

We found some commonality and some differences between Japanese and Western patients in terms of the themes chosen after therapy. “*Personal growth*” is a common theme seen in previous studies [7, 8, 12, 13]. Mackenzie et al. [8] showed that participants were able to see their illness in a different light, transforming the very meaning of illness through identification of some positive benefit, instead of entirely negative consequences. The “*Spirituality*” category includes dimensions such as achieving meaning of life, faith, purpose, and connection with others and a higher power [14, 15]. Spirituality also included spiritual and religious practice or self-prayer in Mackenzie et al. [8], but such categories were not observed in the present study. Instead, “limited life or time” was chosen by patients in “*Spirituality*”. Therefore, Japanese cancer patients may not think about the meaning of life or their purpose deeply at the stage of treatment; instead they accept their cancer and life naturally.

Moreover, “*Self-Control*” was not chosen in the present study, but was chosen in Mackenzie et al. “*Self-Control*” is defined as the ability of a patient to control their own behavior; for example, a participant in Mackenzie et al. said “I am in better control of myself physically and mentally.” In Western culture, patients seem to confront their illness and control themselves, whereas the absence of this theme in the present study indicates that this does not occur in Japanese patients. An attitude of not confronting serious facts in Japanese patients has been found previously [16, 17], and the patients in the present study apparently did not try to control themselves intentionally.

Lastly, we note that cyclic meditation is very easy for patients. It may be hard to develop insight from meditation in usual mindfulness, whereas cyclic meditation therapy makes it easy to pay attention to the body through a focus on movement of the hands or body.

Conclusion

Mindfulness-based cyclic meditation may be useful for Japanese patients under anti-cancer treatment to allow them to find their own positive coping strategies and to adapt their life, although some patients have problems in achieving these goals. There are some commonalities and some differences in outcome themes between Japanese and Western patients.

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Conflict of interest None of the authors have a financial conflict of interest regarding the work in the study. The authors have full control

of all primary data and agree to allow the journal to review these data if requested.

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Efficacy and Undesirable Effects of Corticosteroid Therapy Experienced by Palliative Care Specialists in Japan: A Nationwide Survey

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Abstract

Background and Methods: Corticosteroids are commonly used for symptom relief in the treatment of patients with advanced cancer. Consistent efficacy of corticosteroid treatment in palliative care remains controversial. A cross-sectional anonymous survey was mailed to representative managing physicians in certified palliative care units in Japan to clarify the physician-perceived efficacy of steroid treatment on anorexia, fatigue, and dyspnea in terminal cancer patients, to clarify physicians' experience of side effects of corticosteroid use, and to determine the Japanese palliative care physician-reported predictive factors for efficacy and lack of efficacy.

Results and Conclusions: Many Japanese palliative care specialists perceived that corticosteroids are effective for each of the symptoms, are aware of the prevalence and importance of serious adverse effects, and predict the effectiveness of steroid therapy by etiological factors.

Introduction

CORTICOSTEROIDS ARE COMMONLY USED for symptom relief in the treatment of patients with advanced cancer, with their initial use reported in the 1970s.¹⁻⁴ Indications for corticosteroid use in cancer patients differ according to the broad range of effects of this class of drugs. Specific indications include spinal cord compression, lymphatic carcinomatosis, and raised intracranial pressure, and nonspecific indications include pain, nausea, anorexia, fatigue, a general feeling of being unwell, and malaise. Treatment with corticosteroids is also sometimes associated with potentially serious side effects. Therefore, close monitoring of the patient using the minimum effective dose is recommended, with cessation if no benefit is obtained.

Consistent efficacy of corticosteroid treatment in palliative care remains controversial, with only limited evidence of efficacy from uncontrolled studies.^{5,6} There are also only scant data^{5,7} on physician-perceived effectiveness as well as side effects of corticosteroid therapy in palliative care settings nationwide. Assessment of treatment effectiveness in terminally ill cancer patients with severe symptoms and a short life expectancy is indeed difficult; thus, analysis of the clinical practice experience and perceptions of palliative care experts may be useful. The aims of this nationwide survey were to (1) clarify the physician-perceived efficacy of steroid treatment on anorexia,

fatigue, and dyspnea in terminal cancer patients, (2) clarify physicians' experience of side effects of corticosteroid use, and (3) determine the Japanese palliative care physician-reported predictive factors for efficacy and lack of efficacy.

Materials and Methods

This was a cross-sectional, anonymous mailed survey of representative managing physicians in all 178 certified palliative care units in Japan. The questionnaires were sent out in November 2008, along with a cover letter explaining the purpose of the study. The respondents were requested to report their clinical practice experience and perceptions regarding corticosteroid treatment in terminally ill patients. We sent a reminder 1 month after the initial mailing. We chose this population as our study population because most palliative care units in Japan have a single or only a few physicians and representative physicians are usually involved in direct patient care.

Questionnaire

The authors developed a 15-item questionnaire (see Appendix) on the basis of a literature review and discussions with 3 palliative care physicians.^{5,7,8}

The physicians were first asked to report their rate of agreement regarding corticosteroid therapy using a non-Likert-type

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scale and to report on their actual clinical experiences regarding corticosteroid treatment of adult cancer patients with an estimated survival of 6 months or less who were not on anticancer treatment. The questions focused on corticosteroid therapy for the specific symptoms of anorexia, fatigue, and dyspnea, which were the most common indications for steroid therapy reported in the literature, because we speculated that the physicians' attitudes might differ for each of these symptoms.^{8,9} The questionnaire was divided into four sections.

The first section related to the physician-perceived efficacy. The respondents were asked to report the physician-perceived effective rate and timing and to evaluate the treatment effect. The physician-perceived effective rate was defined as the proportion of patients showing a positive effect that lasted at least a week among all patients treated for the particular indication. The evaluation of the treatment effect was not based on the patient's records, but on the clinical impression of the respondents.

The second section related to the side effects of corticosteroid therapy. The physicians were asked to report the physician-perceived rate of patients who experienced 10 major side effects within 1 week and over 1 month, and was defined as the percentage of patients who experienced each side effect among all the patients who had received corticosteroids. The evaluation of the side effects was based on the clinical impression of the respondents. Respondents were then requested to report their clinical experience of serious side effects. The definition of each side effect was based on the clinical diagnosis, and we had not provided any operational definitions, which are not clearly established.

In the third section, the participants reported the predictive factor(s) for efficacy or lack of efficacy, on an empirical basis, in relation to each symptom (e.g., the impression that corticosteroid therapy is effective for fatigue associated with hepatic failure). These questions were in a multiple-choice format, with additional open-answer questions.

Next, the respondents were asked to report the frequency of corticosteroid use. The frequency of corticosteroid use was defined as the percentage of patients receiving corticosteroid therapy among the inpatients.

Background data were obtained, including the characteristics of the participating institutions (average patient age, median death rate, median percentage of patients receiving chemotherapy, median length of hospitalization, availability of palliative care outpatient services, and availability of local guidelines).

Statistical analyses

All analyses were performed using the Statistical Package for the Social Sciences (version 12.0; SPSS Japan Inc., Tokyo, Japan).

Results

A total of 124 physicians returned the questionnaires (response rate 70%) by January 2009. The characteristics of the participating palliative care units are detailed in Table 1.

Prevalence of corticosteroid prescription

Corticosteroids were used at 123 institutions (99%). The reported reason for the lack of use of corticosteroids at 1% of the surveyed institutions was insufficient efficacy. The percentage of patients who received corticosteroids among all

TABLE 1. CHARACTERISTICS OF THE PARTICIPATING INSTITUTIONS

Variable	
Average age of inpatients (years) (<i>n</i> = 116)	70 [4.3]
Median death rate (<i>n</i> = 120)*	90% (4.2–100)
Median percentage of patients receiving chemotherapy (<i>n</i> = 115)*	0% (0–90)
Median duration from admission to death (days) (<i>n</i> = 119)*	35 (2–87)
Availability of palliative care outpatient services	90% (111/124)
Availability of local guidelines on treatment with corticosteroids in terminal cancer	5.0% (6/121)

*Range in brackets.

terminally ill cancer inpatients ranged from 2% to 100% (average 71%).

Physician-reported efficacy

The highest physician-perceived effective rate as perceived by the responding physicians was for anorexia (57%), whereas more than 97% reported a positive effect within 7 days for each of the three symptoms (Table 2).

Side effects

The physician-perceived rates (%) of 10 common side effects as reported by the physicians are indicated in Table 3. The side effects seen in more than 10% of patients within 1 week of the start of treatment were insomnia and hyperglycemia, whereas those seen in more than 20% of patients after over 1 month of the start of treatment were oral candidiasis, moon face, and hyperglycemia.

Experiences with serious side effects were reported by 23% (*n* = 28) of the respondents, as follows: gastrointestinal bleeding (*n* = 7, 5.8%), gastrointestinal perforation (*n* = 6, 5.0%), potentially fatal hyperglycemia (*n* = 10, 8.3%), *Pneumocystis jirovecii* pneumonia (*n* = 3, 2.5%), potentially fatal bacterial pneumonia (*n* = 2, 1.7%), pulmonary tuberculosis (*n* = 2, 1.7%), sepsis (*n* = 1, 0.83%), serious delirium (*n* = 3, 2.5%), suicidal tendency (*n* = 1, 0.83%), severe myopathy (*n* = 2, 1.7%), and compression fracture (*n* = 1, 0.83%).

TABLE 2. RESPONSES REGARDING EFFICACY OF CORTICOSTEROID USE (*N* = 120)

	Anorexia	Fatigue	Dyspnea
Average physician-perceived effective rate*	57 [21]%	50 [21]%	52 [22]%
Positive effect came			
Within 24 hours	7.5% (<i>n</i> = 9)	10% (<i>n</i> = 12)	37% (<i>n</i> = 44)
1–2 days	44% (<i>n</i> = 53)	34% (<i>n</i> = 41)	38% (<i>n</i> = 45)
3–7 days	48% (<i>n</i> = 58)	53% (<i>n</i> = 63)	24% (<i>n</i> = 29)
8–14 days	0%	2.5% (<i>n</i> = 3)	0.8% (<i>n</i> = 1)

Some percentages do not add up to 100% due to missing values.

*The empirical effective rate was defined as the proportion of patients showing a positive effect that lasted for at least 1 week among all patients treated for each indication.

TABLE 3. PHYSICIAN-PERCEIVED RATES OF 10 COMMON SIDE EFFECTS RELATED TO CORTICOSTEROID THERAPY* (N = 105)

Side effect	Median rate within 1 week after initial administration (%) [†]	Median rate over 1 month after initial administration (%) [†]
Aggravated/triggered diabetes mellitus	10 (0-100)	20 (0-100)
Insomnia	10 (0-80)	10 (0-80)
Delirium	5 (0-50)	10 (0-80)
Oral candidiasis	1 (0-60)	30 (0-100)
Moon face	0 (0-20)	30 (0-100)
Depression	0 (0-30)	10 (0-50)
Electrolyte abnormalities	0 (0-20)	10 (0-40)
Peptic ulcer	0 (0-20)	7.5 (0-30)
Osteoporosis	0 (0-10)	5 (0-90)
Myopathy	0 (0-14)	5 (0-70)

*The physician-perceived side-effect rates were defined as the percentage of patients with the side effect among patients who received corticosteroids, based on the respondents' clinical impressions.

[†]Range in brackets.

Physician-reported predictive factors of effectiveness

The physician-reported predictive factors, on an empirical basis, for efficacy and lack of efficacy for each symptom are listed in Table 4. The predictive factors for efficacy against anorexia identified by more than 50% of the respondents were lung cancer and digestive cancer. For fatigue, tumor fever, digestive cancer, and lung cancer were identified as the predictive factors of efficacy, whereas liver failure, renal failure, and cachexia were identified as predictive factors for lack of efficacy. In relation to dyspnea, lymphatic carcinomatosis, airway obstruction, and multiple lung metastases were identified as predictive factors for steroid efficacy, whereas the predictive factor identified for lack of efficacy by 53% of the respondents was pleural effusion.

Discussion

To the best of our knowledge, this is the first representative nationwide survey to systematically investigate physicians' experience of corticosteroid therapy for terminally ill cancer patients. The important findings of this study were that many Japanese palliative care specialists (1) perceived that corticosteroids are effective for each of the symptoms, (2) are aware of the prevalence and importance of serious adverse effects, and (3) predict the effectiveness of steroid therapy by etiological factors.

In our study, more than 50% of the patients were assessed as showing good response to steroid treatment administered for different indications. Although a simple comparison is difficult because of differences in the study design, the results of our study are consistent with earlier findings.^{1,4,10,11} Thus, corticosteroid therapy may be found to be generally effective for these indications in many terminally ill cancer patients.

Many respondents stated that a positive response was noted within 1 week in cases in which the treatment was effective, consistent with previous studies.^{3,10,12} This finding may indicate that the efficacy of corticosteroid therapy should be evaluated within 1 week after it is initiated. This information is very useful in terms of the cost-effectiveness, economic resources, and prevention of unnecessary adverse effects.¹²

Large variations exist in physicians' estimation of side effects related to treatment with corticosteroids. As compared with previous reports,^{7,13} the actual percentages of the side effects in our study were relatively low. In contrast, this study revealed that 23% of the respondents encountered serious side effects, and the side effects experienced by palliative care specialists were similar to those reported previously: gastrointestinal bleeding,¹² severe myopathy,^{5,14} severe osteoporosis,⁵ severe infection,⁵ and severe neuropsychiatric complications.^{15,16} To obtain the greatest benefit with the fewest adverse effects, a large prospective cohort study to clarify the frequency of side effects is strongly needed. However, it cannot be over-emphasized that clinicians should carefully monitor and manage treatment-related complications on an individual basis to avoid side effects.

TABLE 4. PHYSICIAN-REPORTED PREDICTIVE FACTORS FOR THE EMPIRICAL EFFECTIVENESS OF CORTICOSTEROID TREATMENT OF THE THREE SYMPTOMS

	Effective predictive factor (n = 111)	Ineffective predictive factor (n = 92)
Anorexia	Lung cancer	64% (n = 71)
	Digestive cancer	58% (n = 64)
	Cachexia	32% (n = 35)
	<70 years old	28% (n = 31)
Fatigue	Tumor fever related	69% (n = 75)
	Digestive cancer	53% (n = 58)
	Lung cancer	52% (n = 57)
	Chemotherapy induced	30% (n = 33)
	Liver failure	29% (n = 30)
Dyspnea	Lymphangitic carcinomatosis	83% (n = 91)
	Airway obstruction	67% (n = 74)
	Multiple lung metastases	66% (n = 73)
	Weakness	32% (n = 35)
	Bronchial secretion	27% (n = 30)
	Cachexia	26% (n = 24)
	Liver failure	37% (n = 34)
	Renal failure	36% (n = 33)
Cachexia	36% (n = 33)	
Anemia	30% (n = 28)	
Depression	27% (n = 25)	
Pleural effusion	53% (n = 47)	
Bronchial secretion	47% (n = 42)	
Anemia	42% (n = 37)	
Pneumonia	40% (n = 36)	
Weakness	39% (n = 35)	

The questions were multiple-choice models and open answers.

This table represents the opinions reported by more than 25% of respondents.

Although the present study identified some predictive factors that many respondents regarded as useful, opinions varied among physicians regarding other predictive factors. Predicting the effectiveness of steroid therapy would allow avoidance of unnecessary use in patients. A future prospective study is needed for investigation of each predictive factor; this would contribute to using steroid therapy to obtain maximum benefits with minimum adverse effects.

One of the limitations of this study is that it was based on reports of physicians rather than on assessments by patients. Because of this limitation, we need to be cautious in making conclusions on the basis of the findings of this study.

In conclusion, corticosteroids are frequently administered to terminally ill cancer patients in Japan. Of special interest among the findings of this study is that physicians often predict whether corticosteroids would be effective based on etiological factors. A future study to validate the identified predictive factors might allow avoidance of potential over-prescription of steroid therapy. Because palliative care specialists encounter serious side effects in clinical settings, a future controlled trial to determine the efficacy of steroid therapy for each symptom of homogeneous etiology, as well as a large cohort study to clarify the prevalence of serious side effects is strongly needed to obtain optimal effect of corticosteroid therapy and minimize the risk of development of side effects in terminal cancer patients.

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Author Disclosure Statement

No competing financial interests exist.

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APPENDIX. QUESTIONNAIRE SHEET

1. Please answer the following items about your palliative care unit.
 - 1) Average age of inpatients _____ years old
 - 2) Death rate _____%
 - 3) Percentage of patients receiving chemotherapy ____ %
 - 4) Duration from admission to death _____ days
 - 5) Is palliative care available for outpatients? Yes No
 - 6) Are local guidelines available on treatment with corticosteroids in terminal cancer? Yes No

2. Do you prescribe corticosteroids in terminal cancer? Yes No

If "No," please select the reasons from the following:
 Worried about adverse effects of corticosteroids
 Insufficient efficacy of corticosteroids
 Other

If "Yes," please continue to answer the questions below.
 If "No," your questionnaire is finished.

3. What percentage of the terminal cancer patients at your facility have been prescribed corticosteroids? _____ %

4. Please indicate the percentage of terminal cancer patients prescribed corticosteroids for the following three indications. This value is defined as the percentage of patients receiving corticosteroid therapy among patients who complain of each symptom.

The percentage of patients with anorexia is _____ %
 The percentage of patients with fatigue is _____ %
 The percentage of patients with dyspnea is _____ %

5. The section in this question relate to your preferred administration method for each symptom (anorexia, fatigue, and dyspnea).
 - 1) Please select your preferred corticosteroid from the list below (please circle one).
 - a. Betamethasone, b. Dexamethasone, c. Prednisolone. Other (please state).
 - 2) Please select your preferred titration of corticosteroid from the list below (please circle one).
 - a. Escalating the dose to a maintenance dose, b. Tapering the dose to a maintenance dose, c. Keeping a fixed dose.
 - 3) Please state initial dose and maximum dose.

6. When your patients are expected to live for less than 1 week, do you stop or reduce the dose of corticosteroid for the purpose of avoiding hyperactive delirium. Please circle the most appropriate statement.
 - a. Stop, b. Reduce, c. Neither stop nor reduce.

7. When your patient who has an estimated prognosis of less than 2 weeks cannot take corticosteroid orally due to dysphagia with the progression of the underlying disease, do you stop or switch to other administration route for each symptom (anorexia, fatigue, and dyspnea)? Please circle the most appropriate statement.
 - a. Stop, b. Switch to parenteral administration, c. Switch to suppository.

8. We would like to determine the timing of predicted survival for starting corticosteroid therapy in terminal cancer patients with anorexia, fatigue, and/or dyspnea. Please circle the most appropriate statement.
 - a. Within 6 months, b. Within 3 months, c. Within 1 month, d. Within 1 week, e. Independently of predicted survival.

9. What percentage of the cancer patients who showed a positive effect from corticosteroid therapy for the following symptom did you see? This empirical effective rate is defined as the proportion of patients showing a positive effect that lasted for at least 1 week.

The empirical effective rate for anorexia is _____ %.
 The empirical effective rate for fatigue is _____ %.
 The empirical effective rate for dyspnea is _____ %.

10. When do you see a positive effect of corticosteroid after initial administration if the patient has a positive effect for each symptom (anorexia, fatigue, and dyspnea)? Please circle the most appropriate statement.
 - a. Within 24 hours, b. 1-2 days, c. 3-7 days, d. 8-14 days.

11. Do you prescribe a gastroprotector in patients treated with corticosteroids? Please circle the most appropriate statement.
 - a. No preventive prescribing of gastroprotector, b. Principally prescribe gastroprotector, c. Prescribe gastroprotector only for with concomitant nonsteroidal anti-inflammatory drugs (NSAIDs), d. Prescribe gastroprotector only for a patient with a past history of peptic ulcer.

If you prescribe a gastroprotector, please select your preferred drug from the list below (please circle one). If other, please specify.

 - a. Mucoprotective agent, b. Histamine H₂-receptor antagonist, c. Misoprostol, d. Proton pump inhibitor, e. Other (please specify).

12. What percentage of the cancer patients who have the following side effects of corticosteroid therapy do you see within 1 week and for more than 1 month?

Oral candidiasis, Peptic ulcer, Aggravated/triggered diabetes mellitus, Depression, Electrolyte abnormalities, Delirium, Insomnia, Myopathy, Moon face, Osteoporosis

13. Did your patients experience serious adverse side effects associated with corticosteroid treatment?

Yes No

If "Yes," please state your experiences.

For example, *Pneumocystis jiroveci* pneumonia, coma due to hyperglycemia, and so on.

14. Do you prescribe corticosteroid to terminal cancer patients with the following complications and history? Please circle the appropriate answer.

Diabetes mellitus (diet therapy alone, require oral hypoglycemic agent and insulin therapy); Peptic ulcer (past history and present complication); Past history of tuberculosis; Depression (past history and present complication); Delirium (hyperactive type and hypoactive type).
Answer

- a. Principally not prescribe, b. Prescribe with careful management of the side effect, c. Prescribe without careful management of side effect.

15. What kind of predictive factors do you consider that indicate the effectiveness of corticosteroids? Please select from the table below as either effective or ineffective. If other, please specify.

For example, corticosteroid is effective for fatigue due to hepatic failure, but corticosteroid is ineffective for fatigue due to depression, and so on.

	<i>Effective predictive factors</i>	<i>Ineffective predictive factors</i>
Anorexia	Digestive cancer, Lung cancer, Chemotherapy induced, Hepatomegaly, Hypercalcemia, Depression, Cachexia, Over 70 years old, Less than 70 years old, Male, Female, Predicted survival, Others (please state)	Digestive cancer, Lung cancer, Chemotherapy induced, Hepatomegaly, Hypercalcemia, Depression, Cachexia, Over 70 years old, Less than 70 years old, Male, Female, Predicted survival, Others (please state)
Fatigue	Digestive cancer, Lung cancer, Chemotherapy induced, Liver failure, Renal failure, Depression, Tumor fever, Elevated C-reactive protein, Anemia, Cachexia, Over 70 years old, Less than 70 years old, Male, Female, Predicted survival, Others (please state)	Digestive cancer, Lung cancer, Chemotherapy induced, Liver failure, Renal failure, Depression, Tumor fever, Elevated C-reactive protein, Anemia, Cachexia, Over 70 years old, Less than 70 years old, Male, Female, Predicted survival, Others (please state)
Dyspnea	Multiple lung metastasis, Air way obstruction, Pleural effusion, Lymphangitic carcinomatosis, General weakness, Bronchial secretion, Pneumonia, Anemia, Others (please state)	Multiple lung metastasis, Air way obstruction, Pleural effusion, Lymphangitic carcinomatosis, General weakness, Bronchial secretion, Pneumonia, Anemia, Others (please state)

Public Awareness, Knowledge of Availability, and Readiness for Cancer Palliative Care Services: A Population-Based Survey across Four Regions in Japan

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Abstract

Background: This study explores the distribution of public awareness, knowledge of availability, and readiness for palliative care services, and the perceived reliability of information resources as part of a nationwide palliative care implementation intervention in Japan (Outreach Palliative Care Trial of Integrated Regional Model [OPTIM]).

Methods: A cross-sectional anonymous questionnaire survey was conducted, and 3984 responses were used in the final analysis.

Results: A total of 63.1% of respondents admitted having no knowledge about palliative care, while 0.5% of respondents were using palliative care services. Respondents who knew about palliative care services, yet did not know about their availability were 18.6% of all respondents. Respondents who had cancer-related experiences were more likely to be aware of palliative care compared to the general population and availability of palliative care services. Only awareness of palliative care was significantly associated with two typical images, while cancer-related experiences were not.

Conclusion: Findings show that the public awareness of palliative care services and their availability is insufficient, and cancer-related experiences affect awareness of cancer palliative care but not directly related to typical images for palliative care such as care for patients close to death.

Introduction

PALLIATIVE CARE for patients with cancer in Japan has rapidly progressed in the past decade, but many critical issues still need to be resolved. To improve overall cancer care (including palliative care) throughout Japan, the Cancer Control Act was established in April 2007. To facilitate the dissemination of palliative health services, the Ministry of Health, Labour, and Welfare focuses on palliative care concerns, and has launched a multiple nationwide project for community-based intervention trials in four areas in Japan, as described via the Outreach Palliative Care Trial of Integrated

Regional Model (OPTIM) study.¹ The study includes creating community-based specialized palliative care teams, developing educational materials, educating community medical staff on palliative care, and campaigning to disseminate knowledge relevant to specialized palliative care programs to patients, families, and the general public.

The reason that this trial includes the campaign is that the general public does not have adequate knowledge about palliative care concepts.¹ For example, only 34% of the general population knows about palliative care units in Japan, whereas the rate of knowledge in the United Kingdom is 70%.^{2,3} Of note, although 32% of the Japanese general public

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believes that palliative care units are places where patients simply wait for death, these misperceptions are significantly decreased after individuals actually use a specialized palliative care service.^{3,4} Thus, the lack of knowledge and general misperceptions regarding palliative care are considerable barriers to palliative care and appropriate pain control, and further education of the general public would be of great value.

This research has revealed prevalence and relationships among general knowledge and perceptions for barriers but has not clarified intentions, acceptance, and knowledge of the availability if the people use the services in a local region. To develop effective strategies to promote the enhanced utilization of palliative care services, we must explore the demographics (such as gender, age, or residential status) and barriers related to not only general public awareness of palliative care, but also intention for use, knowledge of the availability, and actual rate of service utilization. As the previous study revealed,^{3,4} it is also expected that opinions of palliative care, which are supposed to be formed from personal experiences, affected not only general awareness but intention or readiness. In particular, sources to form opinions of cancer palliative care are supposed to be cancer-related experiences as the patient themselves or as the patient's family members.⁵

This article, therefore, has the following aims: (1) to clarify the distribution of public awareness, knowledge of availability, and readiness for palliative care services, (2) to clarify the differences in awareness, knowledge, and readiness among demographic variables and between healthy individuals and those who have cancer-related experiences (either personally or via family), (3) to clarify the differences of typical opinions of palliative care in awareness, knowledge, and readiness, in relation to cancer-related experiences and other demographics.

Methods

Subjects

This study was a part of OPTIM, and the overall protocol has been provided in detail elsewhere.¹ Our investigation was a survey of the general population, including patients with cancer and their families in four regions from the OPTIM study. These consisted of a large urban area (Chiba), an urban area (Shizuoka), and two rural areas (Nagasaki and Yamagata). The first three areas are places in which palliative care services are available and the last one (Yamagata) is, in comparison, a location in which services are practically unavailable.

A cross-sectional anonymous questionnaire survey was conducted in a sample of the general population selected by stratified two-stage random sampling in each area (2,000 subjects in each of four regional areas). As a result, this sample included cancer patients (outpatients receiving or having received cancer treatment). We mailed a total of 8,000 questionnaires to these potential participants in June 2007 and on a later date sent a reminder postcard. On the questionnaire, we explained the aim of the study and regarded completion and return of the questionnaire as consent for participation in this study. The institutional review boards of Tokyo University confirmed the ethical and scientific validity.

Questionnaire

We developed our own questionnaire on the basis of the aims of OPTIM and through literature reviews, existing sur-

veys, and consensus among the authors as follows. On the cover page of the questionnaire, palliative care was defined as: attempts to make patients with cancer and their family less anxious or to experience less pain, to immediately start consultations about anxiousness and pain regardless of the state of cancer development, and in addition to treatment, to facilitate the teamwork of doctors and nurses in the practice of treating patients who are suffering from the physical and/or emotional effects of cancer.

The questionnaire included three parts. First, it included questions covering the demographic information of the subjects (age, gender, length of living in each area) and whether subjects are undergoing (or had undergone) cancer treatment or had family members who had experiences of undergoing cancer treatment. Second, it included an item originally designed to determine the extent of public awareness, knowledge of availability, and readiness and actual utilization of palliative care service. We asked the participants to choose only one option from six sequential options regarding palliative care and such services: (1) no knowledge (I have no knowledge regarding palliative care; I); (2) lack of knowledge of availability (I have heard of palliative care, but I do not know if there are any available facilities in my municipality; II); (3) no interest (I know about palliative care and its availability in my residential area, but I have no interest in the service; III); (4) no intention (I know about palliative care and its availability in my residential area, and have an interest, but I have no intention of using the service as a patient or for a family member; IV); (5) preparation (I am preparing to use palliative care services; V); (6) under utilization (I currently use palliative care services; VI; Fig. 1). We converted the subjects' responses for these responses (I to VI) into a numeric

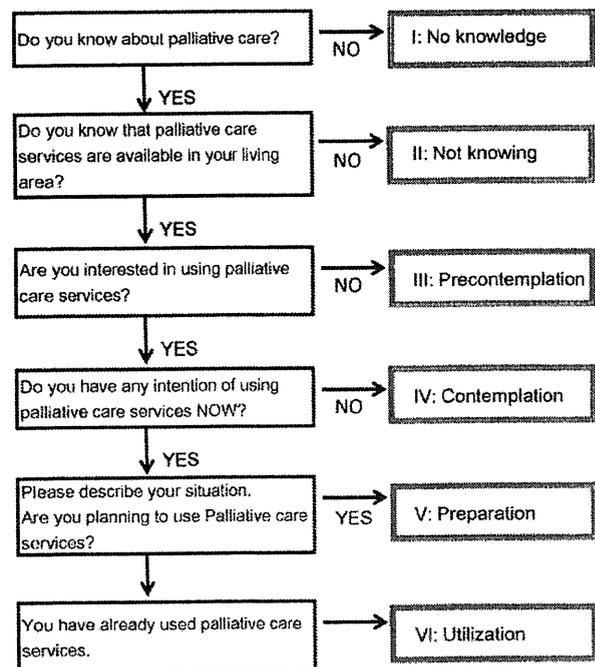


FIG. 1. Public awareness and readiness for palliative care services.

TABLE 1. DEMOGRAPHIC BACKGROUND OF THE RESPONDENTS

	Total		General population		Those who have experienced cancer	
	(n = 3190)		(n = 1330)		(n = 1860)	
	n	%	n	%	n	%
Age years						
40-49	705	22.1	302	22.7	403	21.7
50-59	1020	32.0	404	30.4	616	33.1
60-69	898	28.2	385	28.9	513	27.6
70-	567	17.8	239	18.0	328	17.6
Gender						
Male	1,426	44.7	666	50.1	760	40.9
Female	1,764	55.3	664	49.9	1100	59.1
Region (Prefecture)						
Chiba	945	29.6	413	31.1	532	28.6
Shizuoka	785	24.6	364	27.4	421	22.6
Nagasaki	733	23.0	274	20.6	459	24.7
Yamagata	727	22.8	279	21.0	448	24.1
Length of living in each area						
<1 year	38	1.2	22	1.7	16	0.9
1-5 year	131	4.1	60	4.5	71	3.8
>5 year	3,021	94.7	1,248	93.8	1,773	95.3

scale ranging from 1 to 6 points. Finally, three items related to palliative care beliefs/concepts ("Palliative care relieves pain and distress"; "Palliative care is used with chemotherapy and radiotherapy"; "Palliative care is for patients close to death.")^{3,5} were presented, and responses were measured on a five point Likert-type scale from 1) strongly disagree to 5) strongly agree.

Analysis

Descriptive analyses were carried out summarizing the subjects' backgrounds, awareness of palliative care and utilization of such services, and scores for reliable media source opinions for total and each sampled area. Then we explored

the distribution of knowledge and readiness of palliative care and utilization of the service associated with each sampled area and experiences of having cancer. These analyses were performed after dividing subjects into two groups (the general population and cancer patients/survivors) and we used the χ^2 test and Cramer's V to clarify relations between categorical variables and using coefficient correlation and relations between two categorical variables and ordered variables two-way analysis of variance (ANOVA). We conducted all statistical analyses using the Statistical Package for the Social Sciences (version 15.0.1.1J, SPSS Inc., Chicago, IL) software package. The significance level was set at $p < 0.05$ (two-tailed).

Results

Of the 8000 questionnaires delivered to the sampled subjects, 26 were returned as undeliverable and 3984 were returned (response rate, 49.8%). Of those returned, 3190 were considered valid for statistical analyses. The rest ($n = 794$) were invalid and were excluded from the analyses since major information was lacking. Thus, the final rate of valid replies was 39.9%.

A total of 1860 respondents (58.3% of all respondents) were identified as "those having experienced cancer" and the rest were identified as belonging to the "general population." Table 1 summarizes the background of respondents.

Public awareness, knowledge, and readiness for palliative care

A total of 63.1% of respondents admitting to having "no knowledge" of palliative care while 0.5% of respondents were actually using palliative care services. Respondents who knew about palliative care yet did not know about the availability of palliative care in their living area were 18.6% of all respondents. Female respondents were more likely to know about palliative care than male respondents ($\chi^2 = 55.09$, $df = 1$, $p < 0.001$, Cramer's V = 0.131), while age and length of living in each area were not significantly associated with

TABLE 2. PUBLIC AWARENESS AND READINESS FOR PALLIATIVE CARE SERVICES

	Total		General population		Those who have experienced cancer		Chiba		Shizuoka		Nagasaki		Yamagata	
	(n = 3190)		(n = 1330)		(n = 1860)		(n = 945)		(n = 785)		(n = 733)		(n = 727)	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
I: No knowledge	2012	63.1	909	68.3	1,103	59.3	546	57.8	518	66.0	482	65.8	466	64.1
Having Knowledge	1178	36.9	421	31.7	757	40.7	399	42.2	267	34.0	251	34.2	261	36.0
II: Not knowing	593	18.6	230	17.3	363	19.5	201	21.3	96	12.2	115	15.7	181	24.9
III: Not interested	24	0.8	13	1.0	11	0.6	5	0.5	12	1.5	5	0.7	2	0.3
IV: No Intention	499	15.6	167	12.6	332	17.8	171	18.1	142	18.1	116	15.8	70	9.6
V: Preparation	46	1.4	10	0.8	36	1.9	18	1.9	14	1.8	10	1.4	4	0.6
VI: Under Utilization	16	0.5	1	0.1	15	0.8	4	0.4	3	0.4	5	0.7	4	0.6

Cancer experience \times Awareness (No knowledge vs. Having knowledge): $\chi^2 = 27.24$, $df = 1$, $p < 0.01$, Cramer's V = 0.092.

Four areas \times Awareness (No knowledge vs. Having knowledge): $\chi^2 = 16.83$, $df = 3$, $p < 0.01$, Cramer's V = 0.073.

Within People who Knew Palliative Care:

Cancer experience \times Availability: $\chi^2 = 4.83$, $df = 1$, $p < 0.028$, Cramer's V = 0.064

Four areas \times Availability: $\chi^2 = 61.88$, $df = 3$, $p < 0.01$, Cramer's V = 0.229.

Availability: No awareness of availability vs. awareness of availability.

either awareness, knowledge or readiness. Respondents who had cancer-related experiences (either themselves or via family members) were more likely to be aware of palliative care compared to the general population ($\chi^2 = 27.24, df=1, p < 0.001$, Cramer's $V = 0.092$). Also among people who knew palliative care, there was a significant association between cancer experience and knowledge for availability or readiness ($\chi^2 = 4.83, df=1, p = 0.028$, Cramer's $V = 0.064$). Table 2 also shows that awareness and knowledge of and readiness for palliative care was significantly different among each area ($\chi^2 = 16.84, df=3, p < 0.001$, Cramer's $V = 0.073$). Particularly, respondents in Chiba-city have more knowledge about palliative care than individuals from the other three areas.

Typical images of palliative care

Table 3 indicates the results of two-way ANOVA for responses on three typical images of palliative care using awareness and cancer experiences as dependent variables, when age, gender, and area were controlled. First, the analysis revealed the differences in perception for three common images of palliative care between individuals having no knowledge of palliative care and those who had knowledge. Significant differences were observed between them in terms of images of palliative care in the following dimensions: "Palliative care relieves pain and distress" (general population; $F(1, 3186) = 33.02, p < 0.001$, Those having experienced cancer; $F(1, 3186) = 60.85, p < 0.001$) and "Palliative care is for patients close to death" (general population; $F(1, 3186) = 13.62, p < 0.01$, Those having experienced cancer; $F(1, 3186) = 13.00, p < 0.01$). People who know about palliative care have an overall positive image of it, tend to think that palliative care brings symptom control to the patients, and is specialized for terminally ill patients. There were no significant differences between the general population and cancer-experienced individuals on the three typical opinions of palliative care, and there were no significant interactions between cancer experience and knowledge of palliative care.

Discussion

This study is the first attempt to understand the public awareness of palliative care and utilization of services based on a nationwide sample in Japan. A clarification of these findings will hopefully contribute to understanding general perception of cancer palliative care and its variations by experiences related to cancer.

The primary aim of this study was to clarify the distribution of public awareness, knowledge of availability, and readiness for palliative care services. Per the results of the survey, 63.1% of all the participants had no knowledge of palliative care services. These results demonstrate a low public awareness of the Japanese palliative care services compared with other countries.^{2,3} Moreover, among those who did possess knowledge about palliative care in general, 18% did not know about the specific availability of the service in their region. These results indicate that over 80% of people do not have sufficient knowledge of palliative care to take advantage of its services, and it is therefore important to promote a more comprehensive understanding of palliative care (including availability) to the general population.

Second, our data clarified that cancer experiences were related to a greater knowledge of and readiness for palliative

TABLE 3. MEAN SCORES OF IMAGES OF PALLIATIVE CARE BY AWARENESS AND EXPERIENCE OF CANCER

Awareness	Experience of Cancer	General population						Those who have experienced cancer						Main effect					
		Total		No knowledge		Having knowledge		Total		No knowledge		Having knowledge		Exp. Cancer		Awareness		Interaction	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	F	P	F	P	F	P
	Palliative care relieves pain and distress	3.81	0.80	3.72	0.83	4.00	0.70	3.88	0.85	3.76	0.88	4.06	0.76	2.75	.07	74.73	.00	0.08	.78
	Palliative care is used with chemotherapy and radiotherapy	3.51	0.90	3.53	0.85	3.47	1.00	3.51	0.97	3.50	0.94	3.52	1.02	0.18	.68	0.04	.85	1.09	.30
	Palliative care is for patients close to death	3.19	1.22	3.12	1.12	3.34	1.26	3.22	1.29	3.15	1.27	3.32	1.30	0.01	.91	15.30	.00	0.36	.55

The results by two-way analysis of variance (ANOVA) were shown when age, gender, and area were controlled as covariates.

care, but did not significantly relate to specific images commonly associated with palliative care. From our data it is difficult to strictly compare patients with cancer with the overall population since the sample surveyed in this study was from the general population, and therefore only a small number of patients with cancer were included. However, people who had experiences with cancer (either personally or via family members) recognized both the term and meaning of palliative care. Also, people who had knowledge of palliative care have an overall positive image of it, tend to think that palliative care brings symptom control to the cancer patients, and is specialized for terminally ill patients. Generally, as the images will be reinforced by actual experiences, those who experienced as patients with cancer or as family members might see or hear the care at late stage of the cancer process. This indicated current situation that palliative care for patients with cancer in general Japanese hospitals was mainly provided for late-stage cancer and that contributed to form the general opinions of palliative care. Also, the perception that palliative care is primarily for terminally ill patients care may cause late referrals to palliative care services.^{5,6} These suggest that images derived from actual experiences will have strong impact for actual decision making for choosing or readiness for the services when the patients need. Therefore, it is important to provide proper and detailed information about palliative care services, as well as information regarding the availability of services, within areas of residence. We still have very big challenges to modify the general perception of cancer palliative care, because there is no known effective method to achieve this. Educational approaches in community may become one of the solutions, and will especially be needed to help people recognize that palliative care services accept even patients with early-stage cancer.

This study has several limitations. First, this study did not include measurements for the effectiveness of each medium and we cannot discern which media sources and what kind of information directly led individuals to be more aware of palliative care and to use these services. Second, we did not explore the possible associations between the awareness of palliative care and amounts of actual cancer treatment undergone. A more detailed survey will need to be conducted in order to clarify the above items. Moreover, it would be useful to better explore the insights of specific populations. In future surveys, it should be possible to design more directed questionnaires to support hypothesis-based studies.

In conclusion, the public awareness of palliative care services and their availability is insufficient. Those with cancer experiences were more aware of palliative care and their availability than the general population. Only people who were aware of palliative care developed two typical images, while those with cancer-related experiences did not. Ap-

proaches to inform the general population (including those with cancer-related experiences) about palliative care have already been taken in Japan. However, more effective methods should be developed. We feel that it is possible to eliminate many existing barriers to the improvement of end-of-life quality, and the dissemination of knowledge related to such care and treatment in Japan should be a top priority.

Author Disclosure Statement

No competing financial interests exist.

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Burden on Oncologists When Communicating the Discontinuation of Anticancer Treatment

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Objective: Communicating the discontinuation of anticancer treatment to patients is a difficult task. The primary aim of this study was to clarify the level of oncologist-reported burden when communicating about discontinuation of an anticancer treatment. The secondary aims were (i) to identify the sources of burden contributing to their levels and (ii) to explore the useful strategies to alleviate their burden.

Methods: A multicenter nationwide questionnaire survey was conducted on 620 oncologists across Japan (response rate, 67%).

Results: High levels of perceived burden were reported by 47% of respondents, and 17% reported that they sometimes, often or always wanted to stop oncology work because of this burden. There was a significant association between high levels of burden and: a feeling that breaking bad news would deprive the patient of hope; concern that the patient's family would blame the oncologist; concern that the patient may lose self-control; and a feeling that there was not enough time to break the bad news. Strategies perceived to be useful by oncologists included training in how to effectively communicate to patients discontinuation of anticancer treatment, a reduction in total workload to allow sufficient time to break bad news, and development of a multidisciplinary model to facilitate cooperation with other professionals and facilities.

Conclusions: Many oncologists reported high levels of burden relating to communication of discontinuation of anticancer treatment. A specific communication skills training program, sufficient time for communication and development of a multidisciplinary model could help alleviate the burden on oncologists.

Key words: burden – oncologists – communicating

INTRODUCTION

Breaking bad news is a stressful experience for the oncologist (1–6); moreover, it contributes to diminished confidence in communication skills and higher expectations of a negative outcome. The experience of dealing with distressed, angry and reproachful patients is also associated with

burnout (7). Previous studies have suggested that oncologist-perceived burden is caused by several factors associated with the patient, the patient's family, the oncologists themselves and the medical environment (8,9). An oncologist's communication style affects the extent of emotional distress felt by the patient and the patient's family (10). The most

difficult conversations involved discussing the discontinuation of curative treatment and admission to a hospice (4); therefore, it is important to clarify the extent of the burden experienced by the oncologist when communicating the discontinuation of anticancer treatment.

Many studies have been conducted to clarify patients' preferences and experiences in receiving bad news in oncology settings (11–14), and several clinical guidelines and expert recommendations have been published (1,15,16). Moreover, recent intervention trials have demonstrated that structured communication skills training can improve physicians' skills in breaking bad news (17–19).

Despite the existence of many experience-based recommendations and studies into the psychological effects on patients and their families, to our knowledge, only a few studies have explored the extent of the burden on oncologists when communicating the discontinuation of anticancer treatment. Therefore, the aims of the present study were to: (i) clarify the level of oncologist-perceived burden when communicating the discontinuation of anticancer treatment to patients; (ii) identify factors contributing to this burden; and (iii) explore potentially useful strategies to alleviate oncologist-perceived burden.

PATIENTS AND METHODS

SUBJECTS

The present study was a cross-sectional anonymous multicenter nationwide survey of oncologists in cancer centers across Japan. Questionnaires were mailed to 620 eligible oncologists in February 2007 and again 2 months later to those oncologists who had not yet responded. If the oncologists did not want to participate in the survey, we requested that they return the questionnaire without replying to any of the questions. The participating institutions were 12 cancer centers selected from the 15 cancer centers that make up the Japanese Association of Clinical Cancer Centers.

We recognized potential sampling bias with this method, but decided to use convenient institutions because we felt that the risk of sampling bias would be minimized by a large number of participants.

Eligibility criteria for the participants were as follows: (i) oncologists specializing in gastroenterology, respiratory medicine, breast oncology, hematology, medical oncology, urology, gynecology, otolaryngology, orthopedics, pediatrics, neurosurgery or dermatology; and (ii) the oncologist's name had to appear on his/her medical facility's website. The website of all Japanese cancer centers shows the complete list of all physicians in that center. We regarded the completion and return of the questionnaire as consent to participate in the study. The institutional review board of the principal investigator confirmed the study's ethical and scientific validity.

QUESTIONNAIRE

A questionnaire was developed based on a review of the literature (2,3,8,9) and discussions among the authors. Content validity was assessed by full agreement of the authors, and face validity was confirmed by a pilot test of 20 potential participants.

As background data, oncologists reported their age, gender, clinical experience in oncology, specialty, previous experience with formal communication skills training, attitudes toward disease and prognosis disclosure for terminally ill patients, and the number of patients to whom they would usually communicate the discontinuation of anticancer treatment annually.

The primary endpoint was oncologist-perceived burden imposed by communicating the discontinuation of anticancer treatment to patients. Given the lack of existing validated instruments, the following outcome parameters were developed by the authors. First, the level of oncologist-perceived burden was evaluated by the question, 'What level of burden do you feel when you communicate with patients about discontinuation of anticancer treatment?' Answers to this question were rated on a five-point scale ranging from 1 (I do not feel any burden at all) to 5 (I feel a heavy burden). In addition, we investigated the impact of the burden on motivation to continue working in oncology by asking oncologists, 'How often do you feel some level of desire to stop oncology work due to this burden'. Again, answers were rated on a five-point scale ranging from 1 (not at all) to 5 (always).

We extracted 20 potential sources of burden from the literature (8,9) and questioned oncologists on their level of perceived burden relating to each of these sources. Oncologists were requested to rate their degree of burden on a five-point Likert-type scale ranging from 1 (I do not feel any burden) to 5 (I feel a heavy burden).

In addition, we developed a list of 14 potentially useful strategies to alleviate oncologists' perceived burden derived from a previous report (20) and from a qualitative study using in-depth interviews with three oncologists. The oncologists were requested to rate their level of agreement with each of these strategies on a six-point Likert-type scale ranging from 1 (not necessary) to 6 (absolutely necessary).

STATISTICAL ANALYSES

For comparisons, respondents were classified into two groups: oncologists who rated themselves as 'heavily burdened' or 'burdened' (high-level burden) and then all other oncologists (low-level burden). This cut-off point was selected on the basis of the actual distribution of the data and enabled the entire sample to be divided into two equal-sized groups for comparison.

To explore the determinants of levels of oncologist-reported burden, we screened 7 background variables and 20 sources of burden. Univariate analyses were performed using Student's *t*-test or the χ^2 test, as appropriate. To assess the

results in 20 comparisons, the *P* value necessary for statistical significance was defined as 0.0025 (0.05/20) using the Bonferroni correction. Multiple logistic regression analyses were then performed using a forward elimination procedure. All potential predictors with statistical significance as ascertained by the univariate analyses were included as independent variables in multiple logistic regression analyses. All analyses were performed using SPSS version 11.0.

RESULTS

Of the 620 questionnaires mailed to oncologists, 10 were undeliverable because of incorrect addresses and 416 oncologists returned questionnaires, resulting in a response rate of 67%. Of the questionnaires returned, 3 were excluded due to missing data in primary endpoints and 19 were returned without any of the questions being answered. Thus, a total of 394 responses were analyzed, giving an effective response rate of 67% (394/591). The oncologists' characteristics are summarized in Table 1.

Overall levels of oncologist-reported burden relating to communication of the discontinuation of anticancer treatment were: heavily burdened, 13%; burdened, 34%; slightly burdened, 37%; not particularly burdened, 13%; or not burdened at all, 1.3% (Table 2). Clinical oncologists rated their level of desire to stop oncology work because of this burden as: not at all, 55% (*n* = 218); rarely, 26% (*n* = 106); sometimes, 11% (*n* = 45); often, 5.3% (*n* = 21); or always, 1.0% (*n* = 4).

The oncologists' ratings of the 20 potential sources of burden relating to the communication of discontinuation of anticancer treatment are given in Table 3. More than 20% of respondents reported feeling 'heavily burdened' or 'burdened' by the following factors: insufficient time to break bad news; feeling that breaking bad news will deprive the patient of hope; the possibility that the breaking of bad news is interrupted by other tasks; concern that the patient may lose self-control; opposition from the patient's family to breaking bad news to the patient; the fact that evidence from a certain group is not applicable to every patient; and, finally, an inability to answer philosophical questions regarding death and the value of life.

Univariate analysis (Table 4) showed that oncologists with high-level burden were significantly more likely to report the following concerns: feeling that breaking bad news will deprive the patient of hope; concern that the oncologist may be blamed by the patient's family; concern that the patient may lose self-control; insufficient time to break bad news; possibility that the time for breaking bad news is interrupted by other tasks; opposition from the patient's family to breaking bad news to the patient; evidence from a certain group is not applicable to every patient; an inability to answer philosophical questions regarding death and the value of life; feeling a sense of guilt because oncologists cannot provide adequate treatment; concern that the oncologist may be

Table 1. Background of respondent oncologists

Age (years)	
Median	43
Inter-quartile range	37–50
Male gender [no. (%)]	371 (91)
Oncology experience (years)	
Median	15
Inter-quartile range	8–20
Number of communications concerning discontinuation of anticancer treatment annually	
Median	8
Inter-quartile range	3–15
Attitudes toward disease and prognosis disclosure for terminally ill patients ^a [no. (%)]	
Routinely, without patient's request	55 (14)
If necessary, without patient's request	234 (59)
If necessary, and if the patient explicitly asks	78 (19)
Routinely, and if the patient explicitly asks	21 (5.3)
Specialty ^a [no. (%)]	
Gastroenterology	116 (30)
Respiratory medicine	50 (13)
Breast oncology	42 (10)
Hematology, medical oncology	42 (10)
Urology	32 (8.3)
Gynecology	30 (7.8)
Otolaryngology	24 (6.2)
Orthopedics	19 (4.9)
Neurosurgery	12 (3.1)
Pediatrics	13 (3.3)
Dermatology	5 (1.3)
Received formal training in breaking bad news [no. (%)]	59 (16.5)

^aPercentages do not add up to 100% because of missing data.

criticized by the patient; scientific evidence is not always predictable or reproducible; opposition from patients to breaking bad news to their families; fear of talking to patients whom the oncologist do not know very well; lack of confidence in oncological medical skills; uneasiness in changing roles from curing patients to caring for patients; and a concern that an objective stance cannot be maintained if the oncologist becomes too intimate with the patient.

Multiple logistic regression analysis (Table 4) revealed that independent determinants of high-level burden were: feeling that breaking bad news will deprive the patient of hope; concern that the oncologist may be blamed by the patient's family; concern that the patient may lose self-control; and insufficient time to break bad news. Seven backgrounds of the oncologist, including age, specialty, attitudes toward disease and prognosis disclosure for terminally ill patients, oncology experience, previous experience with

formal communication skills training, or number of communications concerning discontinuation of anticancer treatment annually, are not the determinants of levels of oncologist-reported burden.

Strategies to relieve oncologist-reported burden when communicating the discontinuation of anticancer treatment were also investigated. Table 5 lists the percentage of

Table 2. Levels of oncologist-reported burden when communicating discontinuation of anticancer treatment

	No. (%)
Heavily burdened	53 (13)
Burdened	136 (34)
Slightly burdened	147 (37)
Not particularly burdened	53 (13)
Not burdened at all	5 (1.3)

Table 3. Sources of oncologist-reported burden when communicating discontinuation of anticancer treatment

	'Not burdened at all', no. (%)	'Not particularly burdened', no. (%)	'Slightly burdened', no. (%)	'Burdened', no. (%)	'Heavily burdened', no. (%)
Insufficient time to break bad news	12 (3.1)	61 (15)	90 (22)	151 (36)	82 (20)
Feeling that breaking bad news will deprive the patient of hope	12 (3.1)	34 (8.7)	152 (37)	135 (33)	63 (15)
Possibility that the time for breaking bad news is interrupted by other tasks	18 (4.6)	86 (21)	102 (25)	120 (29)	71 (17)
Concern that the patient may lose self-control	16 (4.1)	83 (21)	163 (39)	108 (26)	25 (6.0)
Opposition from family members to breaking bad news to the patient	39 (9.9)	96 (24)	134 (32)	91 (22)	36 (8.7)
Evidence from a certain group does not always apply to the patient	43 (10)	122 (31)	133 (32)	70 (17)	28 (6.7)
The oncologist is unable to answer philosophical questions regarding death and the value of life	37 (9.5)	122 (31)	140 (34)	74 (18)	21 (5.0)
Concern that the oncologist may be blamed by the patient's family	73 (18)	141 (35)	104 (25)	63 (15)	15 (3.6)
Feeling a sense of guilt because oncologists cannot provide effective anticancer treatment	83 (21)	140 (35)	102 (25)	56 (14)	14 (3.4)
Opposition from patients to breaking bad news to their families	70 (17)	171 (43)	87 (21)	47 (11)	19 (4.6)
Concern that the oncologist may be criticized by the patient	75 (19)	149 (37)	107 (26)	56 (14)	9 (2.2)
Fear of talking to patients whom oncologist does not know very well	84 (21)	138 (35)	108 (26)	54 (13)	10 (2.4)
Scientific evidence is not always predictable or reproducible	43 (10)	122 (31)	133 (32)	70 (17)	28 (6.7)
Lack of confidence in oncological medical skills	63 (16)	172 (43)	106 (26)	49 (12)	5 (1.2)
Concern that the oncologist does not have the latest knowledge	80 (20)	179 (45)	97 (23)	36 (8.7)	2 (0.5)
Uncasiness in changing roles from curing patients to caring for patients	111 (28)	176 (44)	68 (16)	34 (8.2)	4 (1.0)
Concern that oncologists cannot answer all knowledge-based questions posed by the patient	94 (24)	186 (47)	81 (20)	29 (7.0)	3 (0.7)
Oncologists fear their own illness and death	122 (31)	178 (45)	62 (15)	26 (6.3)	4 (1.0)
Concern that an objective stance cannot be maintained if the oncologist becomes too intimate with the patient	89 (22)	195 (49)	85 (20)	24 (5.8)	3 (0.7)
Fear that oncologists themselves may become very emotionally involved, such as expressing anger or sadness	107 (27)	209 (53)	59 (14)	18 (4.3)	0 (0)

Percentages do not add up to 100% due to missing data.

oncologists who agreed with each of the 14 strategies suggested to alleviate oncologists' perceived burden. More than 20% of respondents considered the following strategies to alleviate oncologist-reported burden as 'absolutely necessary': that an inpatient hospice is readily available and that patient information is exchanged smoothly among facilities; quiet and private rooms are available for breaking bad news; after breaking bad news, a nurse, psychologist or medical social worker is available to provide emotional support; and a reduction in oncologists' total workload to give them sufficient time to break bad news.

DISCUSSION

To the best of our knowledge, this is the first large multicenter nationwide survey to investigate oncologist-reported burden when communicating the discontinuation of anticancer treatment. The first important finding of the present study was the demonstration of the oncologist-reported burden when

Table 4. Determinants of oncologist-reported burden when communicating discontinuation of anticancer treatment

	Univariate analyses			Multivariate analyses	
	Low level (n = 206)	High level (n = 190)	P value	Odds ratio (95% CI)	P value
Feeling that breaking bad news will deprive the patient of hope	3.1 ± 0.9	3.8 ± 0.8	<0.01	1.8 (1.4–2.5)	<0.01
Concern that the oncologist may be blamed by the patient's family	2.1 ± 0.8	2.8 ± 1.1	<0.01	1.5 (1.2–1.9)	<0.01
Concern that the patient may lose self-control	2.8 ± 0.8	3.4 ± 0.9	<0.01	1.4 (1.1–1.9)	<0.01
Insufficient time to break bad news	3.3 ± 1.0	3.8 ± 0.9	<0.01	1.2 (0.99–1.6)	0.049
Possibility that the time for breaking bad news is interrupted by other tasks	3.1 ± 1.0	3.5 ± 1.1	<0.01		
Opposition from family members to breaking bad news to the patient	2.7 ± 1.0	3.2 ± 1.1	<0.01		
Evidence from a certain group does not always apply to every patient	2.6 ± 0.9	3.0 ± 1.1	<0.01		
The oncologist is unable to answer philosophical questions regarding death and the value of life	2.5 ± 0.8	3.0 ± 1.0	<0.01		
Feeling a sense of guilt because oncologists cannot provide effective anticancer treatment	2.1 ± 0.9	2.7 ± 1.1	<0.01		
Concern that the oncologist may be criticized by the patient	2.1 ± 0.8	2.7 ± 1.0	<0.01		
Scientific evidence is not always predictable or reproducible	2.3 ± 0.8	2.7 ± 1.0	<0.01		
Opposition from patients to breaking bad news to their families	2.2 ± 0.8	2.6 ± 1.2	<0.01		
Fear of talking to patients whom the oncologist does not know very well	2.2 ± 0.9	2.5 ± 1.1	<0.01		
Lack of confidence in oncological skills	2.2 ± 0.8	2.5 ± 0.9	<0.01		
Uncasiness in changing roles from curing patients to caring for patients	1.9 ± 0.8	2.3 ± 0.9	<0.01		
Concern that an objective stance cannot be maintained if the oncologist becomes too intimate with the patient	1.9 ± 0.7	2.2 ± 0.8	<0.01		
Concern that the oncologist does not have the latest knowledge	2.1 ± 0.8	2.2 ± 0.9	0.24		
Fear that the oncologist may become very emotionally involved, such as expressing anger or sadness	1.9 ± 0.6	2.0 ± 0.8	0.24		
Concern that the oncologist cannot answer all knowledge-based questions posed by the patient	2.0 ± 0.8	2.2 ± 0.9	0.34		
Fear of the oncologists' own illness and death	1.9 ± 0.7	2.0 ± 1.0	0.78		

Oncologists who rated their burden level as heavily burdened or burdened (high-level group) are compared as a single group against all others (low-level group). Multiple logistic regression analyses used the high-level burden group as the dependent variable. Each condition was rated on a scale of 1 (do not feel any burdened) to 5 (feel heavily burdened).

communicating the discontinuation of anticancer treatment to patients. Of the oncologists surveyed, 47% reported high levels of burden when communicating the discontinuation of anticancer treatment. Moreover, 17% of the oncologists surveyed reported that they sometimes, often or always want to stop oncology work because of this burden. Multiple studies have revealed that a major contributor to physicians' burnout is communication with patients and families (21–26). The present study confirms that communication with patients and families is a major source of oncologists' work-related stress. In particular, the present study highlights that communicating the discontinuation of anticancer treatment can be a heavy burden for oncologists and that it is urgent that strategies are developed to alleviate this burden.

The present study also evaluated oncologists' opinions regarding the strategies likely to be effective in reducing this burden. The strategies perceived to be potentially effective

included: ready availability of an inpatient hospice and smooth exchange of patient information among facilities; availability of quiet and private rooms for the breaking of bad news; the provision of emotional support from a nurse, psychologist or medical social worker after the patient has received the bad news; and a reduction in oncologists' total workload to give them sufficient time to break the bad news.

Moreover, multiple logistic regression analyses revealed that independent determinants of high-level burden were: a feeling that breaking bad news will deprive the patient of hope; concern that the oncologist may be blamed by the patient's family; concern that the patient may lose self-control; and insufficient time to break bad news.

These results reveal that there are three main areas that, if addressed, could significantly alleviate oncologist-reported burden: (i) improving oncologists' communication skills; (ii) allowing sufficient time for communication with patients and

Table 5. Oncologists' opinion on strategies suggested to alleviate the burden associated with communicating discontinuation of anticancer treatment

	Necessary (%)	Absolutely necessary (%)
Inpatient hospice is readily available and patient information is exchanged smoothly among facilities	49	36
Quiet and private rooms are available for breaking bad news	56	25
After breaking bad news, a nurse, psychologist or medical social worker is available for emotional support	63	24
A reduction in the oncologist's total workload to give sufficient time for the breaking of bad news	54	23
While breaking bad news, a nurse, psychologist or medical social worker is available for emotional support	56	13
Having an opportunity to attend educational workshops about how to break bad news	51	6.8
A psychiatrist or psychologist is available for consultation if the oncologist feels overburdened	42	6.6
Before breaking bad news, having the opportunity to discuss the situation with colleagues and receive advice	54	6.1
After breaking bad news, specialists in physician-patient communication are available to give advice to the oncologist about how they should break bad news	60	5.5
Having opportunities to share experiences and feelings with the colleagues within the hospital	51	5.5
Before breaking bad news, information about what the patient and family want to know is available from nurses	65	5.0
Before breaking bad news, the oncologist receives a memo from the patient and family about what they want to know	61	3.8
After breaking bad news, the oncologist receives a questionnaire to identify what the patient and the family are feeling and thinking	65	3.3
Have an opportunity to share experiences and feelings with colleagues from other hospitals	47	3.0

their families; and (iii) developing a multidisciplinary care model with other professionals and facilities.

This study emphasizes the importance of communication skills. Previous studies suggested that communication skills training increases both patient satisfaction (27,28) and oncologists' confidence (29). However, to the best of our knowledge, existing communication skills training does not specifically address issues surrounding the discontinuation of anticancer treatments. The present study highlights the importance, under these difficult circumstances, of helping the patient maintain hope, dealing with the oncologists' fear of being blamed by the patients and their families, and strengthening patient self-control. The results indicate that a communication skills training program specifically targeting skills for communicating the discontinuation of anticancer treatment needs to be developed. This program should include strategies to deal with oncologists' concerns, such as that by breaking bad news to a patient, the oncologist will deprive the patient of hope, that the oncologist may be blamed by the patient's family and that the patient may lose self-control.

The oncologists surveyed stressed the importance of a reduction in their total workload to give them sufficient time to facilitate effective communication with patients. A previous study suggested that physicians face excessive workloads that are associated with a lower quality of patient care (30). Several studies have suggested that the perception of having insufficient time to communicate with patients is the factor most strongly associated with oncologist burnout (22,31). In Japan, according to a 2008 revision by the Ministry of Health, Labor and Welfare in Japan of the payment of fees for medical treatment, an additional fee for

outpatient care can be applied when a physician is directly involved in clinical practice for 5 min or longer. This indicates that the Ministry of Health, Labor and Welfare in Japan defines the time for consultation and implies that most physicians in Japan are too busy to spend 5 min or more on each outpatient. These results stress that a reduction in physicians' workload is vital.

Many oncologists surveyed in the present study agreed with the importance of multidisciplinary cooperation with other professionals and facilities. Two types of cooperation were considered to be particularly valuable: (i) that after breaking bad news, a nurse, psychologist or medical social worker was available to follow up with patients and their families; and (ii) the availability of other facilities, especially inpatient palliative care units. Previous studies have shown that cancer patients' participation in nurse-led interventions resulted in an improvement in depressive moods (32,33). Multiple intervention studies have indicated that practice-based interprofessional collaboration can improve patients' health-care processes and outcomes (34). Furthermore, existing literature indicates that regional palliative care programs succeed in increasing family satisfaction (35,36). These findings suggest that developing a multidisciplinary team to support oncologists, not only within a hospital, but also beyond the hospital (as a region), is of considerable importance in achieving patient and family satisfaction. As the number of palliative care units in Japan is not enough, increasing the reimbursement for inpatient hospice would be important as policy. Moreover, because oncologist burden was not measured in these previous studies, prospective observational or interventional studies are needed to determine whether a team

approach, such as in-hospital and regional palliative care programs, could alleviate oncologist burden.

The limitations of the present study include the moderate (67%) effective response rate, which may mean that the entire oncological population is not represented by the oncologists who participated in the present study. Furthermore, because this study was performed in Japan, the results are likely to be influenced by factors relating to Japanese culture and the Japanese health-care system and, as such, may not be applicable to other countries.

In conclusion, a considerable number of oncologists experienced high levels of burden in communicating the decision to discontinue anticancer treatment. To alleviate oncologist burden, potentially useful strategies include: (i) communication skills training specifically targeting discontinuation of anticancer treatment; (ii) a reduction in total workload to allow oncologists sufficient time to break bad news; and (iii) the development of a multidisciplinary model to facilitate cooperation with other professionals and facilities.

Authors' Contribution

H.O.: conception and design, provision of the study material, collection of data, data analysis and interpretation, manuscript writing and administrative support. T.M.: conception and design, provision of the study material, data analysis and interpretation, final approval of the manuscript, administrative support, and financial support. T.E., H.A., K.T., A.O. and K.S.: provision of the study material and final approval of the manuscript.

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Conflict of interest statement

None declared.

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