated with recurrence of cancer was higher than that associated with the initial cancer (Okamura et al., 2000).

Characteristics of participants in group intervention: In the analysis of QOL, significant inter-group differences were noted in the scores for constipation, body image and future perspectives rated according to the QLQ-C30/Br23, suggesting that QOL was higher for participants than for non-participants. During group intervention, education on cancer and talks among participants were carried out, requiring the participants to confront certain aspects of their situation which they found stressful. Breast cancer is a disease which causes the patient to perceive changes in her body and deterioration of femininity and physical function, and group intervention for patients with this disease often adopts body image as a topic (Classen et al., 1993; Fawzy and Fawzy 1994). Therefore, what is required for breast cancer patients in the participation seems that body image- and future perspective-related QOL scores are not very low. On the other hand, the score for psychological stress showed no significant inter-group difference in the present study, despite significant differences reported between participants and non-participants (Berglund et al., 1997; Fukui, 2001). When asked

about the reasons for the participation, our patients often gave reasons associated with the desire to deal with psychological stress, e.g., "I want to talk with someone suffering from the same disease", "I need mental support", and so on. It was written that patients often came to have an interest in group intervention while they were aware of or were exploring the usefulness of groups (Thiel de Bocanegra, 1992). In view of these findings, in recurrent breast cancer patients, the participation might be stimulated by their awareness of the necessity of coping with psychological stress and of the usefulness of group intervention. Such awareness was acquired through their previous experience with coping with and overcoming the difficulties associated with cancer.

In the present study, the time needed for patients to attend the intervention meeting did not serve as an obstacle to the participation. The lack of influence of geographical distance in the participation is probably because many patients are skillfully utilizing potentially beneficial services (Bauman et al., 1992). Like their patients, our subjects had received follow-ups at a cancer center, and it is reasonable to assume that many of them more willingly accepted services which they felt to be beneficial than patients with other cancer did.

Characteristics of non-participants: More than half of the patients studied refused to participate in group intervention, and their QOL was lower than that in the participants. For non-participants as well, some psychosocial intervention are required, because more than 30% of participants and non-participants felt stress and because some non-participants had interest in group intervention and wanted psychosocial support. On the other hand, about half of the patients who refused to cooperate in the survey answered that they had no need for psychosocial support. In view of the previous report that psychological stress was particularly strong in patients who had no interest in group intervention (Fukui et al., 2001), it seems likely that these patients were coping with their problems by means of avoidance of facing the issue and that their psychological stress was high.

None of the present participants answered the need of information about intervention, and some of them explained as the reason of avoidance of participation that they disliked talking with other patients suffering from the same disease. Patients sometimes do not want information because they fear receiving bad news (Meissner, 1990). Japanese cancer patients are often reluctant to talk with other participants during group intervention (Hosaka, 1996). It is therefore possible that even when patients have an interest in group intervention and are exposed to psychological stress, they decide not to participate in group intervention or do not admit their interest in this form of intervention. We cannot ignore that adverse influence may possibly be produced by providing information to patients who do not want to receive bad news regarding their illness (Asai, 1995). Stress may be increased if such information is provided to such patients (Mills, 1979). Patients who do not want to participate in group intervention despite facing psychological stress should be managed in a way tailored to their individual needs. For initial breast cancer patients who are not yet classified for group therapy, a system of nursing combined with follow-up service should be devised.

Design and duration of group intervention: The main reasons for deciding to participate in group intervention were psychological factors, i.e., need for relaxation, transmission of information and talks with other patients suffering from the same disease. In this respect, the group intervention program we designed, composed of education, discussion and progressive muscle relaxation, satisfies the expectations of participants. Because the efficacy of intervention is closely related to its duration, long-term intervention has been justified (Spiegel and Classen, 2000) and implemented (Goodwin et al., 2001) for metastatic breast cancer patients predicted to suffer from psychological stress for a prolonged period. However, short-term intervention was reported more effective because the enthusiasm of participants tends to subside and

because they may be adversely affected by facing the death of some participants during prolonged intervention (Edmonds et al., 1999). We found that, not a few participants quit the intervention program midway because of inability to make arrangements for continued participation although the intervention. On the other hand, some patients continued to participate in the intervention despite having a job or living far away from the meeting place. They could have arranged their personal schedules to allow continued participation because the duration of intervention was short. The continued participation by recurrent breast cancer patients had probably been stimulated by the design of the intervention program (short-term, structured intervention), as well.

Promotion of group intervention: Group intervention allows QOL to be improved to a degree comparable to the improvement achieved by individual intervention (Sheard and Maguire, 1999), is cost-effective (Goodwin et al., 2001) and it can deal with many patients at one time. The participants in our intervention program had knowledge about group intervention in a higher percentage than the non-participants. So, to promote and deepen the knowledge about the presence of group intervention as a means of psychosocial support and about the details of such intervention, opportunities are to be provided for patients.

Social environments shoul be arranged so that recurrent breast cancer patients are supported by an approach tailored to the individual, involving both group and individual interventions.

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Association between Efficacy of Self-Management to Prevent Recurrences of Depression and Actual Episodes of Recurrence: A Preliminary Study

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Abstract

The purpose of this study was to investigate the association between efficacy of self-management to prevent recurrences in patients with depression, and actual episodes of recurrence. We divided 110 patients with depression into a non-recurrence group (n = 60) and a recurrence group (n = 50), and compared the two groups in regard to socio-demographic and medical variables, scores on the scale for the efficacy of self-management to prevent recurrences of depression, and scores on the Beck's Depression Inventory. The factors associated with episodes of actual recurrence were tested with the logistic regression analysis, and the efficacy of self-management to prevent recurrences of depression was extracted as a factor independently associated with recurrence. The results suggested a statistically significant association between depression recurrence and efficacy of self-management to prevent recurrences of depression. However, the results were inconclusive because of the retrospective, case-control study design.

Keywords: Depression, Prevention, Recurrence, Self-efficacy, Self-management

1. Introduction

Within a year of the onset of the initial episode of depression 70-80% of patients who receive treatment are said to experience a remission (Keller et al, 1992; Lam & Kennedy, 2004). However, as previously reported, the probability of a recurrence and of the probability of a third episode after recurrence are 50-60% and 70%, respectively (APA, 2000; Keller & Roland, 1998). Thus, depression is a disease with a propensity for repeated recurrence. The morbid phase grows longer with the number of recurrences, and the severity of the disease increases. Moreover, after repeated episodes the depression becomes chronic in many patients, and chronic depression may lead to serious social dysfunction, therefore it is important to address the need to prevent depression from recurring (Keller & Roland, 1998). Previous studies have reported various factors that are associated with recurrences of depression (Angst, 1999; Bruce & Kim, 1992; Fukuda, Etoh, & Iwadate, 1983; Harkness, Monroe, Simons, & Thase, 1999; Lin et al, 1998). Among these factors, the authors paid attention to self-management. Indeed, self-management is considered important to the management of all chronic diseases, including diabetes and renal failure (Kahn & Weir, 2005), and it involves the control of various aspects of daily living, including disease management and diet modification. In the field of psychiatry the importance of compliance with drug therapy and stress management has been emphasized in the management of schizophrenia

and depressive disorders. In case of chronic disease such as depression, in particular, it is important to improve the patient's capacity self-management and for physicians to be able to predict whether patients can administer their self-management behavior to prevent recurrences (Finlayson, Edwards, & Courtney, 2009; Kennedy, Nelson, Reeves, Richardson, Roberts, & Robinson A, 2004; Robinson, Thompson, Wilkin, & Roberts, 2001).

One of the criteria for judgment which can predict exactly the administration of self-management behavior is self-efficacy (Bandura, 1977). In the West, some previous reports showed that lower self-efficacy was associated with increased risk of recurrence depression recurrence (Vittengl, Clark, & Jarrett, 2010; Gopinath, Katon, Russo, & Ludman, 2007). Therefore, objective indices for the self-efficacy to predict the execution of self-management behavior are required. However, although there were a few self-efficacy scales that assess coping with depression (Perraud, Fogg, Kopytko, & Gross, 2006), there were no efficacy of self-management scales focused on recurrent episodes of depression. In a previous study, the authors devised a scale to measure the efficacy of self-management to prevent recurrences of depression and evaluated the reliability and validity of the scale (Yamashita & Okamura, 2008). The present study was designed to determine whether there is an association between efficacy of self-management to prevent recurrences of depression measured by this scale and actual episodes of recurrence.

2. Methods

This study was conducted with the approval of the Ethics Committee of the Graduate School of Health Sciences of Hiroshima University and the institutional ethics review board of the participating hospital.

2.1 Patients

The study was designed as a retrospective, case-control study. The subjects were 113 outpatients attending the psychiatry clinic of a general hospital in Prefecture F in Japan. They were primarily diagnosed as having depression according to the International Classification of Disease (ICD)-10, and had been followed up since the first episode at the above clinic. The eligibility criteria for subjects were as follows:

2.1.1 Recurrence Group

(1) The patient has had 2 or more depression episodes in the period between the first episode and this survey.

(2) The patient is 18 years old or older.

(3) The patient's mental condition is such that the patient does not have any difficulty communicating with others and answering the questionnaire.

(4) The patient has no marked psychiatric symptoms due to complications with other psychiatric disorders.

2.1.2 Non-recurrence Group

(1) The patient has had only a single episode, the first one, of depression in the past and no recurrence has been observed for more than 1 year. It has been reported that recurrence of depression occurs most often 6 to 12 months after remission (Kupfer, 1993; Prien & Kupfer, 1986). Also in Japan, it has been reported in a clinical study of hospitalized patients with depression that most of recurrences occurred within 1 year in the recurrence group (Tadokoro, Miyaoka, & Kamijima, 2000). Based on these reports, patients without recurrence for more than 1 year were classified as the non-recurrence group in this study.

(2) The patient is 18 years old or older.

(3) The patient's mental condition such that the patient does not have any difficulty communicating with others and answering the questionnaire.

(4) The patient has no marked psychiatric symptoms due to complications with other psychiatric disorders.

2.2 Measures

2.2.1 Socio-demographic and Medical Variables

Information about the following was collected eliciting answers directly from the patient and by consulting patient's medical records: gender, age, age at the time of diagnosis of the first episode, total number of depressive episodes ever experienced, and interval since the onset at the first episode of depression (interval between diagnosis of the first episode and the initial recurrence in the recurrence group and interval between diagnosis of the first episode and their first examination in the study in the non-recurrence group).

2.2.2 Scale for the Efficacy of Self-management to Prevent Recurrences of Depression (efficacy of self-management scale) (Appendix)

The authors used examples from previous reports and depression guidelines to develop a self-rating (i.e.,

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patient's personal rating) scale in Japanese based on factors that have been reported in the literature to increase the risk of depression recurrence, and then evaluated the reliability and validity of the scale (Yamashita & Okamura, 2008). Cronbach's α was 0.902, and assessment of construct validity with reference to the correlation between the efficacy of self-management scale and the General Self-efficacy Scale showed a significant correlation (Pearson correlation coefficient = 0.606, $p < 0.01$). The scale was designed to determine the efficacy of self-management to prevent recurrences of depression and is composed of 4 factors: "life management" (factor 1), "self-control" (factor 2), "self-awareness" (factor 3), and "compliance with treatment" (factor 4). The cumulative contribution ratio of 4 factors was 71.36%. The scale consists of 16 items: 7 items related to factor 1 (0-21 points), which concerns management of daily life to prevent recurrences of depression; 4 items related to factor 2 (0-12 points), which concerns self-control of the patient's emotions and behavior; 3 items related to factor 3 (0-9 points), which concerns self-awareness that is required to prevent recurrences of depression; and items related to factor 4 (0-6 points), which concerns compliance with treatment and its continuation. The scale uses a 4-stage Likert scale to rate for each item according to the patient's level of confidence, thus: "very confident", 3 points, "confident", 2 points, "not very confident", 1 point, and "not confident at all", 0 points. Possible total scores range from 0 to 48 points. High scores indicate greater confidence in efficacy of self–management to prevent recurrences of depression.

2.2.3 Self-rating Depression Scale (Beck's Depression Inventory, BDI)

This BDI is a self-rating scale based on patients' verbatim descriptions to assess the severity of depression during the previous 1-week period that was devised by Beck, Ward, Mendelson, Mock, and Erbaugh (1961) based on clinical observations and patients' complaints. It is composed of 21 items that include "sorrow" and "sense of self-reproach". Patients select the sentence that corresponds best to their condition and possible total scores range from 0 to 63 points. Higher scores indicate more severe depression. Depression is classified into three stages of severity based on the total score on the BDI: no depression (0-13 points); mild to moderate depression (14-24 points); and severe depression (25 points or over) (Beck, 1967). The Japanese version of the scale was developed by Hayashi (1988). The split-half reliability coefficient was 0.62, and Pearson correlation coefficient between the BDI score and scores of depressive tendency in Yatabe-Guilford personality inventory was 0.62.

2.3 Survey Methods

All of the patients who attended the outpatient clinic already mentioned between April and June of 2008 were included in the target population of this study. Before the patients who met the eligibility criteria were interviewed, the attending physicians explained the purpose of the study to them. After the study was explained to the patient again by the first author, patients who consented to participate in this study and signed the consent form were interviewed at this study entry, at which point the efficacy of self-management scale and the BDI scale were administered.

2.4 Statistical Analysis

(1) The demographic characteristics (age, gender, age at the time of diagnosis of the first episode, interval after the initial episode) and mental condition (BDI score) of the non-recurrence group and recurrence group were compared with the *t*-test or chi-square test after confirming the normality of the data.

(2) The total score and the score for each item on the efficacy of self-management scale were calculated in each group to assess the possibility of discriminating between the non-recurrence group and the recurrence group on the basis of efficacy of self-management to prevent recurrences of depression. The *t*-test was used to analyze the data in the two groups for significant differences.

(3) Factors that might be related to increased risk of depression recurrence were assessed with a logistic regression analysis (forced input method) by using the presence/absence of recurrences as the dependent variable and the variables identified by the univariate analysis as significantly different between the two groups as the independent variables. Furthermore, discriminant analysis was conducted as it can highlight predictors related to the presence/absence of recurrences.

(4) To assess any association between efficacy of self-management to prevent recurrences of depression and the number of recurrences in the past, the patients in the recurrence group were divided further into a subgroup with a history of only one recurrence (recurrence group A) and a subgroup with a history of two or more recurrences (recurrence group B). The mean total score and mean scores for each item on the efficacy of self-management scale were calculated in each subgroup and the data were analyzed for significant differences between them by the *t*-test.

(5) In order to test the specificity and sensitivity of the efficacy of self-management scale, receiver operating

characteristics (ROC) analysis was performed. Representing ROC analysis on a curve is a way of expressing the relationship between the true positive rate (sensitivity) and the false-positive rate (1 – specificity). The curve is a representation of the ability of the screening instrument to discriminate between "cases" and "non-cases". The desired cut-off point is generally chosen in order to minimize the sum of false-positive and false-negative test results.

The P values in all of the tests were two-sided, and p values <0.05 were considered significant. Statistical Package for the Social Sciences (SPSS) Statistics ver. 17.0 for Windows software was used to carry out all of the statistical analyses.

3. Results

3.1 Subjects' Characteristics (Table 1)

Of the total of 113, the 110 who met the eligibility criteria for the study and from whom informed consent was obtained were included in the analysis. Sixty subjects, 24 males (40.0%) and 36 females (60.0%), with a history of only one episode of depression were assigned to the non-recurrence group, and the other 50 subjects, 29 males (58.0%) and 21 females (42.0%), who had a past history of at least one recurrence were assigned to the recurrence group. Comparison of the characteristics of the two groups revealed significant differences only in the subject's age at the time of diagnosis of the first episode of depression.

3.2 Assessment of the Possibility of Discriminating between the Non-recurrence Group and the Recurrence Group on the Basis of Efficacy of Self-management to Prevent Recurrences of Depression

To assess the possibility of discriminating between the non-recurrence group and the recurrence group in terms of efficacy of self-management to prevent recurrences of depression, the mean total score and the mean score for each factor on the efficacy of self-management scale were calculated in each of the two groups. Analysis with the *t*-test revealed that the mean total score and the score for factor 1, factor 2, and factor 3 were significantly higher in the non-recurrence group than in the recurrence group. Although the difference between the two groups in the score for factor 4 was not significant, the score for factor 4 tended to be slightly higher in the non-recurrence group (Table 2).

3.3 Assessment of Factors Related to Depression Recurrence

Factors related to depression recurrence were assessed with a logistic regression analysis (forced input method). The presence/absence of recurrences of depression was used as the dependent variable, and the age at the time of diagnosis of the first episode and total score on the efficacy of self-management scale, both of which had been identified by the univariate analysis as significantly different between the non-recurrence group and recurrence group, and the BDI score were used as the independent variables. The results revealed that the three variables were independently related to depression recurrence (Table 3). Furthermore, discriminant analysis (Table 4) yielded a statistically significant function explaining 53.5% (Wilks' lambda, 0.72; df, 6; $p < 0.001$). In particular, total score on the efficacy of self-management scale was shown to play an important role in the discrimination.

3.4 Assessment of Efficacy of Self-management to Prevent Recurrences of Depression in Relation to the Number of Recurrences of Depression

To assess any association between efficacy of self-management to prevent recurrences of depression and the number of recurrences, the patients in the recurrence group were divided into recurrence group A (one instance of recurrence) and recurrence group B (two or more episodes). The mean total score and the mean score for each item on the scale were calculated in each subgroup, and the data for the significance of differences between the two groups were analyzed with the *t*-test. The results showed no significant differences between the two subgroups in the total score or the scores for any of the items (Table 5).

3.5 Screening for Discriminating between the Non-recurrence Group and the Recurrence Group by the Efficacy of Self-management Scale

From the ROC curve, the cut-off point for the screening seemed to 22/23. This cut-off point is associated with 76.0% sensitivity and 76.7% specificity (positive predictive value [PPV]: 78.3%, negative predictive value [NPV]: 78.1%).

4. Discussion

To assess the association between efficacy of self-management to prevent recurrences of depression and actual episodes of recurrence, we first investigated the possibility of using scores on the efficacy of self-management scale to discriminate between the non-recurrence group and the recurrence group. The results showed that the total score and scores for factors 1, 2, and 3 were significantly higher in the non-recurrence group, suggesting the

possibility of using the scale to discriminate between the non-recurrence group and the recurrence group. The scale included the following items to assess the efficacy of self-management, which is considered necessary to prevent recurrences of depression, and the self-efficacy of self-awareness, which is considered necessary for self-management: compliance with treatment, coping with stress, self-knowledge, and actual use of social support. Scores were assigned on the basis of the patient's level of confidence, that is, higher scores were assigned for higher levels of confidence. Recognition of the need for self-efficacy results in improved performance of the activities, and the efficacy of self-management has a long-term influence on an individual's future behavior (Bandura, 1977). Therefore, it is suggested that clear and strong recognition of the need for efficacy of self-management to prevent recurrences of depression allows a positive approach to problems and taking steps to perform the appropriate self-management behavior that is needed to prevent recurrences of depression. In the present study, the scores on the efficacy of self-management scale were significantly higher in the non-recurrence group, which allowed discrimination between the non-recurrence group and the recurrence group, showing that patients who have a high degree of awareness of efficacy of self-management may have the ability to behave appropriately to prevent recurrences. The difference in the score on the factor 4 items, on the other hand, was not significant. Factor 4 items include "the patient can continue attending a hospital" (Lewis, Marcus, Olfson, Druss, & Pincus, 2004) and "the patient can continue taking medicine as indicated by the physician" (Angst, 1999). The subjects of this study were all outpatients, and since their mental condition was relatively stable, their compliance with treatment is assumed to have been favorable. Because patients whose compliance with treatment was poor, who stopped attending the outpatient clinic, and who no longer required drug therapy or outpatient care were excluded from the study, there was bias in the distribution of the scores for the factor 4 items. The bias on the selection of the subjects may have affected the results.

The association between efficacy of self-management to prevent recurrences of depression and actual episodes of recurrence was tested with the logistic regression analysis, and the efficacy of self-management was extracted as a factor independently associated with recurrence, as well as age at the time of diagnosis of the first episode and the BDI score. Some studies have pointed out that a younger age at the time of diagnosis of the first episode increases the risk for depression recurrence (Fukuda, Etoh, & Iwadate, 1983; Hirschfeld RM, 2001), and the present finding is in keeping with that of previous reports.

Regarding the efficacy of self-management to prevent recurrences of depression, which were associated with actual episodes of recurrence independently of the severity of depression, factor 1 (life management) in the questionnaire is composed of items to assess self-efficacy in regard to matters related to self-management, including indirect behavior as well as direct behavior to prevent recurrences of depression. The low self-efficacy in factor 1 is suggested to cause chronic fatigue and to make it difficult to improve human relations in areas outside of work or to engage in hobbies and amusements in daily living (Gunther, Roick, Angermeyer, & Konig, 2008; Tellenbach, 1961), which results in mental and/or physical instability and a higher risk of depression recurrence. Factor 2 (self-control) is composed of items to assess self-efficacy in regard to matters related to control of the patient's emotions and behavior. Depressive patients often exhibit three characteristic cognitive patterns: negative estimation of themselves, negative interpretation of experiences, and negative views of the future (Beck, 1983; Hyde, Mezulis, & Abramson, 2008). Because such cognitive patterns are important elements in inducing exacerbations and recurrences of depression, it is suggested that failure of emotional control results in various negative experiences, and increases the risk of depression recurrence (Blackburn & Moore, 1997). Factor 3 (self-awareness) is composed of items related to self-efficacy in regard to matters related to self-awareness. When there is inadequate self-knowledge regarding stresses to which the patient is vulnerable, the cause of the patient's depression, and situations that increase the risk of recurrences and exacerbation of depression, the living and working situation becomes similar to the situation after depression recurrence and probably increases the risk of depression recurrence.

Self-efficacy can be cultivated, i.e., it can be improved. Some studies have shown that it can be improved by adopting approaches to desirable health actions. On the other hand, self-efficacy can be impaired by negative experiences, such as failure. When this is taken into consideration, there is the possibility that repeated recurrence decreases the efficacy of self-management to prevent recurrences of depression. To verify this possibility, patients in the recurrence group were divided into a group with a history of one recurrence and a group with a history of at least two recurrences, and the scores of the two subgroups on the efficacy of self-management scale were compared. The results showed no significant difference in either the total or mean scores for items on the scale, providing evidence against the notion that efficacy of self-management decreases with the number of recurrences and suggesting that the self-efficacy of the patients in the recurrence group was lower regardless of the number of recurrences. The mean interval between the first episode and the initial

recurrence was 4.4 years (SD: 4.5 years) in recurrence group A and 5.3 years (SD: 3.1 years) in recurrence group B. The mean interval in the recurrence group was 4.8 years (SD: 4.0 years). The mean interval between the date of diagnosis of the first episode and the date of the first examination in this study was longer, 6.12 years (SD: 7.1 years), in the non-recurrence group, indicating that the risk of recurrence is not necessarily related to the interval since the onset at the first episode.

A major limitation of the present study is that this was a retrospective, case-control study. Therefore, it was impossible to clearly demonstrate a causal relationship between the self-efficacy and recurrences. Second, this was a small-scale study and patients were recruited from only one clinic. Although the clinic was a general psychiatric clinic in Japan, this made it difficult to generalize the results. To determine whether there is a causal relationship between self-efficacy and recurrences, cohort studies or collecting data on both variables in randomized controlled depression treatment trials with appropriate follow-up lengths to capture early recurrences of depression should be conducted. Third, the subjects in this study were surveyed between April and June. Therefore, issues of seasonality on recurrence cannot be ruled out.

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Conflict of Interest

The authors have no conflict of interest with any commercial or other associations in connection with the submitted article.

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Table 1. Comparison between the characteristics of the subjects in the non-recurrence group and recurrence group

	Non-recurrence group (N=60)	Recurrence group (N=50)	P[a]
Age (years)	55.1 (SD 20.0) (range 22-82)	54.4 (SD 18.0) (range 21-88)	0.850
Gender Male Female	 24 (40.0 %) 36 (60.0 %)	 29 (58.0 %) 21 (42.0 %)	0.060
BDI[b] score	15.3 (SD 11.9) (range 2-37)	19.0 (SD 10.2) (range 2-35)	0.092
Age at the time of diagnosis of the first episode (years)	49.0 (SD 20.3) (range 13-78)	38.6 (SD 16.7) (range 12-75)	0.004
Interval after the initial episode (years)[c]	6.1 (SD 7.1) (range 1-27)	4.8 (SD 4.0) (range 0-18)	0.239

a: *t*-test or chi-square test, b: Beck's Depression Inventory

c: Interval between diagnosis of the first episode and their first examination in the study in the non-recurrence group.

Interval between diagnosis of the first episode and the initial recurrence in the recurrence group

Table 2. Comparison between the scores of the non-recurrence group and the recurrence group on the efficacy of self-management scale

	Scores of the non-recurrence group (N=60)	Scores of the recurrence group (N=50)	P[a]
Total	28.4 (SD 8.4)	19.9 (SD 6.7)	< 0.001
Factor 1	12.1 (SD 4.5)	7.8 (SD 3.7)	< 0.001
Factor 2	6.1 (SD 3.1)	3.6 (SD 2.4)	< 0.001
Factor 3	5.4 (SD 2.2)	4.2 (SD 2.3)	0.004
Factor 4	4.7 (SD 1.3)	4.3 (SD 1.2)	0.095

a: *t*-test

Factor 1: life management, Factor 2: self-control, Factor 3: self-awareness, Factor 4: compliance with treatment

Table 3. Factors related to depression recurrence - logistic regression analysis

	Estimate (beta)	Standard error	Odds ratio	95% confidence interval	P
Total score on the efficacy of self-management scale	-0.180	0.042	0.836	0.770-0.907	< 0.001
BDI score	-0.054	0.027	0.947	0.898-1.000	0.048
Age at the time of diagnosis of the first episode	-0.025	0.013	0.976	0.952-1.000	0.048

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Table 4. Summary of discriminant analysis

Predictor	Standardized canonical discriminant function coefficient
Total score on the efficacy of self-management scale	1.071
BDI score	0.426
Age at the time of diagnosis of the first episode	0.386
Canonical correlation	0.535
Eigen value	0.402
Wilks' lambda	0.713
Chi square	35.989; df = 3

df: degrees of freedom

Table 5. Comparison between the scores of the recurrence group A and the recurrence group B on the efficacy of scale self-management scale

	Scores of the recurrence group A (N=28)	Scores of the recurrence group B (N=22)	P[a]
Total	19.2 (SD 5.8)	20.8 (SD 7.7)	0.410
Factor 1	7.4 (SD 3.4)	8.2 (SD 4.1)	0.476
Factor 2	3.5 (SD 2.1)	3.7 (SD 2.8)	0.782
Factor 3	3.7 (SD 2.0)	4.8 (SD 2.5)	0.093
Factor 4	4.5 (SD 1.1)	4.0 (SD 1.3)	0.236

a: *t*-test

Recurrence group A: a subgroup with a history of only one recurrence

Recurrence group B: a subgroup with a history of two or more recurrences

Factor 1: life management, Factor 2: self-control, Factor 3: self-awareness, Factor 4: compliance with treatment

Appendix. Items of the scale for the efficacy of self-management to prevent recurrences of depression

a. You can continue to attend the hospital.
b. You can continue to take your medication as instructed by physicians even if it is over a long-term period.
c. You can ask the physicians and nurses what you do not understand and what you want to know.
d. You can take sufficient rest when tired.
e. When there are any changes in your current symptoms and conditions, you can report them to the physicians by yourself.
f. When you are suspicious of or dissatisfied with the method of treatment, you can tell the physicians and nurses what your problems are.
g. You can actively participate in the treatment.
h. You can get enough hours of sleep every day.
i. When you have any difficulties or worries, you can consult someone about them.
j. When necessary, you can receive support using social resources such as public health and welfare.
k. You can incorporate play and humor into your life.
l. When you feel pessimistic about things or feel like blaming yourself, you can stop and correct the thought.
m. You can ask someone for help when you need it, without trying to carry everything on your own shoulders.
n. When you have severe anxiety or stress, you can relax in your own way.
o. When you feel depressed or anxious, you can try to change your mood in a positive way.
p. You can enjoy your free time with hobbies and other pastimes.
q. You should always look at yourself objectively.
r. You can predict situations that cause recurrence and worsening of depression, and avoid them.
s. You can prevent recurrence and worsening of your depression.
t. You can tell yourself what you cannot do without pushing yourself too hard.
u. You can understand the reason why you developed depression.
v. You can reserve energy for everything without pushing yourself too hard.
w. You can understand what gives you severe stress, and try to avoid the cause.
x. You can be kind to yourself.
y. You can change your way of thinking from negative to positive.
z. You can accept your disease.
aa. You can manage your health.
ab. You can trust your current physician.
ac. You can take care of your body.
ad. You can believe that the depression will surely get better.

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Psychiatric Disorders in Patients Who Lost Family Members to Cancer and Asked for Medical Help: Descriptive Analysis of Outpatient Services for Bereaved Families at Japanese Cancer Center Hospital

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Objective: There have been no previous studies about consultation of the bereaved who have lost a loved one to cancer and ask for medical help. The aim of this study was to investigate their basic characteristics and their psychiatric disorders.
Methods: A retrospective study using clinical and background data obtained over 30 months (from April 2007 to September 2009) was conducted at outpatient services for bereaved families at the Department of Psycho-Oncology at Saitama Medical University International Medical Center, Japan.
Results: During the period of investigation, 51 patients underwent consultation. The patients were frequently female ($P < 0.0001$) and the spouse of the deceased. Regarding the psychiatric diagnoses, major depression was the most common (39%), followed by adjustment disorders (28%).
Conclusions: This study revealed basic characteristics and psychiatric disorders of the bereaved who asked for medical help. Most of the patients were women (86.3%) and 86.3% of them received a psychiatric diagnosis. This information is important for both physicians and psychologists since the bereaved who have lost a loved one to cancer often ask for medical help in clinical settings.

Key words: cancer – bereaved family – consultation – psychiatric diagnosis – retrospective study

INTRODUCTION

Cancer is a disease that is increasing the awareness of mortality among the Japanese. This is due to the fact that one out of three Japanese dies of cancer, which has been the most common cause of death since 1981, and that there has been an increase in the number of fatalities (1). Not only patients but also their family members are affected by cancer. There have been several studies about the psychiatric consultation of cancer patients (2–5) and relatives of cancer patients (6,7) from the view of psycho-oncology. These studies suggest that cancer patients and their families suffer from physical and psychiatric disorders.

If a patient dies, the 'family of the patient' becomes a 'bereaved family'. The death of a person (spouse or close relative, in particular) is a stressful event in life (8). Bereavement, defined as 'other conditions that may be a focus of clinical attention' by the Diagnostic and Statistical Manual of Mental Disorders, 4th edn (DSM-IV-TR), of the American Psychiatric Association (9), from a medical viewpoint, is known to cause a variety of physical and mental disorders as well as increased mortality.

A study reported a 40% increase in mortality, of which 75% was due to heart disease, among males aged 54 years or older within 6 months of a wife's death (10). There has also been a report of increased mortality in females within 3 months of them losing their husbands (11). Other studies have also demonstrated high mortality rates in those who experience the death of a spouse (12,13).

As for physical disorders, there have been reports of heart trouble and high blood pressure, which can increase the risk of many different physical illnesses (14,15).

As for behaviors, around one-third of widows reported drinking alcohol for relief of grief (16), whereas changes in smoking habits and eating habits have also been reported (14).

As for psychiatric and psychological effects, an increased risk of suicide within 1 year of losing a loved one has also been reported (17–19). In a survey of the prevalence of depression after bereavement reported by Clayton et al., 42 and 16% of patients 1 month and 1 year after bereavement met the criteria for depression, respectively. Forty-seven percent of recently bereaved families experienced symptoms meeting the criteria for depression, while this was only 8% at 1 year and 11% overall in a control group, showing that the incidence in bereaved families was very high (20,21). It was also reported that the prevalence of depression in bereaved families was high: 24, 23, 16 and 15% at 2, 7, 13 and 25 months after bereavement, respectively (22). Furthermore, bereavement is one of the most important risk factors for depression among the elderly (23).

As already mentioned, if someone dies, people who were close to the deceased will become vulnerable to a variety of physical and psychological illnesses. Even if they undergo consultations, most patients do not name their distress over the death as a chief complaint to physicians and the relationship between their experience and the illness is often overlooked (24); therefore, appropriate help would not be provided for the bereaved when they need it.

However, the background and clinical status of bereaved families of cancer patients who ask for medical help have not previously been reported. It is necessary to describe the profiles of the bereaved who attend outpatient services for the bereaved.

The purpose of the present study was to investigate the characteristics, reasons for consultation and psychiatric disorders in patients who asked for medical help after the death of a loved one with cancer.

PATIENTS AND METHODS

Psychiatric Interventions at Outpatient Services for the Bereaved at Comprehensive Cancer Center, Saitama Medical University International Medical Center

Saitama Medical University (SMU) established a Comprehensive Cancer Center attached to the International Medical Center (IMC) and organized a cancer board. This is the first cancer center affiliated to a university hospital in Japan. The Department of Psycho-Oncology is associated with the cancer board and provides two main services, one for outpatients and one for inpatients. In addition, the Department of Psycho-Oncology provides services for psychologically distressed family members.

As mentioned above, the bereaved are vulnerable to a variety of physical and psychological disorders. Therefore, the International Medical Center, Saitama Medical University (SMUIMC), started an 'outpatient service for bereaved families' at the time of its establishment in April 2007, with the aim of alleviating these distresses in the bereaved. This service is designed to 'help those who have lost a loved one to cancer live a better life', which is in line with the concept of 'postvention' proposed by Schneidman (25), and 'palliative care' as defined by the World Health Organization (WHO). WHO has included the following in the objectives for palliative care: to offer a support system to help the family cope during the patient's illness and in their own bereavement. The provision of palliative care increases as the person nears the end of life and includes support for the family during this entire period. After the patient dies, bereavement counseling for family and friends is also important (26). It provides outpatient services for the bereaved faced with psychological, social, physical and other problems, on the basis of the biopsychosocial model proposed by Engel (27).

The biopsychosocial model evaluates all the factors contributing to both illness and patienthood, rather than giving primacy to biological factors alone. This is the first outpatient service for the bereaved that provides psychological and social care and psychiatric treatment in Japan. This service is currently provided by two psychiatrists and two psychologists for those who have lost their spouse, parent, child or sibling to cancer.

Subjects and Procedure

We conducted a retrospective survey of people consulting the outpatient services for the bereaved of SMUIMC for 30 months between April 2007 and September 2009. Bereaved individuals were defined as first-degree relatives (spouse, parents and children) and siblings of the deceased who had died of cancer.

In this investigation, we mainly used patient background data, regarding age, gender, relationship to the deceased, cancer site of the deceased, reason for consultation, the period before consultation and psychiatric diagnosis, stored in databases, as well as we referred to medical records as necessary. Psychiatric diagnoses were evaluated according to DSM-IV-TR (9).

Statistical analyses were conducted using the SPSS 17.0 package. The differences among the data were compared by an analysis of means using χ^2 test.

This study was approved by the Institutional Review Board of SMUIMC (08-029).