

of delirium or induction of palliative sedation.^{29-31,40} For these reasons, discussion with patients about their illness and preference were avoided by health care professionals and sometimes impossible because of the patient's condition.

For family care, the family's preferred place of care was documented remarkably infrequently. The multicenter survey in Japan revealed that half of the bereaved families of patients with cancer considered the referrals to PCU to have been too late and such family-perceived late referrals were associated with insufficient discussion with physicians about preferred end-of-life care.⁴¹ Short length of stay in hospice was associated with lower satisfaction of care,^{42,43} therefore, health care professionals in general wards may improve the quality of end-of-life cancer care by discussing preferred place of care earlier and more frequently. Meanwhile, the other indicators were well documented, although less frequently than PCU. This indicated the good advanced communication with families, whereas the frequency of family consented DNR orders (97%) may improve the apparent percentages.

For psychosocial and spiritual concerns, no significant differences were detected, although these concepts are central to palliative care. We propose two reasons for this gap. In Japan, compared to Western countries, patients with cancer view religious support as less important.^{21,22} In addition, religious or spiritual care was sometimes not provided even if was considered important.⁴⁴ The study PCU did not provide chaplain care; psychosocial and spiritual care may be insufficient even in PCU. However, these indicators may not be sensitive enough to detect changes.

This study has several limitations. First, documentation in medical charts may not reflect actual practice. However, documentation itself is also important in the sharing of information and ongoing assessment; therefore, QI-EOL was developed for assess the quality by focusing on documentation. Second, interrater reliability of many indicators was moderate (κ , 0.41-0.60). Stricter guidelines and training of abstracters is necessary to further enhance the reliability. With regards to this study, the results were reliable for a single abstractor who reviewed all medical charts. In addition, QI-EOL focused on general approach to care rather than practical action. This ambiguity complicated the measurement process and resulted in the modification of the original indicators in order to establish more feasible indicators. Third, this study was conducted in a single center. Extrapolation of our findings is difficult, so further multicenter studies are necessary to assess the quality of end-of-life cancer care in Japan. Moreover, this study could not include all

potential subjects due to strict adherence to ethical guidelines. Families of patients who received poor quality end-of-life care may be more likely to decline to participate in such a study; therefore, the differences between settings may have been underestimated. Despite the limited sample, we do not believe that the results have been significantly effected. Fourth, QI-EOL was developed by expert panels that did not include patients or family members; thus, QI-EOL may have poor content validity. Finally, the number of nurses and some characteristics of patients are different between general wards and PCUs. The difference between settings may be overestimated.

CONCLUSIONS

We initially found that QI-EOL was a generally reliable quality measure instrument. Subsequently, using QI-EOL, we found that the quality of end-of-life cancer care was less adequate in general wards when compared to that provided in PCU. In particular, our findings indicated the need for improvements in assessment of delirium, oral care, and discussion about preferred place of care. Educational intervention focusing on these perspectives could improve the clinical practice for dying patients with cancer in general wards.

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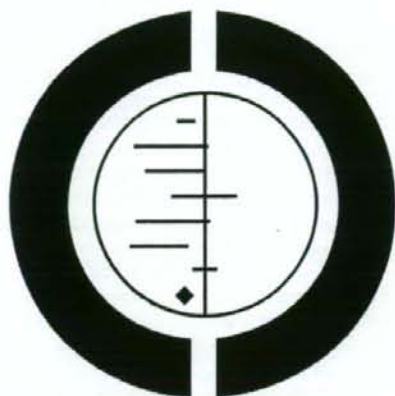
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Psychotherapy for depression among incurable cancer patients (Review)

Akechi T, Okuyama T, Onishi J, Morita T, Furukawa TA



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ABSTRACT

Background

The most common psychiatric diagnosis among cancer patients is depression; this diagnosis is even more common among patients with advanced cancer. Psychotherapy is a patient-preferred and promising strategy for treating depression among cancer patients. Several systematic reviews have investigated the effectiveness of psychological treatment for depression among cancer patients. However, the findings are conflicting, and no review has focused on depression among patients with incurable cancer.

Objectives

To investigate the effects of psychotherapy for treating depression among patients with advanced cancer by conducting a systematic review of randomized controlled trials (RCTs).

Search strategy

We searched the Cochrane Pain, Palliative and Supportive Care Group Register, The Cochrane Controlled Trials Register, MEDLINE, EMBASE, CINAHL, and PsycINFO databases in September 2005.

Selection criteria

All relevant RCTs comparing any kind of psychotherapy with conventional treatment for adult patients with advanced cancer were eligible for inclusion. Two independent review authors identified relevant studies.

Data collection and analysis

Two review authors independently extracted data from the original reports using standardized data extraction forms. Two independent review authors also assessed the methodological quality of the selected studies according to the recommendations of a previous systematic review of psychological therapies for cancer patients that utilized ten internal validity indicators. The primary outcome was the standardized mean difference (SMD) of change between the baseline and immediate post-treatment scores.

Main results

We identified a total of ten RCTs (total of 780 participants); data from six studies were used for meta-analyses (292 patients in the psychotherapy arm and 225 patients in the control arm). Among these six studies, four studies used supportive psychotherapy, one adopted cognitive behavioural therapy, and one adopted problem-solving therapy. When compared with treatment as usual, psychotherapy was associated with a significant decrease in depression score (SMD = -0.44, 95% confidence interval [CI] = -0.08 to -0.80). None of the studies focused on patients with clinically diagnosed depression.

Authors' conclusions

Evidence from RCTs of moderate quality suggest that psychotherapy is useful for treating depressive states in advanced cancer patients. However, no evidence supports the effectiveness of psychotherapy for patients with clinically diagnosed depression.

Psychotherapy for depression among incurable cancer patients (Review)

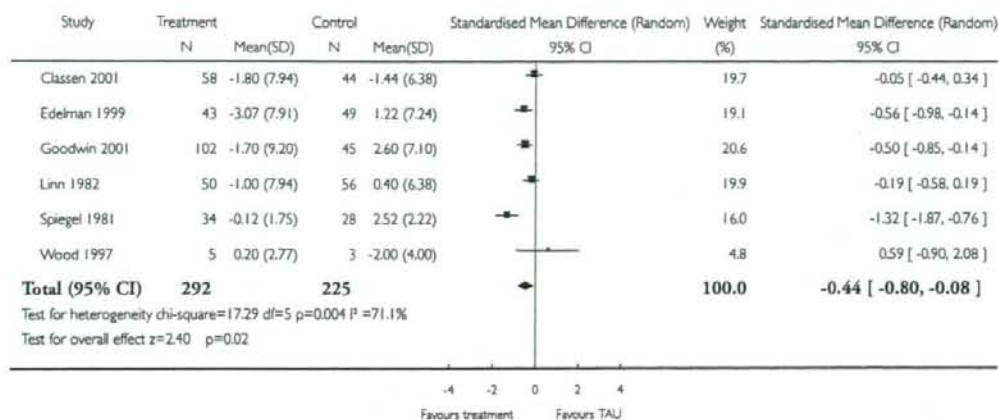
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Analysis 01.01. Comparison 01 Psychotherapy versus treatment as usual, Outcome 01 Depression

Review: Psychotherapy for depression among incurable cancer patients

Comparison: 01 Psychotherapy versus treatment as usual

Outcome: 01 Depression

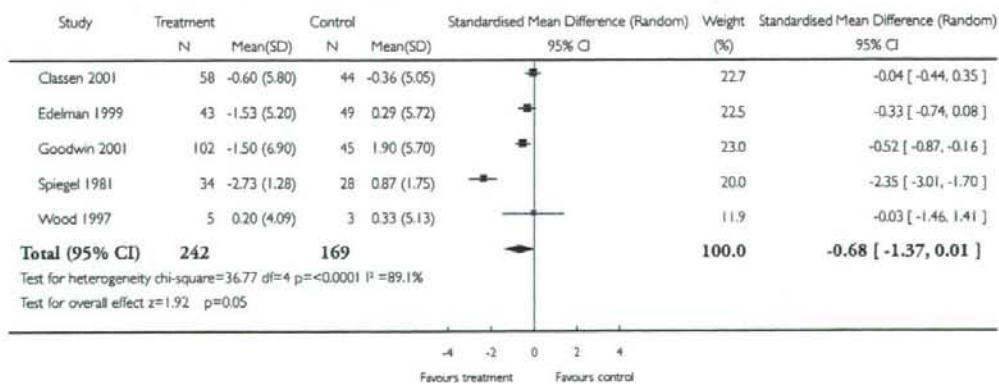


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Comparison: 01 Psychotherapy versus treatment as usual

Outcome: 02 Anxiety

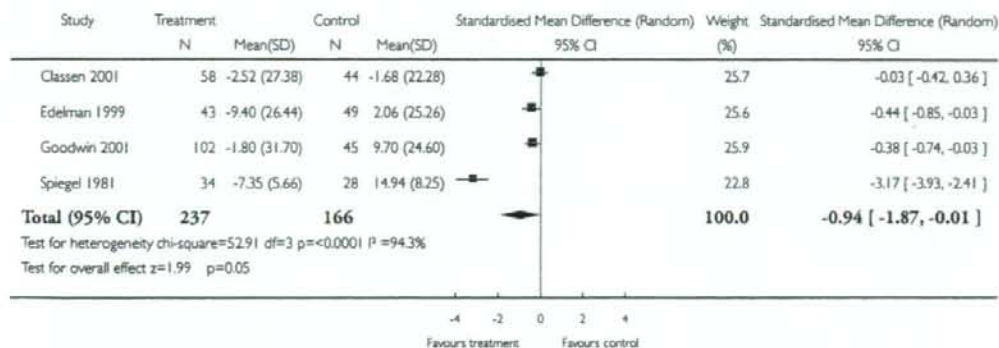


Analysis 01.03. Comparison 01 Psychotherapy versus treatment as usual, Outcome 03 Total Mood Disturbance

Review: Psychotherapy for depression among incurable cancer patients

Comparison: 01 Psychotherapy versus treatment as usual

Outcome: 03 Total Mood Disturbance

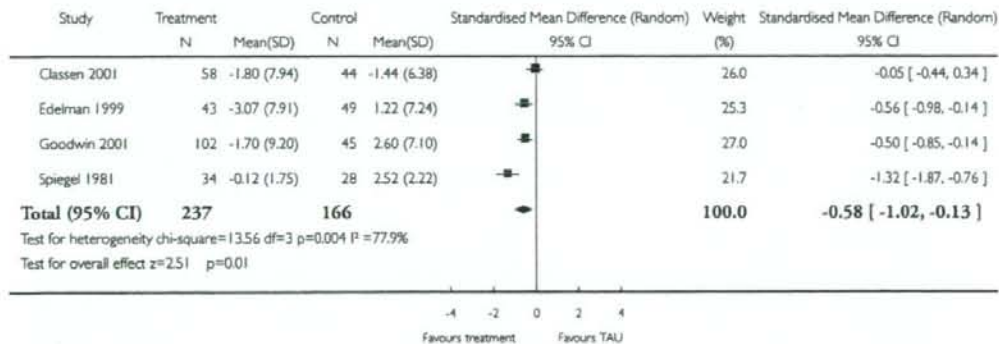


Analysis 02.01. Comparison 02 Subgroup analyses, Outcome 01 Depression

Review: Psychotherapy for depression among incurable cancer patients

Comparison: 02 Subgroup analyses

Outcome: 01 Depression

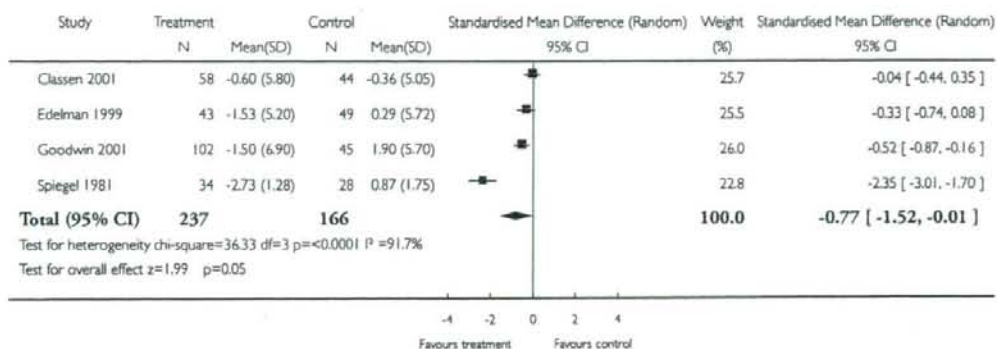


Analysis 02.02. Comparison 02 Subgroup analyses, Outcome 02 Anxiety

Review: Psychotherapy for depression among incurable cancer patients

Comparison: 02 Subgroup analyses

Outcome: 02 Anxiety

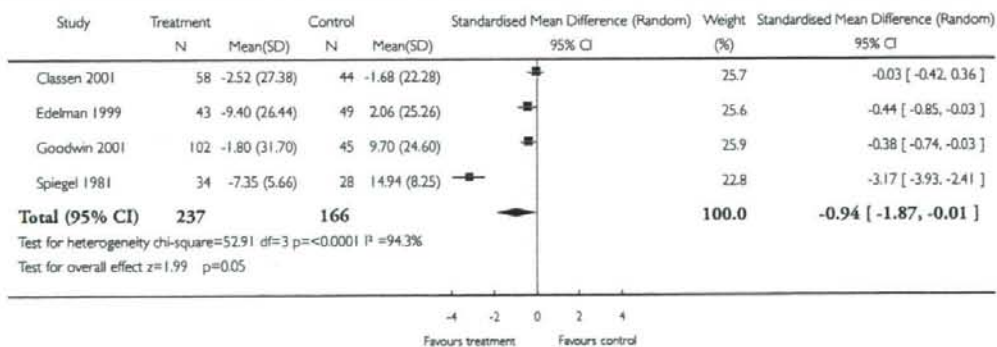


Analysis 02.03. Comparison 02 Subgroup analyses, Outcome 03 Total Mood Disturbance

Review: Psychotherapy for depression among incurable cancer patients

Comparison: 02 Subgroup analyses

Outcome: 03 Total Mood Disturbance

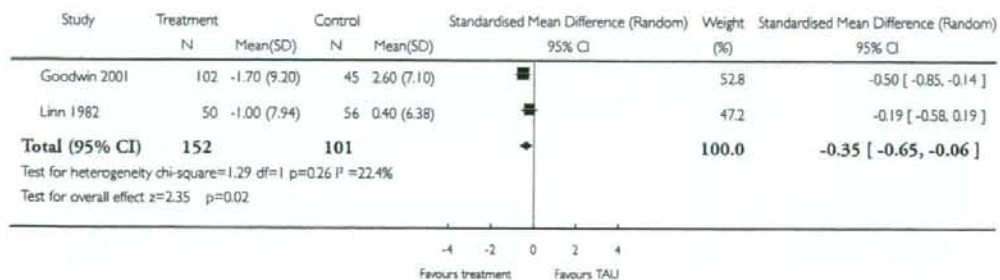


Analysis 03.01. Comparison 03 Sensitivity analyses, Outcome 01 Depression

Review: Psychotherapy for depression among incurable cancer patients

Comparison: 03 Sensitivity analyses

Outcome: 01 Depression



One-week Short-Term Life Review interview can improve spiritual well-being of terminally ill cancer patients

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Abstract

Purpose: The primary aim of this study was to assess the efficacy of the Short-Term Life Review on the spiritual well-being, as well as anxiety, depression, suffering, and happiness of terminally ill cancer patients.

Method: Thirty patients reviewed their lives in the first session and they confirmed the contents in the album based on the life review in the second session. Duration of the treatment was one week. Measurement instruments included Functional Assessment Chronic Illness Therapy-Spiritual (FACIT-Sp), Hospital Anxiety and Depression Scale (HADS), Numeric Rating Scales of Suffering (from 0 to 6) and Happiness (from 1 to 7).

Results: After the therapy, the mean FACIT-Sp scores increased from 16 ± 8.2 to 24 ± 7.1 , anxiety score significantly decreased from 6.8 ± 4.7 to 3.0 ± 2.2 , depression score significantly decreased from 10.2 ± 4.7 to 6.6 ± 4.1 , suffering score significantly decreased from 3.4 ± 1.9 to 1.8 ± 1.4 , and happiness score significantly increased from 4.6 ± 1.9 to 5.6 ± 1.6 . Total HADS scores significantly decreased from 17 ± 8.6 to 9.5 ± 5.4 .

Conclusion: The Short-Term Life Review is feasible and may be effective in improving the spiritual and psychosocial well-being of terminally ill cancer patients.

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Keywords: psychotherapy; Short-Term Life Review; terminally ill cancer patients; spiritual well-being

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Introduction

Terminally ill cancer patients often experience spiritual distress, such as that engendered by searching for a meaning or purpose in life, problems associated with relationships with familiar people, or religious problems, in addition to depression or anxiety. Until recently, there have been few interventions for these problems. This study describes an intervention to ameliorate spiritual distress in terminally ill cancer patients.

Butler [1] reported that the life review process is a mean of reintegration and can give new significance and meaning to an individual's life. It is defined as 'the progressive return to consciousness of prior experience, which can be re-evaluated with the intention of resolving and integrating past conflict, thereby giving new significance to one's life.' The elderly are often confronted with lone-

liness, anxiety, worry about near-future death, and low ability in performing activities of daily living (ADL), resulting in low self-esteem or depression. To cope with these psychological problems, life review interviews have been used. Previous studies have shown the effects of life review on depression [2,3], self-esteem [2], and life satisfaction [4].

For cancer patients, however, there are few empirical studies on the effects of life reviews. Ando *et al.* [5] reported the effects of structured life review intervention on spiritual well-beings in terminally ill cancer patients. This study involved four sessions once in a week and spiritual well-being was measured with a quality of life (QOL) questionnaire, SELT-M [6]. After the life review interview, the patients' mood, positive thinking, and spirituality significantly increased. However, this study encountered a feasibility problem: sample patients did not complete the four sessions. At the

Table 1. Patient backgrounds

Primary tumor site		Gender
Lung	n = 8	Male (n = 8)
Stomach	5	Female (n = 22)
Pancreas	2	Age
Gallbladder	2	Mean age: 74 (total SD = 9.1)
Uterine	2	Marital states
Breast	1	Married (n = 29); widow (n = 11), widower (n = 3)
Kidney	1	Non-married (1)
Leukemia	1	Religion
Rectal	1	Christian (n = 4)
Tongue	1	Buddhism (n = 3), None (n = 22)
Colon	1	ECOG-PS
Mesothelioma	1	1 (n = 1), 2 (n = 3)
Myeloma	1	3 (n = 13), 4 (n = 13)
Lymphoma	1	Duration from the interview to patients' death
		Mean: 67 days

end of the study, the physical conditions of 9 of the 21 patients (about 30%) extremely deteriorated and failed to complete the psychotherapy process. Although structured life review may be effective in improving the spiritual well-being of terminally ill cancer patients, the long sessions decrease the feasibility; thus, we need a shorter version of life review therapy.

Dignity psychotherapy is a therapy for terminally ill cancer patients with shorter session time [7]. This involves only two or three sessions. Dignity is defined as 'quality or state of being worth, honored, or estimated' [8], and this therapy helps patients maintain their dignity. Patients review their lives with the aid of routine questions and the session is recorded, edited, and transcribed. In 2 or 3 days after, there is another session. The therapist reads the transcription to the patients, who give comments and make revisions. Patients reported a heightened sense of dignity, a sense of purpose, a sense of meaning, an increased will to live, and a decrease in distress. This study suggests the possibility that the life review interview is effective even for a short term.

We propose a new psychotherapy—the Short-Term Life Review—with short sessions for terminally ill cancer patients. Although there are at least four sessions in the structured life review to review a patient's life along developmental stages [9], Short-Term Life Review involves only two sessions. In the first session, patients review their lives, and the review is then recorded and edited. The therapist makes an album after the first session. In the second session, the patient and therapist view the album, and confirm the contents with appreciation.

The primary aim of this study was to assess the efficacy of the Short-Term Life Review on the spiritual well-being, as well as anxiety, depression, sufferings, and happiness, or terminally ill cancer patients.

Material and method

Participants

The subjects were cancer patients from the palliative care unit of two general hospitals and one home-care clinic. The inclusion criteria for this study were (1) patients with incurable cancer; (2) patients without cognitive impairment; (3) patients 20 years of age or older; and (4) patients for whom the primary physicians agreed would benefit from the psychological interventions. During the 11-month-study period, 35 patients were recruited through primary physicians. Table 1 shows the patients' background.

Interventions

Ethical aspect of this study was validated by both the board and the ethical committee of St. Mary's Hospital and St. Mary's College.

The Short-Term Life Review has two parts. In the first part, patients review their lives, and in the second, they re-evaluate, re-construct, and appreciate their life. The interviewer was a clinical psychologist (therapist). The interview procedure was based on a structured life review interview that was conducted individually, and the patient was asked to re-evaluate both good and bad memories. Question items were mainly based on the structured life review; however, they were not along developmental stages, and some items from Chochinov *et al.* [7] were added. The following questions were asked in the reviewing session: (1) What is the most important thing in your life and why? (2) What are the most impressive memories in your life? (3) In your life, what was the event that or the person who affected you the most? (4) What is the most important role in your life? (5) Which is the proudest moment of your life? (6) Is there anything about you that your family would need to

know, are there things you would want them to tell you, and, if possible, are there things you would want them to remember? (7) What advice or word of guidance would you wish to pass on to the important people in your life or to the younger generation?

The patient's narratives were recorded, and the therapist tried to listen to each word uttered by the patient. After the first session, the interview was first transcribed verbatim and the therapist made the album. To make the album, (1) key words in the answer to each question were selected. Words or phrases used by the patient were written in the album as often as possible; both good and bad things were included and feelings or re-framed thoughts—how he feels now—were written in the album. (2) The therapist pasted photos or drawings from various books or magazines that were related to the patients' words or phrases, to make the album more beautiful and more memory provoking. It took a week for the treatment.

Outcome measurements

To measure the effects of the Short-Term Life Review, we used the Japanese version of Functional Assessment Chronic Illness Therapy-Spiritual (FACIT-Sp) [10]. The validity and reliability of the FACIT-Sp Japanese version is well established [11]. Secondary end-points were anxiety, depression, suffering, and happiness. Anxiety and depression were measured by the Japanese version of the Hospital Anxiety and Depression Scale (HADS) [12,13]. Further, we used numeric rating scale about suffering (0–6) and happiness (1–7) [14] to compare the effects of the Short-Term Life Review with that of Dignity Psychotherapy by Chochinov *et al.* [7].

Statistical analysis

To evaluate the efficacy of the Short-Term Life Review in improving the patients' spiritual well-being, the Wilcoxon signed rank test was conducted on all scores of each scale before and after the Short-Term Life Review. Correlation analysis was used to examine the relationships between spiritual well-being and other variables. For intention-to-treat analyses, we additionally calculated the treatment effects using all patient data by the last observation carried forward methods.

Results

Five of the patients were excluded from this study because of unexpected deterioration in health. Thus, a total of 30 patients completed all sessions. Two patients' consciousness level decreased due to disease progression, one had severe and uncontrollable pain, one developed pneumonia, and one lost motivation to participate because of decreasing ADL.

Table 2 shows average and standard deviation scores. After the Short-Term Life Review, the mean FACIT-Sp scores increased from 16 ± 8.2 to 24 ± 7.1 ($Z = -4.2, P = 0.001$), the anxiety score significantly decreased from 6.8 ± 4.7 to 3.0 ± 2.2 ($Z = -3.8, P = 0.001$), the depression score significantly decreased from 10.2 ± 4.7 to 6.6 ± 4.1 ($Z = -3.7, P = 0.001$), the suffering score significantly decreased from 3.4 ± 1.9 to 1.8 ± 1.4 ($Z = -3.5, P = 0.001$), and the happiness score significantly increased from 4.6 ± 1.9 to 5.6 ± 1.6 ($Z = -3.2, P = 0.002$). Total HADS scores significantly decreased from 17 ± 8.6 to 9.5 ± 5.4 ($Z = -4.1, P < 0.001$).

Those changes remained statistically significant using the intention to treat analysis: The mean FACIT-Sp scores significantly increased from 16 ± 7.8 to 23 ± 7.1 ($Z = -4.2, P = 0.001$), the anxiety score significantly decreased from 7.0 ± 4.8 to 3.7 ± 3.4 ($Z = -3.8, P = 0.001$), the depression score significantly decreased from 10.4 ± 4.6 to 7.2 ± 4.4 ($Z = -3.7, P = 0.001$), the suffering score significantly decreased from 3.5 ± 1.8 to 2.1 ± 1.5 ($Z = -3.5, P = 0.001$), and the happiness score significantly increased from 4.5 ± 1.9 to 5.3 ± 1.7 ($Z = -3.2, P = 0.002$). Total HADS scores significantly decreased from 17 ± 8.6 to 11 ± 6.8 ($Z = -4.1, P < .001$).

As shown in Table 3, the FACIT-Sp significantly correlated with anxiety ($r = -0.37$), depression ($r = -0.76$), total HADS ($r = -0.73$), sufferings ($r = -0.70$), and happiness ($r = 0.57$).

Discussion

Effects of Short-Term Life Review

The first important finding is beneficial effect of the Short-Term Life Review on spiritual well-being in terminally ill cancer patients. The fact that the FACIT-Sp scores significantly increased after the Short-Term Life Review shows the effect of this

Table 2. Changes in outcome measures

	FACIT-SP	Anxiety	Depression	Total HADS	Sufferings	Happiness
Before	16 ± 8.2	6.8 ± 4.7	10.2 ± 4.7	17 ± 8.6	3.4 ± 1.9	4.6 ± 1.9
After	24 ± 7.1	3.0 ± 2.2	6.6 ± 4.1	9.5 ± 5.4	1.8 ± 1.4	5.6 ± 1.6
P value	$Z = -4.2,$ $P = 0.001$	$Z = -3.8,$ $P = 0.001$	$Z = -3.7,$ $P = 0.001$	$Z = -4.1,$ $P = 0.001$	$Z = -3.5,$ $P = 0.001$	$Z = -3.2,$ $P = 0.002$

Table 3. Correlation coefficients among variables at the post Short-Term Life Review

	FACIT-Sp	Anxiety	Depression	Total HADS	Sufferings	Happiness
FACIT-Sp	1.0					
Anxiety	-0.37*	1.0				
Depression	-0.76**	0.41*	1.0			
Total HADS	-0.73**			1.0		
Sufferings	-0.70**	0.47*	0.73**	0.75**	1.0	
Happiness	0.57**	-0.27	-0.57**	-0.55**	-0.47**	1.0

* $P < 0.05$, ** $P < 0.01$.

therapy on spiritual well-being of cancer patients. Regarding the secondary endpoint, there were significant differences between pre- and post-intervention scores for anxiety, depression, suffering, and happiness.

Why does the Short-Term Life Review affect these variables? The following considerations may be relevant: (1) a patient can express emotion or distress without being concerned about the feelings of family or others. Most Japanese prefer not to give burden to family or friends. Moreover, in the sessions, there is ample time for patients to discuss anything they wish to mention, sometimes in an informal manner. This is related to psychological purification. (2) Patients can confirm their acquisitions or roles in life, narrating their lives as they have lived them, and can re-evaluate both good and bad memories with emotional support from the therapist. (3) Patients can view, touch, and appreciate their own album. Through these processes, patients find meaning in life and re-evaluate it, and their spiritual well-being increases. This results in a decrease in anxiety, depression, and suffering and an increase in happiness.

Adapting these processes with the previous theoretical model [15,16], we can explain the effects of Short-Term Life Review. A patient has a purpose or a goal for his life when he is healthy. However, when he falls into serious illness, it is often difficult for him to attain his purpose or a goal because of unexpected serious illness, and he feels much distress. In this situation, when he receives the Short-Term Life Review, he can re-think and modifies his original purpose or goals into attainable ones, he feels a positive mood. Short-Term Life Review may contribute for a patient to reconstruct his life being congruent with cancer in his life.

Feasibility

It would be remarkable for Short-Term Life Review to have high feasibility. The percentage of patients deteriorating with this therapy was only 17%, although in the previous study [5] it was 30% for patients using the Structured Life Review. We describe some factors related to feasibility. (1) The Short-Term Life Review is completed in a week, and this short-term intervention enables terminally ill cancer patients to complete an intervention. (2)

Patients with very low functionality in ADL can participate because the patients review their lives while lying on bed. Both problem-solving therapy for cancer patients [17] and cognitive behavior therapy for cancer patients [18] have proved to be effective. However, patients need some level of ADL; they may plan their schedule and conduct and evaluate their behavior or cognition. It may be difficult to conduct interventions for terminally ill cancer patients with much lower ADL. Moreover, the effects of these psychotherapies on spiritual well-being have not been evaluated. To manage spiritual distress, there is meaning-centered group psychotherapy [19], in which groups of patients talk about the meaning or purpose of life over a period of 8 weeks. However, it may be very difficult for terminally ill cancer patients with performance status of 3 or 4 to reach the end of this therapy and to travel to the places where the group sessions are held. In comparison with these previous studies, the present findings suggest that the Short-Term Life Review can be more feasible. Moreover, the procedures used in this therapy are clearly defined and medical personnel other than psychotherapists may be able to conduct it in various situations.

The following is the one of the cases. When a therapist began the session at the patient's bedside, a patient became emotional and covered his eyes while narrating his story. The therapist tried to be a therapeutic listener. The patient had never expressed his emotions in front of his family; however, he could readily express his emotions and feelings in the sessions. He was able to describe his suffering and his regret that he would die in the near future. He had worked as a gardener for a long time. It was very hard to become a gardener. There had been some failures when he was running his own small company, and he had worked hard. He described his life with his family, particularly his children, who were under 20 years old. After the first session, the therapist made an album for the patient. In the second session, the therapist and patient talked about the album and looked at it together. The patient listened to the therapist and became emotional. The therapist prompted the patient to re-evaluate both his good and bad memories by asking him to reconstruct his life, with questions like 'How do you recognize that memory now?' and 'how do you feel now?' The

patient wanted to live much longer, but had to reconstruct and integrate his life in a short time. He seemed to be satisfied that he was able to leave the park gardens, which many people are presently enjoying. He also expressed gratitude to his family and friends. He said 'These sessions were very helpful for me to set my memories in place.'

Comparison of Short-Term Life Review with Dignity Psychotherapy

There are both similarities and differences in methods between Short-Term Life Review and Dignity Psychotherapy. In both studies, patients review their lives for one time and there are some common questions. However, there are some differences between them. (1) In Dignity Psychotherapy, patients are offered the opportunity to address issues that matter the most to them or to speak of things they wish to remember the most as death draws near. In the Short-Term Life Review, the therapist does not intentionally prompt the patient to speak about the aftermath. (2) In the Short-Term Life Review, the therapist prompts the patient to review both good and bad memories to re-evaluate the bad memories and integrate them for patients' themselves; in Dignity Psychotherapy, however, bad memories or bad things are sometimes omitted from the transcript, because the transcript is for both the patient and his family. (3) In Dignity Psychotherapy, the therapist and the patient image something like an album in the second session, whereas in the Short-Term Life Review the therapist makes a small album based on the transcript after first session and both the patient and the therapists view the album together and the therapist promotes the patients to appreciate and re-evaluate their lives during the second session.

To compare the effects of the two therapies, we asked some common questions such as 'Are there anything that you would want your family to know about you, and are there things you would want them to tell?' In Dignity Therapy, the transcript is intended for those left behind. However, few patients answered this question and mentioned inheritance in the present study. There may be some cultural differences among patients. In future studies, we will select questions tailor made for each patient based on cultural differences.

Limitation

Finally, we mention the limitations of this study. First, there was no control group to enable us to assess the effects of this therapy because the terminally ill patients in this study were in a very serious physical and mental state and we could not burden them by asking questions that did not

contribute directly to their QOL. Second, the statistical significance in the measurement outcomes does not directly mean clinical significance. We were unable to conclude the clinical significance of this intervention due to the lack of established cut-off points of the FACIT-Sp. Third, almost all patients in this study were in palliative care ward or hospice care clinic, and the generalization of the findings to other situations cannot be automatically supported. Randomized controlled trial is promising to confirm the treatment benefits of the Short-Term Life Review interview.

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Original Article

Treatment Efficacy of Neural Blockade
in Specialized Palliative Care Services
in Japan: A Multicenter Audit Survey

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Abstract

More than 85% of cancer-related pain is pharmacologically controllable, but some patients require interventional treatments. Although audit assessment of these interventions is of importance to clarify the types of patients likely to receive benefits, there have been no multicenter studies in Japan. The primary aims of this study were (1) to clarify the frequency of neural blockade in certified palliative care units and palliative care teams, (2) determine the efficacy of interventions, and (3) explore the predictors of successful or unsuccessful intervention. All patients who received neural blockade were consecutively recruited from seven certified palliative care units and five hospital palliative care teams in Japan. Primary responsible physicians reported pain intensity on the Support Team Assessment Schedule, performance status, communication levels on the Communication Capacity Scale, presence or absence of delirium, opioid consumption, and adverse effects before and one week after the procedure on the basis of retrospective chart review. A total of 162 interventions in 136 patients were obtained, comprising 3.8% of all patients receiving specialized palliative care services during the study period. Common procedures were epidural nerve block with local anesthetic and/or opioids ($n = 84$), neurolytic sympathetic plexus block ($n = 24$), and intrathecal nerve block with phenol ($n = 21$). There were significant differences in the frequency of neural blockade between palliative care units and palliative care teams (3.1% vs. 4.6%, respectively, $P = 0.018$), and between institutions whose leading physicians are

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anesthesiologists or have other specialties (4.8% vs. 1.5%, respectively, $P < 0.001$). Pain intensity measured on the Support Team Assessment Schedule (2.9 ± 0.8 to 1.7 ± 0.9 , $P < 0.001$), performance status (2.7 ± 1.0 to 2.4 ± 1.0 , $P < 0.001$), and opioid consumption (248 ± 348 to 186 ± 288 mg morphine equivalent/day, $P < 0.001$) were significantly improved after interventions. There was a tendency toward improvement in the communication level measured on the Communication Capacity Scale. There was no significant improvement in the prevalence of delirium, but six patients (32%) recovered from delirium after interventions. Adverse effects occurred in 9.2%, but all were predictable or transient. No fatal complications were reported. Pain intensity was significantly more improved in patients who survived 28 days or longer than others ($P = 0.002$). There were no significant correlations of changes in pain intensity with the performance status or previous opioid consumption. In conclusion, neural blockade was performed in 3.8% of cancer patients who received specialized palliative care services in Japan. Neural blockade could contribute to the improvement of pain intensity, performance service status, and opioid consumption without unpredictable serious side effects. *J Pain Symptom Manage* 2008;36:461-467. © 2008 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

Key Words

Neural blockade, pain, neoplasm, palliative care

Introduction

Pain is one of the most common complications in cancer patients, and it significantly impairs their quality of life. Empirical studies have demonstrated that more than 85% of cancer-related pain is pharmacologically controllable, but the remaining patients require a multidisciplinary approach.¹⁻⁴ As part of this multidisciplinary approach, many empirical studies have revealed the efficacy of neural blockade in cancer pain management refractory to standard pharmacological treatments.⁵⁻¹⁵ Audit assessment of interventional treatment is of importance to improve patients' quality of life by clarifying the types of patients likely to receive benefits. In Japan, however, no multicenter studies to date have investigated how frequently neural blockade is used in oncology or specialized palliative care settings; the efficacy and the predictors of successful interventions have not been evaluated. Therefore, as a preliminary study to develop a prospective audit registry system of neural blockade, we conducted this study with the primary aims: (1) to clarify the frequency of neural blockade in certified palliative care units and palliative care teams, (2) determine the efficacy of interventions, and

(3) explore the predictors of successful or unsuccessful intervention.

Patients and Methods

The study participants were consecutively recruited from the participating institutions. The inclusion criteria were adult cancer patients who required neural blockade to manage pain refractory to standard pharmacological management. The participating institutions were seven certified palliative care units and five hospital palliative care teams across the country, conveniently selected from 120 certified palliative care units and 20 palliative care teams where coresearchers were available. Due to the preliminary nature of this study and practical difficulties, we made no effort to enroll a representative sample of all specialized palliative care services in Japan. The institution researchers were requested to report all patients who received neural blockade for pain control in 2002-2003. For each patient, they reported pain intensity, performance status, communication levels, presence or absence of delirium, opioid consumption, and any adverse effects before and one week after the intervention on the basis of retrospective chart review. We used a structured data-collecting

sheet and standardized rating protocols to maximize the reliability.

Measurements

The degree of pain was evaluated using the Japanese version of the Support Team Assessment Schedule.¹⁶ Performance status was graded with reference to the ECOG Performance Status. The degree of communication was measured as Item 4 on the Communication Capacity Scale, originally a validated five-item observer-rating scale used to quantify communication capacity in terminally ill patients (Appendix).¹⁷ This item rated the degree of patients' capacity to achieve clear communication on a scale of 0–3, with a score of 0 or 1 indicating that the patient can achieve clear communication of complex or simple content, respectively. Delirium was diagnosed following the Diagnostic and Statistical Manual-IV. Retrospective grading using these scales achieved fair interrater reliability in previous studies.^{18,19} The total opioid dose was defined as the total amount of oral morphine equivalent following a standard ratio.²⁰

Statistical Analysis

Pre-post comparisons were performed with the paired Student's *t*-test or McNamara test, where appropriate. To explore the predictors of treatment success, we compared the changes in pain intensity between subgroups: patients with a performance status before intervention ≤ 2 ($n = 59$) vs. ≥ 3 ($n = 96$); patients who survived 28 days or longer ($n = 85$) vs. less than 28 days ($n = 27$); patients receiving more than 120 mg oral equivalent of morphine per day ($n = 66$) vs. others ($n = 89$), using two-way repeated-measures analysis of variance.

All analyses were performed using the Statistical Package for the Social Sciences (version 11.5).

Results

We obtained data on 162 interventions for 136 patients who required neural blockade during the study period. Eighteen patients received two procedures, and four patients received three procedures.

Table 1 shows the demographic characteristics of the patients. The main primary cancers were colorectal, gynecologic, and pancreatic.

Table 1
Patient Background ($n = 136$)

	% (n)
Mean age (years)	59 ± 15
Gender	
Male	63 (85)
Female	37 (51)
Performance status	2.7 ± 1.0
Mean survival (days)	103 ± 105 (median 67)
Treatment setting	
Palliative care units	43 (58)
Palliative care teams	57 (78)
Primary tumor site	
Colon, rectum	35 (47)
Uterus, ovary	14 (19)
Pancreas	13 (18)
Prostate, kidney, bladder	8.1 (11)
Lung	7.4 (10)
Liver, gallbladder, bile duct	5.1 (7)
Head and neck	3.7 (5)
Stomach	2.9 (4)
Breast	2.9 (4)
Esophagus	2.2 (3)
Soft tissue	2.2 (3)
Blood	2.2 (3)
Bone	1.4 (2)

Table 2 summarizes the procedures and pain characteristics. Common procedures were epidural nerve block with local anesthetics and/or opioids, neurolytic sympathetic plexus block, and intrathecal nerve block with phenol. Epidural block was temporary in 11 patients, and the median duration of placement was 22 days.

Frequency and Institution Differences

The total number of patients receiving specialized palliative care services during the study period was 3,553; thus, 3.8% of patients underwent procedures. The percentage ranged from 0.6% to 15% (median, 4.5%) among the 12 participating institutions. There were significant differences in the frequency of neural blockade between palliative care units and palliative care teams (3.1% vs. 4.6%, respectively, $P = 0.018$), and between institutions whose leading physicians are anesthesiologists or have other specialties (4.8% vs. 1.5%, respectively, $P < 0.001$).

Treatment Efficacy and Safety

Overall, pain intensity measured on the Support Team Assessment Schedule, performance status, and opioid consumption were significantly improved after neural blockade (Table 3). Opioid consumption fell 30% or more in 33% of the patients ($n = 43$). In addition, there was

Table 2
Procedure and Pain Characteristics
(n = 162 Interventions)

	% (n)
Procedures	
Epidural nerve block with local anesthetics and/or opioids	52 (84)
Sympathetic plexus block	15 (24)
Intrathecal nerve block with phenol	13 (21)
Peripheral nerve block	6.8 (11)
Epidural nerve block with phenol	5.6 (9)
Intrathecal nerve block with local anesthetics	1.9 (3)
Trigeminal nerve block	1.9 (3)
Selective root block	1.9 (3)
Impair ganglion block	1.2 (2)
Stellate ganglion block	1.2 (2)
Pain characteristics	
Location	
Hip, perineum, anus	30 (57)
Lower extremity	18 (34)
Abdomen	17 (32)
Lumbar, back	14 (27)
Chest	12 (22)
Shoulder, upper extremity	5.3 (10)
Head, neck	4.2 (8)
Etiology	
Cancer-related	83 (135)
Procedure-related	8.6 (14)
Benign	8.0 (13)
Characteristics	
Somatic	34 (55)
Visceral	20 (33)
Somatic and neuropathic	15 (24)
Neuropathic	14 (22)
Somatic and visceral	12 (19)
Somatic and visceral and neuropathic	3.1 (5)
Visceral and neuropathic	2.5 (4)

a tendency toward improvement in the communication levels measured on the Communication Capacity Scale, although the difference did not reach significance.

On the other hand, there was no significant improvement in the prevalence of delirium. In 19 patients with delirium, however, six patients (32%) recovered after interventions.

By subgroup analyses (i.e., epidural analgesia, neurolytic sympathetic plexus block, and intrathecal neurolytic analgesia), pain intensity was significantly improved after interventions in all subgroups (Table 4). There was no significant improvement in the communication level or prevalence of delirium. The performance status was significantly improved in the subgroups of patients receiving epidural analgesia and sympathetic plexus block, but not in those receiving intrathecal neurolytic analgesia. Opioid consumption significantly decreased in patients receiving epidural analgesia and intrathecal neurolytic analgesia, but not in those receiving sympathetic plexus block.

Safety

Adverse effects occurred in 15 of 162 procedures (9.2%) (Table 5). Detrusor sphincter dyssynergia occurred after intrathecal nerve block, although this was a predictable and informed complication in all cases. Other complications were transient, and no fatal event was reported.

Predictors of Successful Treatment

Pain intensity was significantly more improved in patients who survived 28 days or longer than others (Fig. 1, $P = 0.002$). There were no significant differences in the changes in pain intensity between patients with a performance status ≤ 2 vs. those ≥ 3 , and patients receiving more than 120 mg oral equivalent of morphine per day vs. others (data not shown).

Table 3
Overall Treatment Efficacy (n = 162 Interventions)

	Before	One Week After	P
Pain ^a	2.9 ± 0.8	1.7 ± 0.9	<0.001
Severe (≥ 3)	68% (n = 110)	19% (n = 31)	
Performance status	2.7 ± 1.0	2.4 ± 1.0	<0.001
3 or 4	59% (n = 96)	46% (n = 74)	
Communication capacity ^b	0.31 ± 0.67	0.26 ± 0.62	0.085
No clear communication	9.9% (n = 16)	8.0% (n = 13)	
Delirium	12% (n = 19)	11% (n = 18)	1.0
Opioid consumption (mg/day) ^c	248 ± 348	186 ± 288	<0.001

^aEvaluated using the Support Team Assessment Schedule over the range of 0-4. A higher score indicates a greater level of pain intensity.

^bMeasured as Item 4 on the Communication Capacity Scale over the range of 0-3. A higher score indicates a greater level of communication impairment. No clear communication was defined as a score of 2 or 3.

^cCalculated as the total amount of oral morphine equivalent to a daily dose.

Table 4
Treatment Efficacy of Each Procedure

	Before	One Week After	P
Epidural nerve block with local anesthetics and/or opioids			
Pain ^a	3.0 ± 0.9	1.7 ± 0.9	<0.001
Severe (≥3)	73% (n = 58)	57% (n = 45)	
Performance status	2.8 ± 1.1	2.6 ± 1.0	<0.001
3 or 4	68% (n = 54)	56% (n = 44)	
Communication capacity ^b	0.2 ± 0.5	0.2 ± 0.5	0.32
No clear communication	6.3% (n = 5)	6.3% (n = 5)	
Delirium	6.3% (n = 5)	8.9% (n = 7)	0.69
Opioid consumption (mg/day) ^c	210 ± 298	162 ± 258	<0.001
Sympathetic plexus block			
Pain ^a	2.6 ± 0.9	1.7 ± 0.9	0.03
Severe (≥3)	52% (n = 12)	13% (n = 3)	
Performance status	2.2 ± 0.8	1.9 ± 0.8	<0.01
3 or 4	39% (n = 9)	30% (n = 7)	
Communication capacity ^b	0.1 ± 0.5	0.04 ± 0.2	0.16
No clear communication	4.3% (n = 1)	0% (n = 0)	—
Delirium	8.7% (n = 2)	0% (n = 0)	—
Opioid consumption (mg/day) ^c	277 ± 319	246 ± 326	0.27
Intrathecal nerve block with phenol			
Pain ^a	2.7 ± 0.7	1.5 ± 0.9	<0.001
Severe (≥3)	68% (n = 13)	47% (n = 9)	
Performance status	2.8 ± 0.8	2.6 ± 0.9	0.16
3 or 4	68% (n = 13)	47% (n = 9)	
Communication capacity ^b	0.6 ± 0.8	0.4 ± 0.7	0.19
No clear communication	21% (n = 4)	11% (n = 2)	
Delirium	26% (n = 5)	16% (n = 3)	0.50
Opioid consumption (mg/day) ^c	452 ± 588	295 ± 419	0.014

^aEvaluated using the Support Team Assessment Schedule over the range of 0–4. A higher score indicates a greater level of pain intensity.

^bMeasured as item 4 on the Communication Capacity Scale over the range of 0–3. A higher score indicates a greater level of communication impairment. No clear communication was defined as a score of 2 or 3.

^cCalculated as the total amount of oral morphine equivalent to a daily dose.

Discussion

This is the first multicenter study to assess the clinical utility of neural blockade in specialized palliative care services in Japan. One important finding is the clarification of the frequency of neural blockade in certified palliative care units and palliative care teams. In this study, 3.8% of patients receiving specialized palliative care services required neural blockade for acceptable pain control. This figure is generally close to the previous findings in Western countries,^{1–4} and suggests that some cancer patients require

interventional pain treatment to achieve maximum balanced analgesia. Specialized palliative care patients should thus have open access to pain specialists who can provide these interventions. Of special note was a significant, although modest, difference in the frequency of neural blockade among institutions: the treatment setting (palliative care units vs. teams) and the specialty of leading physicians. This indicates the strong need for explicit referral criteria for interventional pain treatment to maximize the appropriate referral of potentially benefiting patients.

The second and most important finding of this study is clarification of the efficacy and safety of these interventions. This study suggests that neural blockade can improve pain intensity, performance status, and opioid consumption without unpredictable serious adverse effects. This finding is consistent with previous studies,^{5–11} and strongly supports the clinical utility of neural blockade in carefully selected patient refractory to standard pharmacological pain management.

Table 5
Adverse Effects

	n (%)
Detrusor sphincter dyssynergia	5 (3.1)
Hypotension	3 (1.9)
Back pain	2 (1.2)
Transitory motor weakness	1 (0.6)
Infection	1 (0.6)
Respiratory depression	1 (0.6)
Headache	1 (0.6)
Acute alcoholism	1 (0.6)