

these persistent symptoms could not predict the prevalence of potential psychiatric disorders among the bereaved.

Impaired mental health among the bereaved who have lost a relative to cancer is associated with several characteristics of the patients and the bereaved. As for clinical characteristics of cancer patients, 'short duration of hospice enrollment' [5,6], 'intensive end-of-life (EOL) care' [15], and 'ICU death' [16] were associated with impaired mental health among the bereaved. In addition, bereaved characteristics of 'under 65 years' [9], 'female' [5,17,18], 'spouse' [5], 'prior physical symptoms' [5], 'prior depression' [5,9,17], and 'anticipatory grief' [16] were also reported. However, these associated factors are not useful as indicators for early detection of high-risk spouses during EOL care in clinical practice at a hospital even though 90% of cancer patients in Japan die in a hospital [19].

In the present study, the primary purpose was to identify the prevalence of impaired mental health that can be used to predict the prevalence of potential psychiatric disorders among the bereaved who have lost their spouse to cancer. The secondary purpose was to investigate associated factors of the prevalence so that we could suggest the indicators for early detection of high-risk spouses during EOL care.

Methods

Study sample

We conducted a cross-sectional mail survey for the bereaved spouses whose partner had died at the National Cancer Center Hospital East (NCCHE). This study was

approved by the Institutional Review Board and Ethics Committee of the National Cancer Center of Japan in January 2009.

First, in January 2009, we found it necessary to identify family members to whom we intended to mail study participation invitations; this was because of a lack of accurate data about marital status in the hospital patient database. Eligibility criteria were (i) patient's primary clinician belonging to the eight divisions cooperating with this study (Hematology, Pancreatic, Head and Neck, Gastric Surgery, Gastrointestinal, Thoracic Surgery, Thoracic Oncology, and Palliative Care), which covered 98% of the patients who died at NCCHE; (ii) patient's data available in the hospital's patient database operating since January 2001; and (iii) patient's death occurring at least 6 months earlier. Exclusion criteria and flow of the study sample are explained in Figure 1.

We matched the demographic characteristics of the deceased cancer patients drawn from the hospital patient database with those of the bereaved spouses based on the completed questionnaires. Respondents' characteristics ($n=821$) showed a lower proportion of males (30%, $n=242$ vs. 36%, $n=753$, $p<0.01$) and a shorter duration of bereavement (3.0 ± 1.9 vs. 3.2 ± 2.0 years, $p<0.01$) compared with the non-responders ($n=2081$) among the 2902 candidate participants; the difference in values of the deceased patients' characteristics such as age, duration of last hospital admission, place of death, history of usage of psychiatric consultation services, and cancer site was not significant.

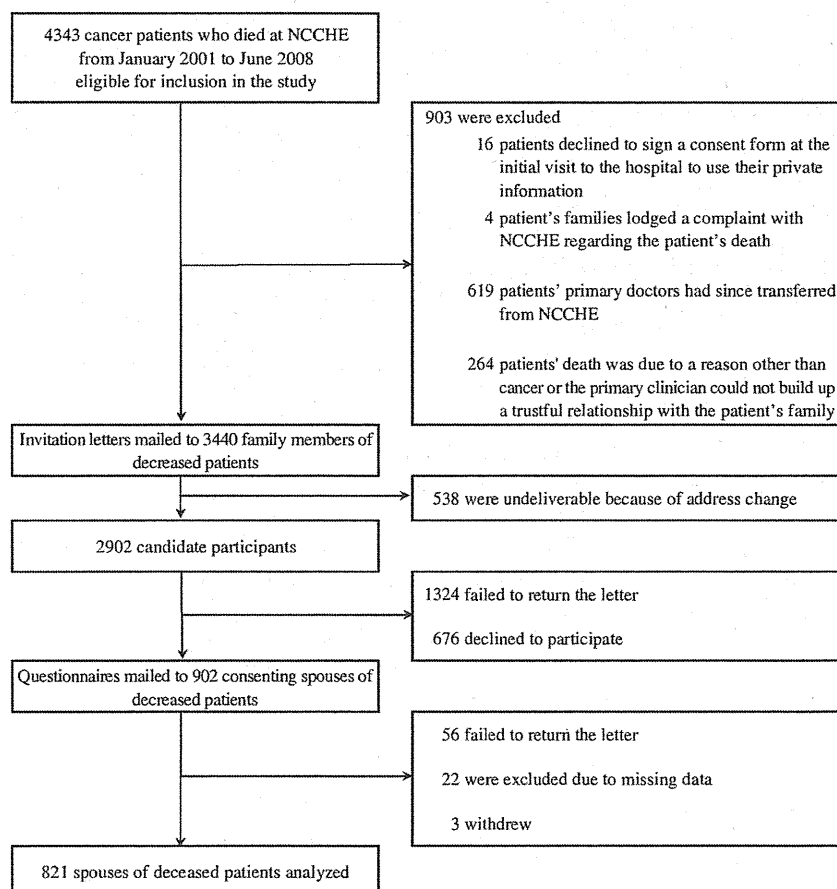


Figure 1. Flow of study sample

Measures

Deceased patients' characteristics

We examined the overall computerized patient database of NCCHE to identify cancer patients' characteristics. Time since cancer diagnosis to death was declared in the questionnaires completed by the bereaved. History of usage of psychiatric consultation services was identified by using the consultation database developed by the Psychiatric Services Division of the NCCHE. This computerized database [20] includes demographic variables and psychiatric disorders of patients who were referred to the Psychiatric Services Division.

Bereaved spouses' characteristics

The questionnaires completed by the bereaved spouses included physical and psychological information such as physical illness under treatment and history of psychiatric disorder prior to their partner's death as well as demographic variables.

Dissatisfaction with EOL care

The bereaved spouses retrospectively reported their dissatisfaction with EOL caregiving (five items) and physician's EOL care (four items) during the month prior to the patient's death using a five-point Likert-type scale (0: very satisfied, 1: fairly satisfied, 2: neutral 3: fairly dissatisfied, 4: very dissatisfied). We rescored each item as 0 (absence of dissatisfaction, 0–2) or 1 (presence of dissatisfaction, 3–4) in this study.

Impaired mental health

The General Health Questionnaire (GHQ), using a four-point Likert-type scale (possible range, 0–3; higher scores indicate impaired mental health), has been widely used to detect persons with nonspecific psychiatric disorders [21]. We used the validated Japanese 28-item version (GHQ28 [22]). Persons with potential psychiatric disorders were identified by the cut-off score of the GHQ scoring method (0–0.1–1; possible range, 0–28; cut-off score, 5/6). This cut-off score showed the best sensitivity and specificity when compared with the ratings of the clinical interview [23,24] and this approach has shown its applicability to the Japanese version [22].

Statistical analysis

Impaired mental health was compared using analysis of variance with the Bonferroni multiple comparison method or *t*-test. Potential psychiatric disorders were compared by using the chi-square test with residual analysis. Variables showing *p*-values < 0.05 in the univariate analysis were entered as independent variables in a multivariate logistic regression analysis with backward elimination to identify associated factors of potential psychiatric disorders.

P-values < 0.05 were considered significant and all *p*-values were two-tailed. All statistical analyses were carried out using SPSS ver.12.0J for Windows (SPSS Japan Institute Inc., Tokyo, Japan).

Results

Characteristics of deceased patients/bereaved spouses

Table 1 summarizes the characteristics of the 821 participants experiencing bereavement from 7 months to 7 years.

Table 1. Characteristics of deceased patients and bereaved spouses (*n* = 821)

	Mean ± SD (median, range)	<i>n</i>	(%)
Deceased patients' characteristics			
Age, years	64 ± 9.0 (65, 32–88)		
Time since cancer diagnosis to death, months	27 ± 29 (16, 1–187)		
Duration of last hospital admission, days	27 ± 29 (17, 1–208)		
Bereaved spouses' characteristics			
Age, years	66 ± 9.0 (66, 32–89)		
Time since bereavement, years	3.0 ± 1.9 (3.0, 0.6–7.2)		
Gender			
Male		242	30
Female		579	70

SD, standard deviation.

In this study, 579 bereaved (70%) were female, 441 patients (54%) died in the Palliative Care Unit, and 629 bereaved (77%) were involved in EOL caregiving 'everyday'.

Prevalence of impaired mental health and potential psychiatric disorders

As shown in Table 2, we estimated the population of bereaved spouses to be 2649 by multiplying the total number of 4343 deceased patients by 0.61, which is the approximate ratio of Japanese cancer patients who have a spouse at the time of death among overall cancer deaths in Japan in 2007 (206,389/336,139)[19]. As a result, the overall sampling rate (estimated) was 31% (821/2,649), and the prevalence of potential psychiatric disorders was 44% (360/821, 95% CI=40.6–47.4).

With impaired mental health, three-way interaction (age × gender × time) was not significant (*F* (18, 689)=1.56, *p*=0.07). Two-way interaction (age × gender: *F* (3, 689)=2.75, *p*=0.04) was significant: males 'under 55 years' showed significantly greater prevalence than males '55–64 years' or 'over 75 years' (*F* (3, 214)=3.66, *p*=0.01, *A*0 > *A*1, *A*3, *p* < 0.05) and females 'under 55 years' or '55–64 years' showed significantly greater prevalence than females '65–74 years' (*F* (3, 533)=4.65, *p* < 0.01, *A*0, *A*1 > *A*2, *p* < 0.05). The main effect of time was significant (*F* (6, 689)=2.71, *p*=0.01): the bereaved who had lost their spouse '2 years ago' revealed significantly greater prevalence than those who had lost their spouse '4 years ago' with multiple comparison (*F* (2, 738)=3.31, *p* < 0.01, *T*2 > *T*4, *p* < 0.05).

The prevalence of the bereaved varied with age and time: 'under 55 years' (71%) revealed significantly higher prevalence than those '65–74 years' (42%) (χ^2 (3)=23.17, *p* < 0.01, *A*0 > *A*2, *p* < 0.01) and the bereaved who had lost their spouse '2 years ago' (59%) revealed significantly higher prevalence than those who had lost their spouse '4 years ago' (37%) (χ^2 (6)=17.81, *p* < 0.01, *T*2 > *T*4, *p* < 0.01). No significant difference was observed between genders (χ^2 (1)=1.08, *p*=0.34).

Factors associated with potential psychiatric disorders

In the univariate analysis, 14 variables were significantly associated with potential psychiatric disorders (*p* < 0.05, Table 3). Table 4 shows the results of a multivariate logistic regression analysis: 'patients using psychiatric consultation

Table 2. Prevalence of impaired mental health and potential psychiatric disorders among bereaved spouses of cancer patients

			Deceased patients	Population ^a (estimated)	Sample	Sample rate (estimated)	Impaired mental health (GHQ28, 0–28)		Potential psychiatric disorders (GHQ28 ≥ 6)	
	Year	Group	N	N'	n	% (n/N')	Mean (SD)	n'	% (n'/n)	95% CI
Total			4343	2649	821	31	7.17 (6.79)	360	44	40.6–47.4
Age										
	–54	A0			75		(9.95) 6.59	53	71	60.4–81.0
	55–64	A1			232		7.65 (6.77)	118	51	44.5–57.3
	65–74	A2			339		6.37 (6.68)	141	42	36.4–46.9
	75–	A3			109		6.62 (6.77)	46	42	32.9–51.5
Gender										
Male			1494	911	220	24	6.93 (6.65)	98	45	37.9–51.1
Female			2849	1738	538	31	7.27 (6.86)	262	49	44.5–52.9
Time since bereavement										
	<1	T0	258	157	55	35	8.67 (7.41)	30	55	41.3–67.7
	<2	T1	668	407	133	33	7.79 (7.38)	66	50	41.1–58.1
	<3	T2	611	373	134	36	8.60 (6.92)	79	59	50.7–67.3
	<4	T3	616	376	111	30	6.00 (6.29)	44	40	30.5–48.7
	<5	T4	643	392	96	24	5.48 (6.05)	35	37	26.9–46.1
	<6	T5	671	409	108	26	6.74 (6.56)	45	42	32.4–51.0
	≥6	T6	876	534	108	20	6.97 (6.55)	55	51	41.5–60.3

Some percentages do not add up to 100% because of missing data.
SD, standard deviation; CI, confidence interval.
^aPopulation was estimated by multiplying the number of deceased patients (N) by 0.61, which is the approximate ratio of Japanese cancer patients who have a spouse at the time of death among overall cancer deaths in Japan in 2007.

services’ (OR = 1.52), ‘patients with stomach cancer’ (OR = 1.87), and ‘bereaved with a history of psychiatric disorder’ (OR = 3.19) were significantly associated factors among the characteristics of patients/bereaved prior to the patient’s death. Additionally, ‘time spent communicating with patients’ (OR = 1.55) and ‘physician’s treatment of physical symptoms’ (OR = 3.44) were significantly associated factors among the bereaved spouses’ dissatisfaction with EOL care during the final month.

Discussion

In this study, we identified a considerably high prevalence of potential psychiatric disorders among the bereaved (44% of total respondents). Patients’ psychological distress, bereaved spouses’ history of psychiatric disorder, and dissatisfaction with EOL care were indicators for early detection of high-risk spouses prior to the patient’s death. Our results indicated that, even 7 years after losing their spouse, a significant number of the bereaved have potential psychiatric disorders (37–59%). This is a higher prevalence than that of consecutive patients in general practice in Britain (35%) [25] and is three-fold higher than that of a healthy sample in Japan (14%) [22]. We discuss this high prevalence from two aspects of the results. First, more than half the spouses within less than 3 years since bereavement showed potential psychiatric disorders. This high prevalence might be inflated by normal grief, a common psychological reaction among the bereaved. Our results support those of the previous studies in which prevalence decreased during the first year after bereavement [9–11]. However, our results do not support previous results where prevalence remained unchanged over the second year [11]. This discrepancy might partly be because of spouses participating in the Japanese Buddhist rite of *sankaiki* where bereaved families gather together on the second anniversary of the death and reminisce about the deceased. This mourning ceremony might increase

the psychological distress of the bereaved by triggering negative psychological states such as yearning, an unfulfilled desire to reunite with the deceased. Second, around 40% of the respondents whose bereavement was 3–7 years earlier showed potential psychiatric disorders. Even though their psychological distress might have eased somewhat after the mourning ceremony in the second year, the prevalence of both impaired mental health and potential psychiatric disorders was considerably high among the spouses after bereavement. This result could be because of subsequent physical problems of the bereaved because ‘physical illness under treatment’ was significantly associated with morbidity. However, this persistent prevalence might suggest prolonged bereavement distress because dissatisfaction with EOL (their caregiving and the physician’s care) was strongly associated with potential psychiatric disorders in this study. Among the characteristics of patients/bereaved, ‘bereaved spouse’s history of psychiatric disorders prior to the patient’s death’ was the most highly correlated factor (OR = 3.19) and replicated previous studies on the indicators of vulnerability to bereavement stress [5,9,17]. Patients with stomach cancer in this study might have a higher rate of psychological symptoms because the highest rate of mixed anxiety/depression symptoms (20%) was seen with stomach cancer patients among 22 cancer types in a large cohort study [26]. Considering the positive association between patient and caregiver psychological distress in meta-analyses [27,28], patients’ psychological distress factors of ‘stomach cancer’ or ‘usage of psychiatric consultation service’ could raise spouses’ psychological distress prior to the patient’s death. In addition, because psychological distress of caregivers prior to the patient’s death predicted its prevalence after bereavement in a longitudinal multisite study [16], the initial detection of spouses with high psychological distress prior to the patient’s death might be the most useful strategy for preventing subsequent impaired mental health among the bereaved.

Table 3. Factors associated with potential psychiatric disorders among bereaved spouses of cancer patients: univariate analysis

Variables	Potential psychiatric disorders							
	Total		Presence		Absence		Analysis	
	n	(%)	n	(%)	n	(%)	χ^2	p
Deceased patients' characteristics								
Age (< 65 years)	386	(47.0)	198	(51.3)	188	(48.7)	4.56	0.04
Time since cancer diagnosis to death (< 1 year)	285	(34.7)	144	(50.5)	141	(49.5)	1.69	0.20
Duration of last hospital admission (< 1 week)	182	(22.2)	93	(51.1)	89	(48.9)	1.25	0.27
Place of death (Palliative care unit)	402	(49.0)	190	(47.3)	212	(52.7)	0.02	0.94
History of usage of psychiatric consultation service	152	(18.5)	87	(57.2)	65	(42.8)	7.24	<0.01
Cancer site				(51.3)		(48.7)		
Lung	241	(29.4)	113	(46.9)	128	(53.1)	0.05	0.88
Pancreas	88	(10.7)	39	(44.3)	49	(55.7)	0.40	0.57
Stomach	60	(7.3)	38	(63.3)	22	(36.7)	6.56	0.02
Colon	63	(7.7)	24	(38.1)	39	(61.9)	2.42	0.15
Head and neck	60	(7.3)	25	(41.7)	35	(58.3)	0.89	0.42
Esophagus	45	(5.5)	26	(57.8)	19	(42.2)	2.03	0.17
Breast	41	(5.0)	20	(48.8)	21	(51.2)	0.03	0.87
Liver	38	(4.6)	17	(44.7)	21	(55.3)	0.12	0.74
Biliary tract	33	(4.0)	19	(57.6)	14	(42.4)	1.41	0.29
Lymphoma	9	(1.1)	4	(44.4)	5	(55.6)	0.03	1.00
Bereaved spouses' characteristics								
Age (< 65 years)	307	(37.4)	171	(55.7)	136	(44.3)	13.94	<0.01
Gender (Male)	220	(26.8)	98	(44.5)	122	(55.5)	1.08	0.34
Time since bereavement (< 3 years)	322	(39.2)	175	(54.3)	147	(45.7)	10.55	<0.01
Living status (Living alone)	363	(44.2)	171	(47.1)	192	(52.9)	0.04	0.88
Employment status (Employed)	216	(26.3)	106	(49.1)	110	(50.9)	0.30	0.63
Education (≤ 9 years)	121	(14.7)	51	(42.1)	70	(57.9)	1.65	0.23
Physical illness under treatment	424	(51.6)	227	(53.5)	197	(46.5)	14.10	<0.01
History of any psychiatric disorder prior to patients' death	60	(7.3)	43	(71.7)	17	(28.3)	15.37	<0.01
Bereavement experience after the death of spouse	196	(23.9)	91	(46.4)	105	(53.6)	0.12	0.74
Religiousness	311	(37.9)	157	(50.5)	154	(49.5)	1.89	0.18
Involvement in end-of-life caregiving (Everyday)	579	(70.5)	285	(49.2)	294	(50.8)	2.94	0.09
Dissatisfaction with end-of-life caregiving								
Knowledge of physical symptoms and management	235	(28.6)	130	(55.3)	105	(44.7)	9.01	<0.01
Professional supports for physical symptoms and management	177	(21.6)	104	(58.8)	73	(41.2)	12.31	<0.01
Knowledge of psychological symptoms and management	228	(27.8)	119	(52.2)	109	(47.8)	3.20	0.08
Professional supports for psychological symptoms and management	208	(25.3)	122	(58.7)	86	(41.3)	14.99	<0.01
Time spent communicating with patients	169	(20.6)	99	(58.6)	70	(41.4)	10.93	<0.01
Dissatisfaction with physicians' end-of-life care								
Treatment of physical symptoms	67	(8.2)	49	(73.1)	18	(26.9)	19.44	<0.01
Treatment of psychological symptoms	119	(14.5)	71	(59.7)	48	(40.3)	8.66	<0.01
Time spent communicating with patients	191	(23.3)	104	(54.5)	87	(45.5)	5.21	<0.01
Time spent communicating with patients' families	232	(28.3)	123	(53.0)	109	(47.0)	4.17	0.05

Fisher's exact test was performed when the sample number was less than 10. All variables were coded as: 0 = absence, 1 = presence.

Table 4. Factors associated with potential psychiatric disorders among bereaved spouses of cancer patients: multivariate logistic regression analysis

Variables	Beta	SE	OR	95% CI	p
Deceased patients' characteristics					
History of usage of psychiatric consultation service	0.42	0.20	1.52	1.02–2.26	0.04
Stomach cancer	0.63	0.30	1.87	1.04–3.38	0.04
Bereaved spouses' characteristics					
Age (< 65 years)	0.72	0.17	2.06	1.47–2.88	<0.01
Time since bereavement (< 3 years)	0.46	0.16	1.58	1.15–2.17	<0.01
Physical illness under treatment	0.82	0.17	2.26	1.62–3.16	<0.01
History of any psychiatric disorder prior to the patient's death	1.16	0.33	3.19	1.68–6.06	<0.01
Dissatisfaction with end-of-life caregiving					
Knowledge of physical symptoms and management	0.32	0.18	1.38	0.97–1.96	0.07
Time spent communicating with patients	0.44	0.20	1.55	1.05–2.30	0.03
Dissatisfaction with physicians' end-of-life care					
Treatment of physical symptoms	1.24	0.31	3.44	1.89–6.26	<0.01

Beta values indicate standardized regression coefficients on the final model after backward elimination. All variables were coded as: 0 = absence, 1 = presence. SE, standard error; OR, odds ratio; CI, confidence interval.

For the dissatisfaction with EOL care, 'dissatisfaction with physician's treatment of physical symptoms' was the most highly associated with potential psychiatric disorders (OR = 3.44). Unrelieved pain of female cancer patients during their last months of life showed a positive association with psychological morbidity such as sleep disorders in the widowers 4–5 years after bereavement [29]. Additionally, EOL care discussions are associated with less aggressive medical care, such as ventilation and resuscitation and less major depressive disorders in bereaved caregivers [15]. Therefore, satisfactory discussions about physical treatment in EOL care are helpful not only for the patients but also for the caregivers' psychological adjustment. Another factor, 'dissatisfaction with time spent communicating with patients' was significantly associated (OR = 1.55). A recent systematic review of communication with terminally ill patients and their families [30] indicated a lack of quantitative study. Communication skills training for healthcare professionals to improve discussions between patients and caregivers about EOL issues fostering realistic forms of hope is an essential future task for preventive intervention of spousal morbidity after bereavement [30].

We derived several implications for practice and research. In practice, we could obtain the following several indicators for early detection of high-risk spouses prior to the patient's death: 'patients using psychiatric consultation service', 'patients with stomach cancer', 'bereaved with a history of psychiatric disorder', 'dissatisfaction with time spent communicating with patients', and 'dissatisfaction with physician's treatment of physical symptoms'. Along with the early detection of spouses with these risk factors, nurse-assisted [31] or pharmacist-assisted [32] psychiatric referral programs using the 'Distress and Impact Thermometer' might be useful for directly evaluating psychological distress among spouses in EOL practice. In research, we could obtain the following possible strategies for preventive intervention of spousal morbidity after bereavement: assistance for improving 'discussions with physicians about physical treatment in EOL care' and 'discussions between patients and caregivers about EOL issues' would be effective. Development of communication skills training for healthcare professionals to improve these discussions must be considered in future research.

For the study limitations, first, the lack of an exact response rate was a critical methodological limitation. Nevertheless, we believe our estimated sample rate (31%) was adequate because the population of bereaved spouses included those who had died after the patient's

death. Second, two sample biases might exist. One was caused by the data collection site, a single cancer center in Japan. However, we do not believe that this institutional bias had a serious effect on the representation of Japanese bereaved spouses of cancer patients because 90% of cancer patients in Japan die in a hospital [19]. In addition, the bereaved with high impaired mental health might have been more motivated to take part in the study. This might have resulted in an inflated number of potential psychiatric disorders. Third, this was a cross-sectional study, and we could not discuss the time course of the prevalence or any causality between impaired mental health and associated factors. In addition, it remains possible that there was a recall bias in answering the question about dissatisfaction with EOL care because it was such a long period for a retrospective report by the bereaved who had lost their partner several years earlier. Fourth, other important factors were not investigated in this study, such as the bereaved spouse's 'style of attachment to the deceased', 'function level among family members', 'perception of the dying process and whether this was traumatic', and 'available social support'. Finally, we have no objective data on EOL care; individuals whose spouses died 7 years ago would likely have had a very different experience in the oncology care setting compared with those whose spouses died more recently.

Conclusions

Nearly half the bereaved spouses showed potential psychiatric disorders even 7 years after bereavement. Patients' psychological distress, bereaved spouses' history of psychiatric disorder, and dissatisfaction with EOL care were indicators of high-risk spouses.

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Conflicts of interest

All authors declare that the answers to the questions on your competing interest form are all 'No' and therefore have nothing to declare.

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—Short Communication—

A Retrospective Study of Risk Factors for Infection in Cancer Patients Receiving Specialist Palliative Care

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Abstract

Preventing infectious diseases in patients with cancer receiving palliative care is extremely important. However, little is known about the factors causing infection in these patients. The aim of this study was to clarify the factors contributing to infection in patients with cancer receiving palliative care. The medical records of each patient were reviewed, and patient characteristics were recorded. Factors that correlated significantly with infection, as revealed by univariate analysis, were performance status, the fall risk assessment score, and venous catheters. Our present study provides further evidence that the fall risk assessment score is a risk factor for infection. Critical infections might be prevented in patients with cancer receiving palliative care by monitoring the above 3 factors.

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Key words: infection, factor, the fall risk assessment score, palliative care team, designated cancer hospital

Introduction

Preventing infectious diseases in patients with cancer receiving palliative care is extremely important for a number of reasons: 1) infection decreases quality of life (QOL) and can cause death^{1,2}, 2) the appropriate treatment of infection can help control symptoms in patients with cancer, and 3) use of ineffective drugs in patients receiving palliative care increases the risk of nosocomial infections^{3–6}. However, little is known about factors causing infection in patients with cancer receiving palliative care.

Previously reported risk factors for infection in patients with cancer include: destruction of cellular organization by cancer cells, chemotherapy, radiotherapy, surgery, catheters, steroidal anti-inflammatory drugs use, and abnormalities of mucous membranes^{1,7}. However, there have been few reports about the risk factors for infection in patients with cancer receiving palliative care^{4,9}. By determining the risk factors, it may be possible to reduce these risks or to diagnose infections before they become severe. This may lead to improved QOL in these patients.

Therefore, the aim of this study was to clarify the factors contributing to infection in patients with

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cancer receiving palliative care.

Methods

Data Sources and Procedures

The method used in this study was a chart review, which was approved by the Ethical Review Board of the Keio University Faculty of Pharmacy. The subjects were patients with cancer referred from June 2008 through September 2010 to the palliative care team of the 899-bed Cancer Hospital at the Nippon Medical School Hospital in Japan. The inclusion criteria were: a diagnosis of incurable advanced cancer and, to clarify the factors contributing to infection at the end-of-life, patients who died during their hospital stay at Nippon Medical School Hospital.

Demographic and Patient Clinical Data

For each patient, characteristics were recorded and included age, sex, performance status, bedsores, edema, ascites, dysphagia, nausea, fall risk assessment score (Appendix) and malnutrition. Treatment history (chemotherapy, radiotherapy, and surgery), devices (central venous catheters, urethral catheters, drain tubes, stomach tubes, and colostomies), medications for symptom management (opioids, antipyretic analgesics, and steroidal anti-inflammatory drugs), and infections were also recorded. The fall risk assessment score was used to calculate the probability of falls by identifying fall-associated items on a scale of I to III. The specific procedures for patients with infection were as follows: the possible indications for the use of antibiotics, such as "treatment of infections" and "suspected infection", were first analyzed, as recorded in the patient's chart by the attending physician. Second, episodes of the use of anti-infective drug were identified, regardless of whether infection was or was not actually present, on the basis of information recorded. In this retrospective study, infection was identified on the basis of information recorded in the patients' charts. This information included site-specific diagnosis, presence of suggestive symptoms/signs, and positive bacteriologic cultures.

Statistical Analyses

To examine the correlation between infection and patient background (characteristics, treatment histories, devices and medical treatments), the Mann-Whitney U-test, the chi-square test, or Fisher's exact methods were used. Furthermore, patient factors with a P value <0.20 were used as independent variables for univariate analysis. The multiple logistic regression analysis was also used to analyze the effects of these factors. If a patient had more than 1 episode of infection, the most recent episode was used in the analysis. All analyses were performed with the Statistical Package for the Social Sciences (version 20.0, MAKER, LOCATION). The significance level was set at P<0.05.

Results

We obtained data on 95 patients during the study period (Table 1). The subjects were 58 men and 37 women with a mean age of 66±11 years. The most

Table 1 Patient Characteristics (n=95)

Age (mean ± SD)	66 ± 11 years
Sex	
Male	61% (n=58)
Female	39% (n=37)
Duration of hospital stay (mean ± SD)	49 ± 47 days
Cause of death	
Cancer	83% (n=79)
Infection	6% (n=6)
Other	10% (n=10)
Primary sites	
Stomach	23% (n=22)
Pancreas, bile duct	17% (n=16)
Liver	11% (n=10)
Colon, rectum	10% (n=9)
Neck	8.4% (n=8)
Esophagus	7.4% (n=7)
Uterus, ovary	6.3% (n=6)
Breast	5.3% (n=5)
Lymphoma, leukemia	3.2% (n=3)
Lung	2.1% (n=2)
Other	7.4% (n=7)
Medication use	
Opioids	90% (n=85)
Antipyretic analgesics	72% (n=68)
Steroidal anti-inflammatory drugs	41% (n=39)
Infection with patients	66% (n=63)

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common cause of death was cancer (83%), whose primary sites were most often the stomach, pancreas, bile duct, and liver. Opioids were administered to 85 patients. Seventy-four (72%) patients received antipyretic analgesics. Steroidal anti-inflammatory drugs were prescribed for 39

patients (41%). Sixty-three patients (66%) had infections (Table 2).

Factors that correlated significantly with infection, as shown with univariate analysis, were performance status, the fall risk assessment score, and central venous catheter (Table 3) Factors not significantly associated with infection were patient age or sex, bedsores, edema, ascites, dysphagia, nausea, malnutrition, treatment history, urethral catheters, drainage tubes, stomach tubes, colostomies, and medical treatments. Factors significantly correlated with infection, as shown with multiple logistic regression analysis, were the all risk assessment score ($P<0.048$) and central venous

Table 2 Sites of infection (n=73)

Respiratory	41% (n=30)
Blood	27% (n=20)
Urinary	14% (n=10)
Gastrointestinal tracts	8.2% (n=6)
Skin	5.5% (n=4)
Others	4.1% (n=3)

Table 3 Patients With and Without Infection

	Patients with infection		P value
	Yes	No	
Total patients in group	66% (n=63)	34% (n=32)	
Age mean ± SD (median)	66 ± 11 (68)	64 ± 10 (66)	0.369
Gender			
Male	60% (n=38)	63% (n=20)	0.837
Female	40% (n=25)	38% (n=12)	
Performance Status			
2-3	44% (n=31)	72% (n=23)	0.035
4	45% (n=32)	28% (n=9)	
Bedsores	13% (n=9)	13% (n=4)	0.541
Edemas	42% (n=30)	44% (n=14)	0.721
Ascites	31% (n=22)	31% (n=10)	0.721
Dysphagia	23% (n=16)	9.4% (n=3)	0.065
Nausea	37% (n=26)	18% (n=13)	0.952
The assessment score sheet of falls			
1-2	54% (n=38)	84% (n=27)	0.017
3	35% (n=25)	16% (n=5)	
Malnutrition	56% (n=40)	47% (n=15)	0.121
Treatment histories			
Chemotherapy	24% (n=14)	9.4% (n=3)	0.101
Radiotherapy	14% (n=9)	13% (n=4)	0.541
Surgery	8.5% (n=6)	0.0% (n=0)	0.078
Devices			
Central venous catheters	54% (n=34)	28% (n=9)	0.017
Urethral catheters	48% (n=30)	28% (n=9)	0.068
Drain tubes	38% (n=24)	19% (n=6)	0.055
Stomach tubes	14% (n=9)	9.4% (n=3)	0.372
Colostomies	6.3% (n=4)	6.3% (n=2)	0.677
Medication use			
Opioids	70% (N=44)	72% (n=23)	0.837
Antipyretic analgesics	51% (n=32)	50% (n=16)	0.942
Steroidal anti-inflammatory drugs	18% (n=11)	28% (n=9)	0.228

Age was analyzed by Mann-Whitney U-test. The others were analyzed by Chi square test, or Fisher's exact. In all cases, tests of significance were two-tailed, $P<0.05$ indicated statistical significance.

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Table 4 The factors of Patients With Infection using the multiple logistic regression analysis

	Odds ration	95% Confidence interval	P value
The assessment score sheet of falls	3.046	1.01 to 9.186	0.048
Central venous catheters	0.047	0.151 to 0.988	0.047

Multiple logistic regression analysis model Chi square test $P < 0.05$

catheters ($P < 0.047$) (Table 4).

Discussion

This study is, to our knowledge, the first to show that the fall risk assessment score is a risk factor for infection. As a result, we can now identify patients with an increased infection risk by evaluating the fall risk assessment score as well as performance status and the use of central venous catheters. The fall risk assessment score includes patient characteristics, such as age, activity, and excretion. As a result, the fall risk assessment score is extracted the possible risk factors for infection. Furthermore, catheter placement and poor performance status are possible risk factors for infection in hospitalized patients, as has been reported previously⁴¹⁰.

This study had several limitations. First, this study involved a chart review; therefore, some data may have been unavailable. Second, our institution is an acute care hospital, and subjects had been referred to the only patients of the palliative care team. Third, because diagnosing infection is difficult in patients receiving palliative care, some patients with infections might not have received anti-infective therapy.

Therefore, our selection of subjects may be biased. However, several studies have reported that 30% to 80% patients receiving palliative care at a hospice or a tertiary palliative care unit have at least 1 infection^{2-4,6,11} and that the most common sites of infection are the respiratory tract, blood, and urinary tract²⁻⁴. Our results were similar to those of previous studies; therefore, the above limitations may not have affected our results.

In conclusion, our present study provides further evidence that the fall risk assessment score is a risk factor for infection. By monitoring the fall risk

assessment score, performance status, and the use of central venous catheters, severe infections might be prevented in patients with cancer receiving palliative care.

Conflict of Interest: The authors declare no conflict of interest.

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Appendix Fall Risk Assessment Score Sheet

Classification	Characteristics	Score	Patient's evaluation
A. Age	<input type="checkbox"/> Over 60 years <input type="checkbox"/> Under 7 years	2	
B. Past medical history	<input type="checkbox"/> Experience of fall	2	
C. Functional disorder	<input type="checkbox"/> Paralysis or numbness <input type="checkbox"/> Bone or joint abnormality <input type="checkbox"/> Edema or pain of Leg	3	
D. Activity	<input type="checkbox"/> Leg and muscle weakness <input type="checkbox"/> Necessity of assistance for movement <input type="checkbox"/> Light headedness <input type="checkbox"/> Device placement	4	
E. Neurological function	<input type="checkbox"/> Cerebrovascular disorder <input type="checkbox"/> Parkinson's disease <input type="checkbox"/> Transient ischemic attack <input type="checkbox"/> Epileptic seizure	2	
F. Sensation	<input type="checkbox"/> Visual disorder <input type="checkbox"/> Hypacusia	1	
G. Cognitive function	<input type="checkbox"/> Dementia <input type="checkbox"/> Restless behavior or clouded consciousness, or confusion <input type="checkbox"/> Reduced ability to make a judgment and understand <input type="checkbox"/> Reduced memorizing ability and difficulty in learning	4	
H. Drugs	<input type="checkbox"/> Sleep stabilizer or Analgesic or Tranquilizer <input type="checkbox"/> Narcotic <input type="checkbox"/> Chemotherapy <input type="checkbox"/> Alcohol or Drug dependence <input type="checkbox"/> Hypotensive diuretic or laxative	3	
I. Excretion	<input type="checkbox"/> Urinary or fecal incontinence <input type="checkbox"/> Frequent urination <input type="checkbox"/> Necessity of toilet assistance <input type="checkbox"/> Use of toilet at night	3	
J. General condition	<input type="checkbox"/> Fever <input type="checkbox"/> Anemia <input type="checkbox"/> Dizziness	2	
Note		Total	
		Risk level	

*Scores by category are given to A to J.

Risk level and total score

Risk level I (0-6 points): Falls may occur.

Risk level II (7-17 points): Falls are likely to occur.

Risk level III (18 or higher points): Falls frequently occur.

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がん領域における精神疾患と 緩和ケアチームの役割

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■がんの専門分化した治療体系

がんは、日本国民の2人に1人が罹患し、3人に1人が死亡する疾患です。そのため、国をあげた取り組みが進められ、他の疾患領域に比べ、専門分化が進んでいます。がんの3大治療である外科治療、抗がん剤治療、放射線治療には、それぞれ外科医、腫瘍内科医、放射線科医がおり、治療方法によって担当の主治医がわかれ、在宅へ移行した場合は、がん在宅医が主治医となることが少なくありません。専門分化することによって、高度、かつ専門的な医療を提供できるシステム的一方で、お互いのつながりがあまりなく、フラグメンテーションと呼ばれる治療やケアの分断化が問題となってきています。がん治療における緩和ケアチームにおいては、がん患者さんの身体的苦痛、精神的苦痛を緩和する役割とともに、治療全体をつなぎ、ケースマネジメントする基本的な役割が重要になってきています。

日本に緩和ケアチームが導入されてきたのは1990年代、診療報酬上に緩和ケア診療加算が施行されたのが2002年です。施行された当時は、全国に緩和ケアチームは30カ所くらいにしかありませんでしたが、2007年にがん対策基本法ができ、緩和ケアの必要性が掲げられるとともに、がん診療連携拠点病院にも緩和ケアチームの設置が義務付けられたこと

により、現在は610ヵ所以上の医療機関に緩和ケアチームが広がってきています。

しかし、日本における緩和ケアや緩和ケアチームの概念は、その導入に際して、医療機関のなかに位置づけられた経緯から、外科や腫瘍内科と同じように、医療的な専門技術を提供する機能の1つとしてのみとらえられていた傾向が強く、ケースマネジメントの発想が十分ではないことから、痛みや苦痛をブロックするための薬物療法など医学的な専門技能の提供が役割の中心となり、緩和ケアチームの基本的な考え方である地域・在宅医療・合併症のための連携の構築・ケースマネジメントが置き去りにされてきた経緯がありました。

■医療機関における緩和ケアチーム

緩和ケアチームには、緩和ケア診療加算を算定する要件として、身体症状の緩和を担当する常勤医師、精神症状の緩和を担当する常勤医師、緩和ケアの経験を有するチーム専従の看護師、緩和ケアの経験を有する薬剤師の配置が必要です。全国に現在397ヵ所あるがん診療連携拠点病院にも、緩和ケアチームの設置が義務付けられており、基本的には4名が1つのチームとして活動し、各病棟の担当医や医療スタッフからの依頼に応じて介入するとともに、週に1度ラウンドを行い、全病棟を対象とした活動に取り組んでいます。

緩和ケアチームは、患者さんの症状緩和やご家族の苦しみなど、肉体的、精神的苦痛を取りのぞくとともに、コンサルテーションチームであり、依頼者である担当医や医療スタッフのレベルアップのための教育的機能の役割も担っています。例えば、各病棟の担当医や医療スタッフは、「患者さんの肉体的な痛みがとれない」「患者さんが治療選択を迷っていて方針が決められない」「患者さんと医師の関係が悪く、どうしたらいいかわからない」「看護師にはきつくあたるが、医師の前では従順な患者さんがおり、病棟の医療スタッフやチームが耐えられず、困っている」「せ

ん妄だと思われるが対応に苦慮している」など様々な課題を抱えています。緩和ケアチームは、各病棟の担当医や医療スタッフからこうした課題を聞き取り、その対応・対処について一緒に考えていきます。緩和ケアチームが問題解決につながる技能を有していれば、それを提供・実施し、次回からは、各病棟の担当医や医療スタッフが解決できるようサポートします。緩和ケアチームの4人だけで全患者さんの緩和ケアに取り組むことは不可能なため、病院全体が問題解決能力を高め、患者さんの治療にトータルで取り組めるようになることを目指しています。うつ病等精神症状への対応もその1つです。

■がん治療における精神症状と精神腫瘍医の役割

がん治療における精神症状としては、せん妄、うつ病、告知後のストレス反応、適応障害、認知症などがあり、なかでもせん妄が多くみられます。せん妄は、外科手術、オピオイドの副作用、高齢者であれば、脱水症状や感染症なども原因として考えられ、がん特有の高カルシウム血症など、他の疾患にはないせん妄の原因の可能性が少なからずあります。精神腫瘍医は、その鑑別のために、検査とともに、患者さんが今どんな治療の段階にあって、これからどういう方向に向かおうとしているかなど、治療過程を理解することが重要となります。その上で、患者さんやご家族の希望や意向に沿った治療に取り組むことが大切です。抗精神病薬の使用についても、術後せん妄であれば、せん妄を治すことがターゲットとなり、意識障害をとりのぞくことに焦点をあてていきますが、終末期のせん妄の場合、残念ながら、完全に回復することは難しく、患者さんの希望や意向に合わせて薬剤を調節することが求められます。終末期の患者さんは、ただでさえ身体がだるく感じられますので、だから「寝かせて欲しい」と望まれる方もおられますし、「せめて家族と会話ができるようにして欲しい」と望まれる方もおられ、薬剤コントロールの方向性が異なってきます。

また、環境調整やご家族への教育的な関わりも重要です。終末期のせん妄が、完全には回復しにくい状況になってきた場合、ご家族が、患者さんとの意思疎通ができる時間は、残念ながらそれほど長くはないかもしれないことを伝え、準備をしていただかなくてもはいけません。その上でご家族の懸念を聞き、ご家族の患者さんへのかかわり方やケアを考えていただかなくてもはいけません。精神科医療機関には、こうしたケースマネジメントを担当される専門職として、看護師やPSW、心理士などがいると思いますが、人数が限られた緩和ケアチームでは、ケースマネジメントも精神腫瘍医が担っているのが現状です。将来的にはケースマネジメントの専門家が緩和ケアチームに入って、患者さんのがん治療全体のマネジメントをするようになることが望ましいのではないのでしょうか。

うつ病やうつ状態、告知によるストレス反応も、がん患者さんの自殺と深く関係しているといわれ深刻です。自殺リスクが高まる時期としては、告知後1ヵ月、再発の告知後、抗がん剤治療を中止したときなどが知られていますが、海外の研究では、告知後の1ヵ月は、一般の方の自殺率と比べ、自殺率が約10倍に高まるという報告もなされています。国立がん研究センター東病院はがん専門医療機関ということもあり全例告知しています。他の医療機関でも、以前に比べて全例告知は進んできていますが、まだ告知に躊躇されているところや十分になされていないがん専門病院もみうけられます。患者さんの意思決定という点からすれば、告知し、情報提供をしなくては、その後の治療が始まりません。医師や医療スタッフが、患者さんやご家族と一緒に乗り越えていかななくてはならない問題だと考えています。

また、うつの症状になる確率が高まる時期としては、告知後の数週間といわれています。例えば、女性の乳がんの治療におけるホルモン療法では、人工的に更年期障害を起こすことになりますから、うつ病やうつ状態になられる方が少なくありません。化学療法では、強い吐き気の問題があります。最近の抗がん剤は、副作用や吐き気が少ないものに改善

されてきていますが、患者さんのなかには、抗がん剤に過敏な方がおられ、つらい吐き気からうつ状態になり、これ以上の治療は継続したくないと考え、治療拒否につながり、取り組んで効果があると思われる治療が受けられなくなってしまうおそれがあります。

その予防のため、うつ病の疑いのある患者さんをツークエスチョンや PHQ-9 などのうつスクリーニングによってみつけ、ハイリスクの患者さんについては、あらかじめサポートを提供する必要があると思われます。

海外でもがん診療のガイドラインに身体・精神症状のスクリーニングを全例で行うことが推奨されてはいるものの、アメリカの NCCN (The National Comprehensive Cancer Network (日本のがん専門病院に相当する病院のネットワーク)) でさえ、スクリーニングに取り組んでいるのは 3 割といわれ、その内容もスクリーニングツールを用いたものではなく、医師が様子がおかしい、もしくは心配だと思った患者さんに、個別にたずねていくというレベルです。海外でさえ、こうした状況ですので、日本では、医師が時間的・人的制限のあるなかで、ツークエスチョンや PHQ-9 に取り組むには限界があると思われます。また、日本の場合、患者さんの気持ちとして「不安ですか」「落ち込んでいますか」と聞かれることに抵抗感が強く、ダイレクトにうつスクリーニングを実施することで、かえって落ち込んだりなされる方も少なくありません。

うつスクリーニングについては、身体科の看護師なども含めたチーム全体を巻き込んで取り組むとともに、「眠れていますか」「食事はなされていますか」と生活的な一般的な聞き方でアプローチし、そのなかで「何か気がかりなことはありますか」とワンクッション置いて、スクリーニングのツークエスチョンをするなどの工夫をしていくことが現実的だと思われます。

がんの医療スタッフの精神症状へ意識と緩和ケアチーム

がん治療に携わる身体科医師のなかには、告知などによって患者さん

が自殺してしまった経験のある方も少なくありません。また、がん診療連携拠点病院に年2回開催することが義務付けられている緩和ケア研修会（PEACE）では、その項目の1つとして、うつとせん妄について学ぶようにプログラムされていることから、うつ病やせん妄などへの気づき・意識は、他の領域に比べて高いのではないかと思います。約4万人の医師が緩和ケア研修会を既に受講され、がん領域の医師であれば、うつ病やせん妄について聞いたことのあるレベルまでは達しているように思われます。

次の段階として、医師・医療スタッフの具体的な対応や取り組みへの行動変容が必要であり、緩和ケアチームには、行動変容を促す役割が期待されています。そのためには、緩和ケアチームが行動のモデルとなり、コンサルテーションを通じて、がん治療に携わる身体科医師や医療スタッフたちが、自分たちの力で、うつ病やうつ状態、あるいはせん妄等精神症状への対応ができるようになることです。がん治療に携わる医師や医療スタッフ全員がチームとなって、がん患者さんの精神症状に目を向けることで、よりよい患者さん・ご家族のQOLが保たれ、がん患者さんの自殺も軽減されるのではないのでしょうか。

そのためには、緩和ケアチームの質的向上が必要です。現状の緩和ケアチームには職種間の教育差が大きいという問題があります。例えば、オピオイドであれば、痛みという点で共通基盤をもてますが、精神症状については、教育の違いによって共通基盤がなかなかもてないことが課題だと感じています。緩和ケアチームの看護師は、がん看護を専門的に学ばれた看護師が多く、その教育課程で、うつ病やせん妄について学ぶ時間は少ないのが現状です。知識としてせん妄やうつ状態については知っており、自分たちが取り組まなければならないという意識はあるものの、精神症状をアセスメントし、治療やケアを提供する、もしくはチームに持ち帰り、一緒に取り組むなどの具体的な行動までの実習を経験されることはほとんどないことから、患者さんの話を傾聴するに留まり、マネジ

メントにまでつながっていません。

ケースマネジメントにつなげるためには、看護師教育のなかで、身体科を希望する方であっても、精神疾患について具体的に学ぶカリキュラムとなることが理想的ですが、非常に時間がかかり、難しいと思われます。現状では、臨床現場で意識のある看護師等スタッフが自発的に知識を学び、経験を重ねていくしかないと思われます。

意識のある看護師を中心に、看護師同士で、自分たちの存在意義について、専門性のみならず、ケースマネジメントやコンサルテーションにもあることを確かめ、学び、高めていき、医師がそれをサポートする役割を担う必要があるのではないのでしょうか。

■がん領域におけるうつへの対応とQOLのエビデンス

がん領域の場合、うつ病やうつ状態についての取り組みは、生命予後に影響しないといわれ、海外のエビデンスもほとんどありませんでした。しかし、最近の研究では、マサチューセッツ総合病院の Jennifer S. Temel たちが、転移性非小細胞肺癌患者に対する早期緩和ケアの研究調査（※1）で、早期に緩和ケアに取り組むことで、QOL も生命予後もよくなったという報告をニューイングランドジャーナルオブメディスンで行っています。調査報告では、緩和ケアチームが、症状緩和だけでなく、患者さんの治療法の意味決定を支えてきたことによって、本人の意向に沿わない、無理な抗がん剤治療をしなかったことが影響しているのではないかと報告されています。

海外ではがん患者さんの予後について、時間軸での生死だけではなく、QOL を要素とした調査や研究が進められるようになってきています。日本の場合、QOL に価値観をおく考え方は、医療者にも患者さんやご家族にも、まだそれほど浸透していません。そのため、QOL は高いが生命予後が短くなる治療については、患者さんやご家族が選択しないという考え方があります。

私は、若い患者さんの場合はそういう考え方をなされる方がおられるかもしれませんが、高齢の患者さんの場合は、必ずしもそうではなく、どれくらい幸せに、希望に沿った生き方ができたかという QOL に価値観をおいた治療の選択を望まれる方も少なからずおられると思っています。患者さんの QOL からすれば、がん領域におけるうつ病やうつ状態への対応は今後一層検討されるべき重要な課題だと思います。

【文献】

※1: Temel, Jennifer S., et al. "Early palliative care for patients with metastatic non-small-cell lung cancer." *New England Journal of Medicine* 363.8 (2010) : 733-742.

一般病棟における 精神的ケアの現状

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わが国はいま世界トップクラスの高齢化率です。高齢者の増加により一般病棟に認知症の合併患者が増え、ひいてはせん妄や抑うつ患者の増加につながるおそれもあります。本稿では、高齢者の増加による病院への影響や、一般病棟における精神的ケアの重要性、身体疾患とうつ病の関係について解説します。

社会全体で起きていること、病院で起きていること

社会全体の人口変動の現状

わが国の総人口は、平成23年10月現在で1億2,780万人、そのうち65歳以上の高齢者人口は2,975万人と、総人口の23.3%を占めるまでに増加しています。これは世界トップレベルの高齢化率であり、この状況は2050年頃まで続くと考えられています(図1)¹⁾。高齢者数は今後2040年頃まで増え続けると予想され、東京などの都市部では、今後15年ほどで1.6~1.8倍まで急増すると見込まれています。

では、わが国において都市部を中心に進んでいる高齢者の増加は、私たちが勤める病院にどのような影響を及ぼすのでしょうか。

高齢者急増による病院への影響

高齢者の増加は、病院を受診する患者数の増加と比例します(図2)²⁾。まずは増え続ける患者にどのように対応していくかが重要になります。特に急増する入院患者への対応は、都市部の医療問題において切実な問題です。

しかしながら、今後15年ほどで医療施設を急に増やすことは、資金面ではもちろん、医療者を増やし育成するという面でも現実的に難しいでしょう。今後、病院の能力を超えるレベルまで患者が増加し、“入院医療”が限界まで追い込まれる危険性があります。そうなりますと、入院しながら退院後の療養環境まで整える余裕はなくなりそうです。