- Simple hydration at 1000–1500 mL/d (400–600 kcal/d, nitrogen: N, 0 g/d). [C]
- Hyperalimentation at 1500 mL/d (1000 kcal/d, N 5 g/d). [C]
- Simple hydration at 2000 mL/d (800 kcal/d, N 0 g/d). [D]
- Hyperalimentation at 2000 mL/d (1600 kcal/d, N 10 g/d). [D]

R011: To improve general QOL in terminally ill patients with cancer who are expected to live for 1–2 weeks, are incapable of oral fluid intake due to intestinal obstruction, and show a performance status of 3 or worse

- Simple hydration at 1000–1500 mL/d (400–600 kcal/d, N 0 g/d). [D]
- Hyperalimentation at 1000–2000 mL/d (800–1600 kcal/d, N 5–10 g/d). [E]

R012: To improve general QOL in terminally ill patients with cancer who are expected to live for 1–2 weeks, are incapable of oral fluid intake due to progressive cachexia, and show a performance status of 3 or worse:

- Simple hydration at 1000–1500 mL/d (400–600 kcal/d, N 0 g/d). [E]
- Hyperalimentation at 1000–2000 mL/d (800–1600 kcal/d, N 5–10 g/d). [E]

2. Ascites
Rationale

We have had no intervention trials with a primary end point of ascites. One large multicenter prospective observational study suggested that patients receiving 1000 mL/d or more hydration during the last 3 weeks experienced significantly more severe ascites than those receiving no or less than 1000 mL/d hydration.[23] This is consistent with another multicenter retrospective observational study, a nationwide opinion survey, and other small observation studies.[24–26]

Available empirical evidence thus suggests that (1) less than 1000 mL/d hydration is unlikely to deteriorate ascites, (2) 1500–2000 mL/d hydration can deteriorate ascites, and (3) volume reduction can alleviate ascites.

Recommendations

R020: To minimize ascites-related distress in terminally ill patients with cancer who are expected to live for 1–2 months, are capable of oral fluid intake of 500 mL/d or more, and have symptomatic ascites:

- No artificial hydration therapy. [B]
- Artificial hydration therapy is limited to 500–1000 mL/d or less, if performed. [C]

R021: To minimize ascites-related distress in terminally ill patients with cancer who are expected to live for 1–2 months, are incapable of oral fluid intake, and have symptomatic ascites:

- Artificial hydration therapy is limited to the volume of vomiting + 500–1000 mL/d or less, if performed. [C]

R022: To minimize ascites-related distress in terminally ill patients with cancer who are expected to live for 1–2 months, are incapable of oral fluid intake, are receiving artificial hydration therapy at 2000 mL/d, and show exacerbation of ascites:

- Artificial hydration therapy is limited to 1000 mL/d or less. [C]

3. Nausea/vomiting
Rationale

One small randomized controlled trial demonstrated no clear benefits of an additional 1000 mL/d hydration compared to pharmacologic treatment in terminally ill patients with cancer with a median survival of 4 days.[27] On the other hand, several audit trials on patients with better performance status and bowel obstruction suggested that artificial hydration therapy could contribute to alleviating nausea and vomiting resulting in better quality of life.[19,22] This finding was consistent with several observation studies and case series.[18,28–32]

Available empirical evidence thus suggests that (1) adequate hydration may contribute to alleviating nausea and vomiting in patients with cancer with a better performance status and bowel obstruction and (2) artificial hydration therapy has no clinical benefits in alleviating nausea and vomiting in patients with cancer with a poor performance status, or the irreversible underlying etiology of nausea and vomiting other than bowel obstruction (e.g., cancer cachexia).

Recommendations

R030: To alleviate nausea/vomiting in terminally ill patients with cancer who are expected to live for 1–2

months, are incapable of fluid intake due to intestinal obstruction, and show no fluid retention symptoms:

- Artificial hydration therapy at 1000 mL/d (in combination with pharmacologic therapy). [B]
- No artificial hydration therapy (pharmacologic therapy only). [D]
- Artificial hydration therapy at 2000 mL/d (without pharmacologic therapy). [E]

Recommendation

R031: To alleviate nausea/vomiting in terminally ill patients with cancer who are expected to live for 1–2 months, are incapable of fluid intake due to intestinal obstruction, and have fluid retention symptoms:

- Artificial hydration therapy at 500–1000 mL/d or less (in combination with pharmacologic therapy). [B]
- No artificial hydration therapy (pharmacologic therapy only). [C]
- Artificial hydration therapy at 2000 mL/d (without pharmacologic therapy). [E]

Recommendation

R032: To alleviate nausea/vomiting in terminally ill patients with cancer who are expected to live for 1–2 weeks or less:

- No artificial hydration therapy (pharmacologic therapy only). [B]
- Artificial hydration therapy at 500–1000 mL/d or less (in combination with pharmacologic therapy). [D]
- Artificial hydration therapy at 2000 mL/d (without pharmacologic therapy). [E]

4. Thirst

Rationale

One small randomized controlled trial demonstrated no significant benefits of an additional 1000 mL/d hydration compared to nursing care in terminally ill patients with cancer with a median survival of 4 days,[27] and this result is consistent with a well-conducted audit study that showed that nursing care without artificial hydration alleviated the sensation of thirst in most terminally ill patients.[15,33] A large observation study demonstrated that patients receiving 1000 mL/d or more hydration during the last 3 weeks showed significantly less objective findings of dehydration than those receiving no or less than 1000 mL/d hydration, but the absolute difference was small and both groups demonstrated consistent deterioration in objective dehydration.[23] Several small observation studies revealed that the sensation of thirst was not linearly associated with the levels of blood urea nitrogen, sodium, protein, and hematocrit, but could be significantly associated with hyperosmolality, decreased intravenous volume (measured by artrial natriuretic peptides), stomatitis, oral breathing, and anticholinergic medications.[34–37]

Available empirical evidence thus suggests that (1) sensation of thirst in terminally ill patients with cancer is a multietiology symptom, and hyperosmolality and decreased intravenous volume may contribute to symptom development and (2) artificial hydration can alleviate objective findings of dehydration to some degree, but a subjective sensation of thirst can be sufficiently alleviated by nursing measures without artificial hydration therapy. In patients with better performance status and correctable dehydration, artificial hydration therapy appears effective in alleviating thirst, despite lack of no clinical observations on this selected study population.

Recommendations

R040: To alleviate thirst in terminally ill patients with cancer who are expected to live for 1–2 months, are incapable of oral fluid intake because of intestinal obstruction, and have no fluid retention symptoms:

- Artificial hydration therapy at 1000–1500 mL/d. [C]

R041: To alleviate thirst in terminally ill patients with cancer who are expected to live for 1–2 weeks or less, are capable of oral fluid intake, and have no fluid retention symptoms:

- Artificial hydration therapy at 500–1000 mL/d. [D]
- No artificial hydration therapy (nursing oral care only).

R042: To alleviate thirst in terminally ill patients with cancer who are expected to live for 1–2 weeks or less, are hardly capable of oral fluid intake because of intestinal obstruction (peritonitis carcinomatosa), and have fluid retention symptoms:

- Artificial hydration therapy at 500–1000 mL/d. [D]
- Artificial hydration therapy increased from 1000–2000 mL/d. [E]

- No artificial hydration therapy (nursing oral care only). [B]

5. Pleural effusion
Rationale

There are no intervention trials with a primary endpoint of pleural effusion. One large multicenter prospective observation study suggested that patients receiving 1000 mL/d or more hydration during the last 3 weeks experienced significantly more severe pleural effusion than those receiving no or less than 1000 mL/d hydration.[23] This was consistent with a nationwide opinion survey.[25]

Available empirical evidence thus suggests that (1) less than 1000 mL/d hydration is unlikely to deteriorate pleural effusion, (2) 1500–2000 mL/d hydration can deteriorate pleural effusion, and (3) volume reduction may alleviate pleural effusion.

Recommendations

R050: To prevent pleural effusion-related distress in terminally ill patients with cancer who are expected to live for 1–2 months, are capable of oral fluid intake, and have symptomatic pleural effusion:

- No artificial hydration therapy. [B]
- Artificial hydration therapy is limited to 500–1000 mL/d or less, if performed. [C]

R051: To prevent pleural effusion-related distress in terminally ill patients with cancer who are expected to live for 1–2 months, are capable of oral fluid intake but are receiving artificial hydration therapy at 2000 mL/d, and show exacerbation of pleural effusion-related distress:

- Artificial hydration therapy is gradually reduced to 500–1000 mL/d or less or discontinued. [B]

6. Bronchial secretion
Rationale

We have had no intervention trials with a primary end point of bronchial secretion. One large multicenter prospective observational study revealed no significant difference in prevalence of bronchial secretion between the patients receiving 1000 mL/d or more hydration during the last 3 weeks and those receiving no or less than 1000 mL/d hydration.[23,38] In that study, however, all patient had abdominal malignancy, and the median hydration volume was relatively small (700 mL/d). Terminally ill patients with cancer receiving a median of 1500 mL/d hydration experienced significantly more frequently bronchial secretion than those receiving a median of 250 mL/d.[39] This is consistent with an opinion survey and case report, suggesting that increased levels of hydration therapy could increase the risk of developing bronchial secretion.[25,33]

Available empirical evidence thus suggests that (1) a relatively large volume of hydration (e.g., 1500 mL/d or more) can deteriorate bronchial secretion and (2) in patients receiving a relatively small volume of hydration (e.g., <500–1000 mL/d), the hydration volume is minimally associated with the development of bronchial secretion.

Recommendations

R060: To alleviate bronchial secretion-related distress in terminally ill patients with cancer who are expected to live for a few days and have bronchial secretion-related distress:

- Artificial hydration therapy is reduced to 500 mL/d or less or discontinued. [B]

7. Delirium
Rationale

For patients with opioid-induced delirium, no controlled trials examined the accurate effects of hydration therapy. Some observation studies suggested that dehydration was significantly associated with the reversibility of delirium, although the association seemed dependent on opioid use.[24,40,41]

On the other hand, in patients close to death, a small randomized controlled trial demonstrated no significant benefits of 1000 mL/d hydration in the improving cognitive function of terminally ill patients with cancer with a median survival of 4 days.[27] A multicenter observation study failed to demonstrate beneficial effects of hydration to prevent agitated delirium,[23] and a Japanese historical control study also failed to demonstrate a decrease in the occurrence of agitated delirium using aggressive hydration and opioid rotation, contrary to a previous report from the other group.[42,43] These findings are consistent with several observations and case series suggesting that artificial hydration did not appear beneficial in improving cognitive function in terminally ill patients with cancer very close to death on a mass level.[24,33,41,44]

Available empirical evidence thus suggests that (1) artificial hydration therapy can be useful in selected

patients in combination with opioid rotation with opioid-induced delirium through the rapid clearance of toxic metabolites and (2) artificial hydration therapy has no benefits in improving delirium for most patients with organ failure.

Recommendations

R070: To alleviate delirium caused by dehydration and morphine in terminally ill patients with cancer, when other symptoms have been sufficiently palliated:

- Artificial hydration therapy (and opioid rotation, e.g., fentanyl). [B]

R071: To alleviate delirium caused by identifiable cause other than dehydration in terminally ill patients with cancer, when other symptoms have been sufficiently palliated:

- Artificial hydration therapy at 1000 mL/d. [B]

R072: To alleviate delirium caused by hypoxemia in terminally ill patients with cancer with multiple lung metastases who are expected to live for 1–2 weeks, and have symptomatic pleural effusion and/or edema:

- Artificial hydration therapy at 1000 mL/d. [E]

R073: To alleviate delirium due to hepatic encephalopathy in terminally ill patients with cancer with multiple liver metastases who are expected to live for 1–2 weeks, have symptomatic ascites and/or edema:

- Artificial hydration therapy at 1000 mL/d. [E]

8. Fatigue
Rationale

In patients with poor performance status, a preliminary randomized controlled trial demonstrated no significant benefits in alleviating fatigue of 1000 mL/d hydration compared with 100 mL/d hydration.[14]

On the other hand, an audit trial demonstrated that artificial hydration therapy could contribute to alleviating fatigue resulting in better quality of life in patients with better performance status.[20] The backgrounds of patients who received some benefits from this intervention included better performance status, bowel obstruction, and estimated survival of several months or longer.

Available empirical evidence thus suggests that (1) artificial hydration therapy is ineffective in improving fatigue in patients close to death (2) artificial hydration therapy can be effective in improving fatigue in patients with better performance status, bowel obstruction, and estimated survival of several months.

Recommendations

R080: To alleviate fatigue in terminally ill patients with cancer who are expected to live for 1–2 months, are incapable of oral fluid intake due to intestinal obstruction, but show a performance status of 2 or better:

- Artificial hydration therapy at 1000–2000 mL/d. [B]

R081: To alleviate fatigue in terminally ill patients with cancer who are expected to live for 1–2 weeks or less, and show a performance status of 3 or worse:

- Artificial hydration therapy at 1000–1500 mL/d. [E]

9. Peripheral edema
Rationale

We have had no intervention trials with a primary end point of peripheral edema. One large multicenter prospective observation study suggested that patients receiving 1000 mL/d or more hydration during the last 3 weeks experienced significantly more severe peripheral edema than those receiving no or less than 1000 mL/d hydration.[23,41] This is consistent with a small observation and a nationwide opinion survey.[25,33,45]

Available empirical evidence thus suggests that (1) more than 1000 mL/d hydration is likely to deteriorate peripheral edema and (2) volume reduction can alleviate peripheral edema.

Recommendations

R090: To prevent edema-related distress in terminally ill patients with cancer with no fluid retention symptoms:

- Artificial hydration therapy is limited to 1000 mL/d or less, if performed. [B]

R091: To alleviate edema-related distress in terminally ill patients with cancer who have edema-related distress:

- Artificial hydration therapy reduced to 1000 mL/d or less. [C]

COMMENTS

This paper illustrates the process of developing a clinical guideline for artificial hydration therapy for terminally ill patients with cancer in Japan, along with the general and specific recommendations for QOL sections of the guideline. The recommendations are generally consistent with existing clinical guidelines published in Western countries,[2–7] but this is, to our best knowledge, the first clinical guideline constructed using formal evidence-based and consensus-building methodology. A prospective observation study to assess the efficacy of this guideline is now ongoing, and the results could contribute to revising the recommendations.

ACKNOWLEDGMENT

This study was supported by the Third-term Comprehensive Control Research for Cancer.

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Letters

Physician-Reported Practice of the Use of Methylphenidate in Japanese Palliative Care Units

To the Editor:

Methylphenidate is a central nervous system stimulant that has traditionally been used to manage depression,[1] opioid-induced sedation,[2] fatigue,[3] hypoactive delirium due to multiorgan failure,[4] and cognitive disorder associated with brain tumors[5] in cancer patients. Although several empirical studies of these symptoms have demonstrated the treatment effects of methylphenidate, a recent randomized controlled trial reported that methylphenidate was not significantly superior to a nonpharmacological, nursing-based intervention.[6] The effectiveness of methylphenidate for other symptoms has not been adequately evaluated.

Before the intervention trial, we performed a nationwide survey to clarify physician-reported practices in the use of methylphenidate in Japanese palliative care units. A questionnaire was mailed to 163 representative physicians at all certified palliative care units in November 2006.

A total of 112 physicians returned the questionnaire (response rate = 69%). Methylphenidate was used in 91 institutions (81%). The percentages of patients who received methylphenidate ranged from 1% to 50% (median = 5%) and was less than 5% in 28 institutions (31%), 5%–9% in 28 institutions (31%), 10%–19% in 20 institutions (22%), and greater than 20% in 15 institutions (16%). The median initial and maintenance doses of methylphenidate were 10 mg/day (range, 5–30 mg) and 20 mg/day (range, 5–60 mg), respectively.

The participants were requested to report whether they regarded the following symptoms as appropriate indications for the administration of methylphenidate on a four-point, Likert-type scale from 1 (not an indication) to 4 (strong indication): depression, opioid-induced sedation, fatigue, and cognitive disorder associated with brain tumors, with an estimated prognosis of several days, weeks, or months; and hypoactive delirium due to multiorgan failure, with an estimated prognosis of several days or weeks. Table 1 summarizes the physician-reported appropriateness of the indication for the administration of methylphenidate. Of the respondents, 90% and 77% regarded opioid-induced sedation with a predicted survival of several months and several weeks as an indication and strong indication, respectively. On the other hand, most respondents regarded cognitive disorder associated with brain tumors and hypoactive delirium as not an indication or as exceptional indications, regardless of the length of predicted survival. In addition, most respondents consistently viewed all of these symptoms as not an indication, or as exceptional indications, if patients have a predicted survival of several days. The responses varied considerably regarding the appropriateness of administration for depression and fatigue with a predicted survival of several months or weeks.

To our knowledge, this is the first study to clarify physician-reported practices in the use of methylphenidate in Japan. This study revealed that methylphenidate is used in many palliative care units in Japan, although its use is relatively low. The dose did not vary among institutions. A common indication for methylphenidate was opioid-induced sedation when patients have a predicted survival of more than several weeks. On the other hand, considerable variation was identified in depression

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Table 1
Physician-Reported Appropriateness of Indications for Methylphenidate

	Not or Exceptional Indication	Indication	Strong Indication
Depression			
Predicted survival of several days	97% ($n=88$)	3.3% ($n=3$)	0%
Predicted survival of several weeks	52% ($n=47$)	40% ($n=36$)	8.8% ($n=8$)
Predicted survival of several months	44% ($n=40$)	43% ($n=39$)	13% ($n=12$)
Opioid-induced sedation			
Predicted survival of several days	95% ($n=86$)	5.5% ($n=5$)	0%
Predicted survival of several weeks	23% ($n=21$)	62% ($n=56$)	15% ($n=14$)
Predicted survival of several months	9.9% ($n=9$)	49% ($n=45$)	41% ($n=37$)
Fatigue			
Predicted survival of several days	98% ($n=89$)	1.1% ($n=1$)	1.1% ($n=1$)
Predicted survival of several weeks	62% ($n=56$)	32% ($n=29$)	6.6% ($n=6$)
Predicted survival of several months	52% ($n=47$)	37% ($n=34$)	11% ($n=10$)
Hypoactive delirium due to multiorgan failure			
Predicted survival of several days	100% ($n=91$)	0%	0%
Predicted survival of several weeks	91% ($n=83$)	8.8% ($n=8$)	0%
Cognitive disorder associated with brain tumors			
Predicted survival of several days	100% ($n=91$)	0%	0%
Predicted survival of several weeks	97% ($n=88$)	3.3% ($n=3$)	0%
Predicted survival of several months	96% ($n=87$)	4.4% ($n=4$)	0%

and fatigue with a predicted survival more than several weeks. More evidence-based discussion about the indications for these symptoms, especially depression and fatigue, is needed.

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doi:10.1016/j.jpainsymman.2007.02.025

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An Unusual Cause of Movement Disorder in a Young Man with Penile Carcinoma

To the Editor:

Cytochrome P450 is a large family of related isoenzymes found in highest concentration in the human liver. Only a handful of these isoenzymes are responsible for the metabolism of commonly used drugs.[1] One such isoenzyme is CYP2D6, which is possessed by the majority of adults. However, a proportion of individuals (2%–10% depending on ethnicity) are deficient in CYP2D6 and consequently has the

Palliative Care Philosophies of Japanese Certified Palliative Care Units: A Nationwide Survey

To the Editor:

The numbers of patients and families who want admission to palliative care units (PCUs) continue to increase, and it is predicted that consumers will demand more detailed information related to PCUs.[1] Consumers seeking PCUs are likely to initially familiarize themselves with the information provided in pamphlets. These resources are of great importance, as they describe not only the unique palliative care services offered by facilities, but also their philosophies and mission statements in palliative care. We identified a need to survey the contents of the pamphlets produced by PCUs in Japan, especially regarding the palliative care philosophies of these facilities. To the best of our knowledge, only one previous study has evaluated the information provided in hospice pamphlets.[1] In this previous study, no detailed description was given of the precise content of the hospice pamphlets surveyed.

In Japan, Morita et al.[2] reported that family misconceptions about PCUs can cause late referrals to palliative care services. Moreover, in a recent Japanese nationwide study, Shiozaki et al.[3] revealed that a lack of accurate information about PCUs can lead to dissatisfaction among bereaved relatives. Pamphlets produced by PCUs could potentially correct such misconceptions and promote a greater acceptance of palliative care among patients and their families during the early stages of illness. Analyzing the contents of pamphlets produced by Japanese certified PCUs also could shed light on current palliative care philosophies, resources, and staffing. This could help facilities to improve their communication with the public, thereby benefiting patients and their families.

The aim of the present study was to clarify the content of pamphlets produced by Japanese certified PCUs, especially in terms of their palliative care philosophies. Our survey encompassed the 105 certified members of Hospice Palliative Care Japan (formerly the Japanese Association of Hospice and Palliative Care Units). These facilities were contacted by letter, requesting their participation in the survey and asking them to submit the original pamphlets given to patients. The letters of request were sent out in August, 2002, and 90 facilities (86%) responded by October, 2002. Relevant information provided on web sites was also investigated, where appropriate. We excluded information provided for general introduction purposes by hospitals (i.e., not specifically PCUs) from the analysis.

The data were evaluated using content analyses. Two investigators, both retired, experienced hospice nurses, rated each pamphlet, with supervision from a palliative care physician (TM). Based on independent analyses of the initial 20 pamphlets by the two investigators, and with reference to the definitions provided by the World Health Organization (WHO),[4] the National Hospice and Palliative Care Organization,[5] the care standard of Hospice Palliative Care Japan,[6] and "good death" studies from the USA and Japan,[7–9] the team categorized the content into eight themes, divided into 77 categories. The two investigators then independently coded the remaining 70 pamphlets into these categories. Finally, the two investigators jointly reviewed and discussed each coded data set, again under the supervision of an experienced palliative care specialist (TM), until all discrepancies were resolved. The percentage occurrence of each category was calculated.

The investigators classified the content of the pamphlets into eight themes and 77 categories as follows: Classification of the Institutions (four categories), Philosophy, Medical/Nursing Service Available, Staffing, Environment, Admission Criteria, Financial Information (payment), and Other. Table 1 lists the categories and themes, and shows the prevalence of 73 of the categories (excluding those within the theme of Classification of the Institutions).

The facilities were classified into four groups: PCU (61%), Hospice (25%), Vihara (1%), and Other (13%). The word "Vihara" means "The place of recreation" or "Monastery" in Sanskrit, and is used in Japan to describe facilities that offer end-of-life care based on the principles of Buddhism. The Other group included facilities that were best described using a mixture of the terms (for example, Hospice/PCU or Vihara/PCU).

Table 1
Contents and Prevalence of Categories

Theme	Category	Prevalence (%)	*n*
Philosophy	Palliate physical distress	97	87
	Treating the patient as a whole/unique person	84	76
	Palliate psychological distress	84	76
	Family care	73	66
	Strengthening relationships	52	47
	Sharing decision making	49	44
	Maintaining meaning	47	42
	Affirming life[a]	36	32
	Calmness and peace	34	31
	Maintaining dignity	27	24
	Palliate social distress	21	19
	Enhancing quality of life	20	18
	Holistic approach	19	17
	Not prolonging life	14	13
	Spiritual care	12	11
	Death as a natural process	8	7
	Completion	7	6
	Bereavement care	3	3
	Not hastening death	2	2
	Preparation	2	2
	Not being burden to others	0	0
	Contributing to others	0	0
	Keeping active	0	0
	Early intervention	0	0
Medical / nursing service available	Interdisciplinary team approach	76	68
	Outpatient clinic	68	61
	Home-care service	47	42
	Continued care[b]	44	40
	Recreational events	41	37
	Flexible scheduling[c]	40	36
	Commitment to patient care, expressed as "all over creation," "efforts," "exertions," and "from the heart"	38	34
	Day-pass (temporary absences from the PCU)	26	23
	Collaboration with the patients	22	20
	No anti-cancer treatment	14	13
	Appropriate medical treatment can be provided	13	12
	Warm attitude of the medical staff, such as "Warm," "Family-like," or "Friendly"	12	11
	Avoiding physical distress due to procedures	11	10
	Not cure-oriented	11	10
	Complementary and alternative medicine	4	4
Staffing	Dietitian	51	46
	Volunteer	49	44
	Physical therapist/ occupational therapist	29	26
	Psychosocial support specialist	23	21
	Pastoral care	22	20
	Consultation with other specialists available	4	4
Environment	Information on equipment	98	88
	Contact address	98	88
	Photograph of the hospital ward	84	76
	Photograph of the hospital room	80	72
	Garden/patio	57	51
	Relaxing/calm	48	43
	Photograph of patients' daily lives	46	41
	Home-like environment	34	31
Admission criteria	Diagnosis	81	73
	Incurable stage	67	60
	Disclosure of diagnosis	34	31
	Requests by patients and/or their families	32	29
	Patient's awareness of their condition	17	15
	Non-denominational	13	12
	Non-discriminatory over financial status	4	4
	Patients without family allowed	2	2
	Prognosis	1	1
Financial information (payment)	National insurance applied	84	76
	Single room (with/without extra fee)	71	64
Other	Information regarding admission	86	77
	Passage from the Bible	8	7
	History	8	7
	Information regarding medication	4	4
	General description of hospice	4	4
	Quotation	4	4
	Request for cooperation with education or research	1	1

[a]Affirming life means living one's life fully until the end, and valuing life.
[b]Continued care means reassurance that inpatients and outpatients receive the same level of care.
[c]Flexible scheduling includes 24-hour visitation, and unrestricted waking and sleeping hours.

The Philosophy theme referred to the core palliative care concept of each PCU. This encompassed a variety of issues, ranging from the mission statements of the facilities to their more general definition of palliative care. More than 80% of the pamphlets surveyed referred to "palliate physical symptoms," "treating the patient as a whole/unique person," and "palliate psychological symptoms."

The theme of Medical/Nursing Service Available referred to information on the medical and nursing services that were available to patients. In the current study, 76% of the

institutions referred to an "interdisciplinary team approach," and 68% of the institutions stated that an outpatient service, such as outpatient clinics and day-care services, was available. Appropriate medical treatment mentioned that blood transfusion, hydration, and intravenous hyperalimentation were available. The other themes are shown in Table 1.

Our survey revealed significant variability in the contents of pamphlets produced by Japanese certified PCUs. In general, these resources contained both medical/nursing services and information on the palliative care philosophies of the facilities. The latter ranged so widely, from mission statements to general definitions of palliative care, that we divided the theme of Philosophy into 24 separate categories. It might be essential for all palliative care facilities to clearly state their philosophy or mission in their promotional literature.

We compared the philosophies of the facilities in this study with the palliative care definitions given by the WHO,[4] the National Hospice and Palliative Care Organization,[5] Hospice Palliative Care Japan,[6] and in "good death" studies from the USA[7–9] and Japan. "Palliate physical symptoms" was included in the definitions from all of these sources. On the other hand, of the categories in the current study, "holistic approach" was not mentioned by any of these four sources.

The pamphlets excluded the terms "helping patients actively" and "early intervention." In the theme of Admission Criteria, most of the pamphlets emphasized "incurable" as an admission criteria to PCUs, not the intensity of patient and family suffering. These findings suggest that PCUs in Japan place more emphasis on end-of-life care than palliative care, compared with the WHO definition.[4] This is, at least partially, because the Japanese Ministry of Health, Labor and Welfare defines PCU cancer patients as individuals who are incurable terminally-ill patients. The term PCU is, therefore, used in Japan to describe institutions that accept only terminally-ill patients. This narrow interpretation has been identified as the major barrier to adequate palliative care and appropriate referrals to specialized palliative care services.[2,10] In the future, in order to more closely follow the WHO definition in Japan and provide appropriate palliative care for all patients,[4] it should be recognized that the term palliative care implies active intervention during the whole course of illness.

Considering the definitions given in the "good death" studies,[7–9] neither "contributing to others" nor "not being a burden to others" were included among the categories in the present study. This was attributed to the fact that "good death" studies were developed relatively recently in the USA, and might not have been widely recognized by Japanese palliative care specialists at the time of the survey. As terminally ill patients and their families seek not only symptom palliation but also comprehensive support to achieve a "good death," it is essential that PCUs clearly communicate their philosophies other than symptom control and mission statements in their promotional literature.

Both the WHO and Hospice Palliative Care Japan emphasized an interdisciplinary team approach to improving the QOL of patients and their families. In the previous study, the majority of hospices (96%) were found to refer to an "interdisciplinary approach."[1] Although this category was mentioned by 76% of the institutions in the current study, only half of them actually provided details of the team and the number of the engaged disciplines. Maeyama et al.[11] revealed that the attendance at team meetings of professionals other than physicians and nurses was less than 40% in Japanese PCUs. It is, therefore, important that all facilities detail the specific services available for patients and their families, and clearly report the availability of support from an interdisciplinary team.

This small survey revealed significant variation in the palliative care philosophies described in the pamphlets produced by Japanese certified PCUs, and that most had a general focus on symptom control and end-of-life care. It is hoped that detailed discussions of the philosophies of palliative care will lead to more comprehensive services, incorporating various aspects raised by "Good death" studies and the early and active detection of patients requiring palliative care.

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doi:10.1016/j.jpainsymman.2006.09.002

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Support Care Cancer (2007) 15: 225–231
DOI 10.1007/s00520-006-0121-y

SHORT COMMUNICATION

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Life review interviews on the spiritual well-being of terminally ill cancer patients

Received: 4 April 2006
Accepted: 22 June 2006
Published online: 12 September 2006

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Abstract *Goals:* The aims of this study were (1) to evaluate the treatment efficacy of life review interviews on the spiritual well-being of terminally ill cancer patients, and (2) to explore any differences in the responses of patients who obtained clinical benefits and those who did not. *Materials and methods:* Structured life review interviews were conducted with 12 patients in a palliative care unit in Japan. They completed the SELT-M (Skalen zur Erfassung von Lebens qualitat bei Tumorkranken–Modified Version) questionnaire before and after the interviews. The patients were classified into two groups: effective (patients who showed an increase in the SELT-M scores after the intervention) and noneffective groups. Meaningful spoken sentences from the patients' life reviews were transcribed and correspondence analysis was conducted on the sentences using text mining software. *Results:* The mean overall QOL score and spirituality subscale score of the SELT-M significantly increased after the life reviews from 2.57±0.61 to 3.58±1.0 (P=0.013) and 2.57±0.61 to 3.14± 2.25 (P=0.023), respectively. Three dimensions were extracted from the effective group based on the scores "Positive view of life," "Pleasure in daily activities and good human relationships," and "Balanced evaluation of life." Similarly, three dimensions were extracted from the noneffective group: "Worries about future caused by disease," "Conflicts in family relationship problems," and "Confrontation of practical problems." *Conclusion:* Life review interviews may be effective in improving the spiritual well-being of terminally ill cancer patients. The potential predictors of treatment success are "positive view of life," "pleasure in daily activities and good human relationships," and a "balanced evaluation of life," while those of treatment failure are "worries about future caused by disease," "conflicts in family relationships," and "confrontation of practical problems." Further intervention trials on patients with predictors of treatment success are promising.

Keywords Psychotherapy · Life review · Terminally patients · Text mining · Spiritual well-being

Introduction

Reminiscence is an interpersonal or communicative psychosocial process that can be carried out individually or in groups [10]. Butler [4] reported that the life review process is a means of reintegration and can lend new significance and meaning to an individual's life. It is defined as "the progressive return to consciousness of prior experiences which can be re-evaluated with the intention of resolving and integrating past conflicts, thus giving new significance

to one's life" [3]. A life review interview, hereafter called life review, is a type of reminiscence therapy [4]. It includes various activities of reminiscence, evaluation, and reconstruction of one's life [8]. Reminiscence itself is an activity of life review or reminiscence therapy. The popular life review method [8] consists of six 1-h visits to each client. In this study, we used the Life Review and Experiencing Form [9] as a guide, and the interviewers were instructed to discuss all phases of life in chronological order.

With regard to the elderly, positive effects of life review interviews were shown for depression [11, 12, 15, 17] and self-esteem [10, 12]. To conduct life review interviews more effectively, Haight [8] demonstrated optimal conditions for the interview. For example, life reviews are most effective when performed on a one-to-one basis with a therapeutic listener; life reviews can be initiated freely as health maintenance measures; negative memories are more important than positive ones in achieving integration and a successful life review. Furthermore, on the basis of data collected from hundreds of elderly patients, Wong and Watt [24] found that successful patients—who were operationally defined by ratings in mental health, physical health, and adjustment—showed significantly more integration (achieved a sense of self-worth or reconciliation with regard to their lives) and instrumental reminiscence (used life reviews as problem-focused coping strategies), and less obsessive reminiscence (stated guilt, bitterness, and despair over their past) than unsuccessful patients.

There are relatively few studies concerning life review interviews for cancer patients. Wholihan [23] provided guidelines on how to facilitate the process of reminiscence, and Pickrel [21] provided instructions regarding life reviews for terminally ill patients. Ando et al. [2] demonstrated the types of reminiscence on the basis of Wong and Watt's findings [24] and on the effects of life reviews on depression and self-esteem for chronic cancer patients [1]. However, there is little research on the efficacy of life review interviews or about their success or failure for terminally ill cancer patients. To use life review interviews effectively, we had to know the efficacy of this type of therapy and how to determine whether a life review was successful or unsuccessful.

Thus, the aims of this study were (1) to evaluate the treatment efficacy of life review interviews on the spiritual well-being of terminally ill cancer patients and (2) to explore any differences in the responses of patients who obtained clinical benefits and those who did not.

Materials and methods

This preliminary study is a pre-post intervention study with no control groups.

Subjects

The subjects were patients with incurable cancer receiving specialized care in the palliative care unit of a general hospital in Japan.

The inclusion criteria for this study were (1) the patient had incurable cancer, (2) the patient had no cognitive impairment, (3) the patient was 20 years of age or older, and (4) the primary physicians were in agreement that the patient would benefit from the psychological interventions. During the 6-month study periods, a total of 21 patients were recruited from the primary physicians; however, nine patients were later excluded from this study for the following reasons: (1) the patient's health unexpectedly deteriorated (n=7), and (2) the interviewer evaluated that the patients were inappropriate candidates for life review interviews due to the Obsessive and Compressive reminiscence type [24] (n=1) and serious depression (n=1). Thus, 12 patients (two males, ten females) finally participated in the study. The patients' ages ranged from 54 to 82, with a mean of 63. The primary tumor sites were breast (n=3), liver (n=2), colon (n=2), lung (n=2), thyroid (n=1), stomach (n=1), and gallbladder (n=1).

Interventions and outcome measurements

The interviewer was a clinical psychologist. The interview procedure entailed a constructive life review interview [8] in which patients reviewed their own childhood, adolescence, adult life, and current situation. Some of the questions asked were (1) Please tell me about your childhood, (2) What do you remember to be the most impressive events in your childhood and (3) How do you feel now when you review those impressive events? Four sessions were planned for each patient. Interviews were conducted in the dayroom or at the bedside. The patient reviews were recorded in the form of notes taken during or immediately after the session.

We defined the primary outcomes of this study as the Overall QOL and spirituality subscale scores, because one of the most serious problems for terminally ill cancer patients in Japan is psycho-existential (spiritual) suffering [19]. To evaluate the spiritual well-being, we used the SELT-M (Skalen zur Erfassung von Lebens qualitat bei Tumorkranken–Modified Version) [22], because at the time of this investigation, no other validated measurement tools to assess spiritual well-being were available in Japan. The patients completed the Japanese version of the SETL-M [13] before and after the intervention. The reliability and validity of the Japanese version of the SELT-M has been reported. The SELT-M consisted of six subscales, namely, physical well-being (three items), mood (six items), support (three items), orientation (three items, e.g., "Today, I see many things in a more positive light"), spirituality (three items, e.g., "It is difficult for me to see

positive meaning in my illness"), and Overall QOL (one item). We used the overall QOL score and spirituality subscale score in the post-interview results. Each subscale ranged from 1 to 5, with a higher score indicating a higher level of patient-perceived QOL.

The institutional review board of this hospital approved this study from both ethical and scientific aspects, and a patient gave written consent.

Statistical analysis

To evaluate the treatment efficacy of life review interviews on the patient's spiritual well-being, a Wilcoxon sign rank test was conducted on the sections of the SELT-M before and after the life review interviews. To explore the predictors of treatment success, we classified the patients into two groups: effective (patients who showed an increase in their overall QOL score of the SELT-M after the intervention) and noneffective (the others). We then examined the responses given during the life review sessions for the two groups using text mining computer software (Word Miner version 1.0, Japan Electronic Company) [14].

Text mining is used to extract specific information from a large amount of text data. For example, when a company requires information on their customers' opinions, questions such as "what are the major concerns?" or "who wants what?" are asked in a questionnaire. The responses are collected in the form of sentences, which are used as the raw data for text mining. Text mining involves three processes: feature extract (word segmentation, categorization, or other functions to enter into the next process), the mining process (clustering or association by cluster analysis or correspondence analysis), and visualization (graphs or tables). Morohoshi et al. [20] demonstrated the efficacy of text mining by learning the customers' intentions from a number of customer opinions. We used text mining to obtain the factors that determine whether a life review is successful or unsuccessful from the responses in life reviews.

In the first process of text mining, characteristic extraction was performed, i.e., the words in each sentence were separated. Words that had the same meaning were counted as the same word; for example, both "mom" and "mother" were counted as "mother." Moreover, articles or punctuation marks were deleted, leaving only meaningful words. These words are called "fragments." There were 97 fragments for the effective group and 79 for the noneffective group. In the second process, namely, the mining process, a correspondence analysis was conducted on the fragments. In the third process, the results were presented in the form of tables and graphs. Dimensions, referring to hidden factors, were extracted automatically by the software. The number of dimensions depended on whether the eigenvalue scores were more than 1.0. For each dimension, important weighted fragments were represented in the tables and graphs. In a dimension, fragments were ordered from plus direction to minus direction. The software Word Miner listed the most meaningful five fragments both from plus and minus direction to decide the dimension names. These weighted fragments were also presented in the dimensional graph; the dimensions were named according to the fragments.

Results

The effects of life reviews

As shown in Table 1, overall QOL and spirituality subscale scores, in addition to mood and orientation subscale scores, significantly increased after the intervention.

Dimensions of contents by correspondence analysis

Three dimensions were extracted by correspondence analysis according to the criterion that the eigenvalue score was greater than 1.0. Table 2 shows the five most effective fragments and the weighted scores for each dimension from the plus direction and the minus direction. Some fragments appeared more than once because these fragments were distributed near more than one axis. Dimension 1 was called "Positive view of life." It included statements such as "Putting affairs in order" or "I find beauty of the outdoors" for the plus direction, and "I can walk by myself" or "Pleasantness" for the minus direction. Dimension 2 was termed "Pleasure in daily activities and good human relationships." It included "Pets" or "Likes" for the plus direction, and "I have good human relationships" or "Relatives" for the minus direction. Dimension 3 was termed "Balanced evaluation of life." It included "I had a good time" or "Destiny" for the plus direction, and

Table 1 Mean scores and *P* value by the Wilcoxon sign rank test on scores of SELT-M

	SELT-M					
	Physical well-being	Mood	Support	Orientation	Spirituality	Over-all QOL
Before	2.33 (SD=0.79)	3.16 (SD=0.65)	3.28 (SD=0.65)	2.93 (SD=0.75)	2.57 (SD=0.61)	2.57 (SD=0.61)
After	2.80 (SD=1.16)	3.79 (SD=0.74)	3.61 (SD=0.83)	3.65 (SD=1.03)	3.14 (SD=2.25)	3.58 (SD=1.0)
P value	Z=−1.02, P=0.307	Z=−2.67, P=0.008	Z=−1.18, P=0.237	Z=−2.05, P=0.041	Z=−2.23, P=0.023	Z=−2.49, P=0.013

Table 2 Scores of fragments which are affective in each dimension for both effective and noneffective Group

Effective group						Noneffective group					
Dimension 1: positive view of life		Dimension 2: pleasure in daily activities and good human relationships		Dimension 3: balanced evaluation of life		Dimension 1: worries about future caused by disease		Dimension 2: conflicts in family relationship problems		Dimension 3: confrontation of practical problems	
Fragments	Scores	Fragments	Scores	Fragments	Scores	Fragments	Scores	Fragments	Scores	Fragments	Scores
Cancer	1.38	Pet	1.97	I had a good time	1.88	Cancer	1	Problems with mother	2.32	Problems of mother	1.88
Putting affairs in order	1.38	Likes	1.97	I can't die	1.88	I want to live longer	1	Past conflicts	2.32	Past conflicts	1.88
I don't want to die right now	1.38	I can walk by myself	1.97	I want to enjoy hobby	1.88	What I was shocked	1	I am at a loss	2.32	I am at a loss	1.88
I find beauty of the outdoors	1.38	Pleasantness	1.41	Destiny	1.88	I am unsatisfied with life	1	Troubles	1.27	Troubles	1.88
I want to be away overnight	1.38	I worry about my family	1.22	Doctor always helps me	1.88	I want to leave something	1	Younger days	1.27	Younger days	1.88
Husband	−1.1	Relatives	−1.07	Relatives	−0.8	Everyone passes the road to death	−1.1	Everyone passes the road to death	−0.83	I don't want to give anyone trouble	−1.58
Pleasantness	−1.2	Person	−1.07	Person	−0.8	Children	−1.2	Children	−0.83	Today	−1.58
Pet	−1.43	I have good human relations	−1.07	I have good human relations	−0.8	I have relied on my family	−1.43	I have relied on my family	−0.83	Long time ago	−1.58
Likes	−1.43	Old friend	−1.07	Old friend	−0.8	I am calm	−1.43	I am calm	−0.83	Bad physical condition	−1.58
I can walk by myself	−1.43	Contact	−1.07	Contact	−0.8	Parents	−1.43	Parents	−0.83	Married pair	−1.58

"Contact" or "Old friend" for the minus direction. These dimensions are illustrated in Fig. 1.

As regards the noneffective group, we termed dimension 1 "Worries about future caused by disease" because this dimension included "I am unsatisfied with life" or "I want to leave something" for the plus direction and "Children" or "Everyone passes the road to death" for the minus direction. Dimension 2 was termed "Conflicts in family relationship problems." It included "Problems with mother" or "Past conflicts" for the plus direction and "Parents" or "I have relied on my family" for the minus direction. Dimension 3 was called "Confrontation of practical problems." It included "I am at a loss" or "Troubles" for the plus direction, and "Bad physical condition" or "I don't want to give anyone trouble" for the minus direction.

Discussion

One of the important findings of this study is the significant increase in the SELT-M scores, as well as the spirituality, orientation, and mood subscales, after the life review interviews. The significant increase in the Mood subscale suggests, in accordance with previous studies for elders [10–12], the efficacy of life review interviews to improve the psychological well-being of terminally ill cancer patients. More importantly, as the spirituality and orientation subscale quantify the levels of the patients' meaningfulness and positive outlook, the patients may have found a meaning to life and had more positive thoughts. This result supports the promising results of Chochinov's study [5], in which reminiscence was useful for patients to find a meaning in their lives.

The second important finding of this study is the identification of the predictors of treatment success and failure of the life review interviews. We extracted three dimensions from the responses of the life reviews of the patients with improved spiritual well-being: "Positive view of life," "Pleasure in daily activities and good human relationships," and "Balanced evaluation of life." "Positive view of life" may relate to a fighting spirit or an active stress-coping style, which may work against psychological suffering [6, 18]. The way of thinking of some of the patients changed from negative to positive after the life review. "Pleasure in daily activities" is an important factor in cognitive behavior therapy. Patients can forget the suffering caused by disease and can live their time well during pleasant activities. Greer and Moorey [7] showed the importance of leisure because patients tend to enhance daily life activities that are not impeded by the disease. Moreover, "Good human relationships" is considered a fundamentally important factor because patients who have good human relationships do not feel lonely and can act as support systems for others. Patients may have a sense of continuity among generations. Most of the patients in this group talked about their children or grandchildren in a pleasant way, which may imply a sense of continuity, suggesting that generativity is an important concept in psychotherapy for terminally ill cancer patients [5]. "Balanced evaluation" is also considered an important factor when life review interviews function therapeutically [8]. If a patient is able to integrate bad memories with good ones and evaluate their lives in a balanced way, the life

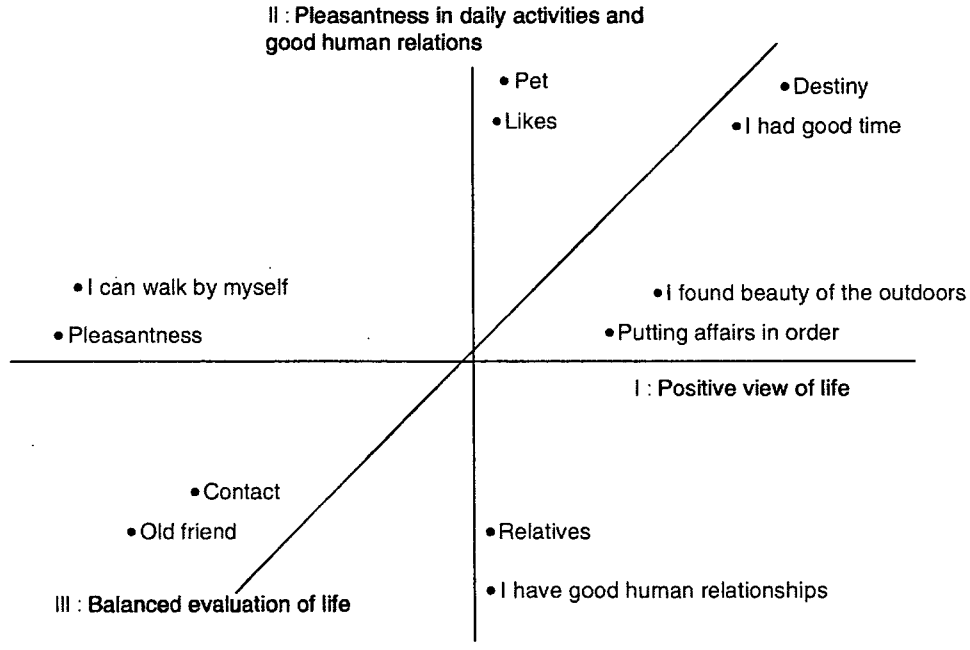

Fig. 1 Three dimensions and typical fragments in the effective group

review is considered effective. The importance of the factor "Balanced evaluation" is in accordance with the results demonstrating that life reviews are successful when the type of reminiscence is "integrative" or "instrumental" [24].

On the other hand, we extracted three dimensions from the responses of patients whose scores did not improve through these reviews. These dimensions included "Worries about future caused by disease," "Conflicts in family relationships," and "Confrontation of practical problems." "Worries about future caused by disease" is often observed in terminally ill patients. When patients worry about the future well-being of their parents or children, it is difficult for life reviews to treat these anxieties. Life reviews were also not effective for patients who have experienced practical family problems or conflicts, eliciting questions such as "Why was I brought up by relatives?" and "Should I meet my real mother again, from whom I parted in my younger days?" Life reviews are also not effective for patients who confront problems such as their past human relationships, family grave legacies, or poor physical condition. The influence of the factor "Poor physical condition" is also reported in [16]. Other kinds of care, such as music therapy [19], should be considered for patients for whom the life review interview did not prove effective.

This study is a preliminary one and has several limitations. First, due to the lack of control groups and because all patients received specialized inpatient palliative care, we cannot conclude that the life review interviews alone resulted in favorable changes in the spiritual well-being of the patients. Intensive symptom control and nonspecific support by palliative care nurses and physicians may have also contributed to the improvements. Second, the small number of patients and single institution study limits the generalization of this study. Third, a shorter intervention protocol for life review interview is necessary in future trials, because there were many patients whose sessions were discontinued.

In conclusion, life review interviews may be effective in improving the spiritual well-being of terminally ill cancer patients. Life reviews may also be effective for patients who have a positive view of life, take pleasure in their daily activities, have good human relationships, and have a balanced evaluation of life. However, they are not very effective for patients who have worries about the future caused by disease, are plagued by past conflicts, or are confronting practical problems. Interviewers help patients to (1) review both good and bad memories and reevaluate these memories, (2) pay attention to, not only the negative aspects but also, the positive aspects of their life, (3) refind hobbies or interests in the reminiscence that relate with their comfort, and (4) remember good relationships with others or form new relationships. Further intervention trials on patients with predictors of treatment success and a short-interval intervention protocol are promising.

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