

**Table 1.** Characteristics of the patients

	Total ( <i>n</i> = 51), <i>n</i> (%)
Age (years)	
Mean $\pm$ SD	51.3 $\pm$ 14.7 (median:49)
Range	17–76
Gender	
Male	7 (13.7)**
Female	44 (86.3)**
Relationship to deceased	
Spouse	26 (51.0)
Parent	16 (31.4)
Child	7 (13.7)
Sibling	2 (3.9)
Employment status	
Full time	23 (45.1)
Part time	4 (7.8)
Housewife	21 (41.2)
Retired	1 (2.0)
Student	2 (3.9)
Living arrangement	
Alone	19 (37.2)
Not alone	32 (62.8)
History of any psychiatric disorder	
Present	2 (3.9)
Absent	49 (96.1)
Cancer site of deceased	
Lung	12 (23.5)
Pancreas	7 (13.7)
Stomach	6 (11.8)
Hematopoietic	5 (10.0)
Brain	5 (10.0)
Head and neck	3 (6.9)
Breast	3 (6.9)
Colon	3 (6.9)
Female genitalia	2 (4.0)
Unknown	2 (4.0)
Others	5 (10.0)

\*\*Differences between groups were statistically evaluated with  $\chi^2$  test ( $P < 0.01$ ).

## RESULTS

### CHARACTERISTICS OF THE PATIENTS

During the period of investigation, 949 patients consulted the Department of Psycho-Oncology. Of these patients, 51 (5.4%) had relatives who had died of cancer, which had led them to consult bereaved family services. Their ages ranged

**Table 2.** Characteristics of consultation

Reason for consultation (multiple choices)	<i>n</i> (%)
Distress	32 (62.7)
To talk to someone	7 (13.7)
Involved in trouble	5 (9.8)
Physical and psychiatric symptoms	3 (5.9)
Difficulty in concentrating	3 (5.9)
Others	4 (8.0)
Period	13.14 $\pm$ 22.43 months

Period: mean time between the loved one's death and the first consultation.

from 17 to 76 years (mean  $\pm$  SD: 51.3  $\pm$  14.7; median: 49). There were 7 males (13.7%) and 44 females (86.3%). There was a significant difference among the consultees between the numbers of males and females ( $P < 0.0001$ ; Table 1).

The most common relationship to the deceased was as a spouse ( $n = 26$ , 51.0%), followed by parent ( $n = 16$ , 31.4%), child ( $n = 7$ , 13.7%) and a sibling ( $n = 2$ , 3.9%).

Among the background characteristics of the patients, the most common cancer site in the deceased was lung ( $n = 12$ , 23.5%), followed by pancreas ( $n = 7$ , 13.7%) and stomach ( $n = 6$ , 11.8%).

### CHARACTERISTICS OF CONSULTATION

The most common reason for consultation was distress from the bereavement, which was recognized in 22 patients (62.7%). Seven patients (13.7%) wanted to talk to someone. Five patients (9.8%) needed help because they had trouble with their relatives, friends and neighbors after the death of a loved one. Three patients (5.9%) showed physical and psychiatric symptoms like insomnia and generalized fatigue. Three patients (5.9%) had difficulty in concentrating on their work (Table 2).

The mean time between the loved one's death and the first consultation (period) ranged from 1 to 108 months ( $n = 51$ , mean  $\pm$  SD: 13.1  $\pm$  3.2, median: 5.0), with 24.5% of consultations being carried out within 1 month, 44.9% within the following 12 months and 22.4% within the following 24 months.

### PSYCHIATRIC DIAGNOSIS

Psychiatric diagnoses of these patients are summarized in Table 3. Over 80% of the bereaved who consulted 'outpatient services for the bereaved' received a psychiatric diagnosis.

Major depression, the most common diagnosis, was observed in 20 patients (39.2%). It was also the most common diagnosis in consultation both within 1 year after the death and over 1 year after the death. There were no significant differences in the ratio of major depression to other psychiatric disorders with regard to the period before the start of consultation (within 1 year after the death and over

**Table 3.** Psychiatric diagnoses of the patients

Psychiatric diagnosis (multiple choices) <sup>a</sup>	Total (n = 51), n (%)	The period before consultation (months)	
		0–12 (n = 34), n (%)	> 12 (n = 17), n (%)
Major depressive disorder	20 (39.2)	15 (44.1)	5 (29.4)
Adjustment disorder	14 (27.5)	9 (26.5)	5 (29.4)
Bereavement reaction	6 (11.8)	5 (14.7)	1 (5.9)
Dissociative disorder	1 (2.0)	1 (2.9)	0 (0)
Generalized anxiety disorder	2 (3.9)	0 (0)	2 (11.8)
Post-traumatic stress disorder	1 (2.0)	1 (2.9)	0 (0)
Others	2 (3.9)	0 (0)	2 (11.8)
No diagnosis	7 (13.7)	4 (11.8)	3 (17.6)

<sup>a</sup>Psychiatric diagnosis is defined by DSM-IV (9).

**Table 4.** Psychiatric intervention

Psychiatric intervention (multiple choices) (n = 51)	n (%)
Psychotropic medication	31 (60.8)
Psychological intervention	43 (84.3)

1 year) (*P* = 0.24). Adjustment disorder was the next most common diagnosis and was observed in 14 patients (27.5%), and bereavement reaction was the third most common and was observed in 6 patients (11.8%).

Other psychiatric diagnoses were generalized anxiety disorder (*n* = 2, 4.0%), post-traumatic stress disorder (PTSD) (*n* = 1, 2.0%), dissociative amnesia (*n* = 1, 2.0%) and schizophrenia (*n* = 1, 2.0%). Seven patients (13.7%) had no diagnosis.

Six patients (11.8%) exhibited the complication of dissociative amnesia during the treatment, with major depression (*n* = 2, 4.0%), adjustment disorder (*n* = 2, 4.0%) or bereavement reaction (*n* = 2, 4.0%). Three patients (5.9%) exhibited the complication of panic disorder during the treatment, with major depression, adjustment disorder and bereavement reaction (data not shown).

**PSYCHIATRIC INTERVENTIONS**

Thirty-one patients (60.8%) were treated with medication. The following psychotropic drugs were prescribed: benzodiazepines (*n* = 8, 15.7%) or antidepressants (*n* = 8, 15.7%) or, more frequently, the two in combination (benzodiazepines + antidepressants, *n* = 14, 27.5%). One patient (2.0%) was prescribed antidepressants and neuroleptics (Table 4).

Forty-three patients (84.3%) received supportive psychotherapy, cognitive behavioral therapy or unstructured counseling as psychological intervention.

**DISCUSSION**

This report provides basic information about the bereaved who have lost a loved one to cancer and ask for medical help.

We found that most of the patients who consulted ‘outpatient services for bereaved families’ at SMUIMC were women. Their characteristics are similar to those of individuals in a study of the background characteristics of relatives of cancer patients (6,7). There are several reasons why women tend to consult bereaved family services. The presence of psychosocial problems or distress is predictive of consultation behavior in women, but not in men (28). Men tend to approach the provision of support negatively even though they perceive themselves as being hurt by the death of a loved one (29,30).

The lung was the most common cancer site and the stomach was the third most common cancer site among the deceased patients; this result is consistent with the most common causes of death among men in Japan (1), reflecting the high proportion of female spouses referred to the outpatient clinic for the bereaved, and it is similar to the findings in a study of the relatives of cancer patients (6,7).

In this study, over 80% of the bereaved who asked for medical help had psychiatric diagnoses. Major depression was the most common psychiatric diagnosis, followed by adjustment disorder. This indicates that most of the bereaved who asked for medical help need psychiatric and/or psychological intervention. Treatment of major depression, especially antidepressant therapy, among the bereaved with bereavement-related depression has been identified as being effective (31). Untreated major depression after bereavement carries the extra burden of prolonging the pain and suffering associated with grief (32). Therefore, more attention should be paid to these diagnoses without dismissing them as ‘reasonable given the circumstances’ (33). Early detection and appropriate recognition of depression in the bereaved should be encouraged. In addition, adjustment disorders are

often responsive to psychological interventions and positive changes in medical status. The distress that these subjects complained at consultation was not only about their loss, but also from another distress that was an offshoot of the death. This might also be a cause of these psychiatric disorders.

Some patients developed dissociative amnesia in addition to other psychiatric symptoms. Dissociative disorder was not recognized in a previous study of the bereaved who had lost a loved one to cancer. Similar symptoms are included in the criteria for the diagnosis of PTSD, such as an inability to recall an important aspect of the trauma (9). However, six patients did not fulfill the diagnostic criteria for PTSD. They suffered from the symptoms of dissociative amnesia because they could not remember certain things even though they wanted to, which could make them grieve even more. Further studies of dissociative amnesia in the bereaved might be required.

This study has several limitations. First, it was only conducted at one institution, the Comprehensive Cancer Center, and so institution bias may be a problem. Second, this study covered only 51 cases where bereaved family services were used. Further studies are necessary to investigate the findings in more detail. Third, this study was a retrospective study. A prospective study is necessary for more detailed investigation.

In conclusion, we investigated basic characteristics and psychiatric disorders among the bereaved who have lost a loved one to cancer and asked for medical help, using the DSM-IV criteria. The observations that most of the patients who consulted 'outpatient services for the bereaved' were women and over 85% of the patients received a psychiatric diagnosis are important findings. Almost 40% of the diagnoses involved major depression, which is highly responsive to pharmacologic interventions in psychiatric populations. Additionally, about one-third of the diagnoses were adjustment disorders, which are often responsive to psychological interventions and positive changes in medical status. This information is important for both physicians and psychologists since the bereaved who have lost a loved one to cancer often consult and ask for help in clinical settings. In addition, we have to improve our ability to screen for and recognize these factors among the bereaved at an early stage. The present results revealed that appropriate care is necessary for the bereaved who have lost family members to cancer and ask for medical help, and we have to recognize them in clinical settings.

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### Conflict of interest statement

None declared.

### References

1. Ministry of Health Labour and Welfare. *Vital Statistics of Japan*. Tokyo 2009.
2. Derogatis LR, Morrow GR, Fetting J, Penman D, Piasetsky S, Schmale AM, et al. The prevalence of psychiatric disorders among cancer patients. *JAMA* 1983;249:751–7.
3. Massie MJ, Holland JC. Consultation and liaison issues in cancer care. *Psychiatr Med* 1987;5:343–59.
4. Grassi L, Gritti P, Rigatelli M, Gala C. Psychosocial problems secondary to cancer: an Italian multicentre survey of consultation-liaison psychiatry in oncology. Italian Consultation-Liaison Group. *Eur J Cancer* 2000;36:579–85.
5. Akechi T, Nakano T, Okamura H, Ueda S, Akizuki N, Nakanishi T, et al. Psychiatric disorders in cancer patients: descriptive analysis of 1721 psychiatric referrals at two Japanese cancer center hospitals. *Jpn J Clin Oncol* 2001;31:188–94.
6. Akechi T, Akizuki N, Okamura M, Shimizu K, Oba A, Ito T, et al. Psychological distress experienced by families of cancer patients: preliminary findings from psychiatric consultation of a Cancer Center Hospital. *Jpn J Clin Oncol* 2006;36:329–32.
7. Asai M, Akechi T, Nakano T, Shimizu K, Umezawa S, Akizuki N, et al. Psychiatric disorders and background characteristics of cancer patients' family members referred to psychiatric consultation service at National Cancer Center Hospitals in Japan. *Palliat Support Care* 2008;6:225–30.
8. Holmes TH, Rahe RH. The social readjustment rating scale. *J Psychosom Res* 1967;11:213–8.
9. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th edn. Washington DC: American Psychiatric Press 2000.
10. Parkes CM, Benjamin B, Fitzgerald RG. Broken heart: a statistical study of increased mortality among widowers. *Br Med J* 1969;1:740–3.
11. Mellstrom D, Nilsson A, Oden A, Rundgren A, Svanborg A. Mortality among the widowed in Sweden. *Scand J Soc Med* 1982;10:33–41.
12. Lichtenstein P, Gatz M, Berg S. A twin study of mortality after spousal bereavement. *Psychol Med* 1998;28:635–43.
13. Manor O, Eisenbach Z. Mortality after spousal loss: are there socio-demographic differences? *Soc Sci Med* 2003;56:405–13.
14. Prigerson HG, Bierhals AJ, Kasl SV, Reynolds CF, 3rd, Shear MK, Day N, et al. Traumatic grief as a risk factor for mental and physical morbidity. *Am J Psychiatry* 1997;154:616–23.
15. Buckley T, Bartrop R, McKinley S, Ward C, Bramwell M, Roche D, et al. Prospective study of early bereavement on psychological and behavioural cardiac risk factors. *Intern Med J* 2009;39:370–8.
16. Grimby A, Johansson AK. Factors related to alcohol and drug consumption in Swedish widows. *Am J Hosp Palliat Care* 2009;26: 8–12.
17. Erlangsen A, Jeune B, Bille-Brahe U, Vaupel JW. Loss of partner and suicide risks among oldest old: a population-based register study. *Age Ageing* 2004;33:378–83.
18. Kaprio J, Koskenvuo M, Rita H. Mortality after bereavement: a prospective study of 95,647 widowed persons. *Am J Public Health* 1987;77:283–7.
19. Li G. The interaction effect of bereavement and sex on the risk of suicide in the elderly: an historical cohort study. *Soc Sci Med* 1995;40:825–8.
20. Clayton P, Desmarais L, Winokur G. A study of normal bereavement. *Am J Psychiatry* 1968;125:168–78.
21. Clayton PJ, Halikes JA, Maurice WL. The bereavement of the widowed. *Dis Nerv Syst* 1971;32:597–604.
22. Zisook S, Shuchter SR. Depression through the first year after the death of a spouse. *Am J Psychiatry* 1991;148:1346–52.
23. Cole MG, Dendukuri N. Risk factors for depression among elderly community subjects: a systematic review and meta-analysis. *Am J Psychiatry* 2003;160:1147–56.
24. Piper WE, Ogrodniczuk JS, Azim HF, Weideman R. Prevalence of loss and complicated grief among psychiatric outpatients. *Psychiatr Serv* 2001;52:1069–74.
25. Schneidman ES. *Postvention and Survivor-Victim*. New York: Jason Aronson 1973.
26. World Health Organization. *National Cancer Control Programmes: Policies and Managerial Guidelines*. 2nd edn. Geneva 2002.
27. Engel GL. The need for a new medical model: a challenge for biomedicine. *Science* 1977;196:129–36.

28. Corney RH. Sex differences in general practice attendance and help seeking for minor illness. *J Psychosom Res* 1990;34:525-34.
29. Brabant S, Forsyth CJ, Melancon C. Grieving men: thoughts, feelings, and behaviors following deaths of wives. *Hosp J* 1992;8:33-47.
30. Martikainen P, Valkonen T. Mortality after the death of a spouse: rates and causes of death in a large Finnish cohort. *Am J Public Health* 1996;86:1087-93.
31. Reynolds CF, 3rd, Miller MD, Pasternak RE, Frank E, Perel JM, Cornes C, et al. Treatment of bereavement-related major depressive episodes in later life: a controlled study of acute and continuation treatment with nortriptyline and interpersonal psychotherapy. *Am J Psychiatry* 1999;156:202-8.
32. Zisook S, Shear K. Grief and bereavement: what psychiatrists need to know. *World Psychiatry* 2009;8:67-74.
33. Ishida M, Onishi H, Wada M, Wada T, Uchitomi Y, Nomura S. Bereavement dream? Successful antidepressant treatment for bereavement-related distressing dreams in patients with major depression. *Palliat Support Care* 2010;8:95-8.

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CASE REPORT

## Drug-induced akathisia as a cause of distress in spouse caregivers of cancer patients

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### ABSTRACT

*Objective:* Family caregivers of cancer patients suffer from physical, psychological, and social distress and therefore are often referred to as second order patients. Akathisia is a common side effect of antipsychotics and antidepressants that causes great discomfort and even agitation and is often described by patients administered these drugs as the most distressing side effect of their treatment. Several studies of akathisia as a cause of distress in cancer patients have been reported. However, akathisia has not been reported as a cause of distress in family caregivers of cancer patients.

*Method/Case report:* A 74-year-old spouse caregiver who was under treatment for major depressive disorder was not able to visit the hospital where her husband, a terminally ill cancer patient, was being treated. Initially, the spouse caregiver thought that she could not visit the hospital because of the symptoms of her depression and her grief about losing her husband. However, careful clinical examination revealed that she was suffering from akathisia in addition to her grief.

*Results:* Discontinuation of her sulpiride treatment resulted in the disappearance of her akathisia symptoms, and therefore she became able to visit the hospital and care for her terminally ill husband.

*Significance of results:* Drug induced akathisia is a cause of distress in spouse caregivers taking certain drugs. It is important for clinicians to realize that family caregivers might suffer from not only socioeconomic, physical, and psychological problems but also side effects of medication.

**KEYWORDS:** Akathisia, Depression, Side effect, Grief, Caregiver

### INTRODUCTION

Family caregivers of cancer patients suffer from physical, psychological, and social distress. With regard to their physical problems, reduced immunity (Kiecolt-Glaser et al., 1996), heart disease (Shaw et al., 1997), and chronic sleep disorder (Carter, 2002) were detected in a survey of the physical

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condition of family members of cancer patients. Family caregivers may also be cancer patients (Onishi et al., 2005). As for their psychological condition, family caregivers also suffer mental distress once their family member is suspected of having cancer, and they may develop anxiety and/or a depression. The overall prevalence of psychiatric conditions among family members of cancer patients is reportedly 10–50% (Braun et al., 2007). The severity of the depressive state of patient's family members is equivalent to that of cancer patients, and the depressive state persists, switching between regression and progression at various phases, such as examination, diagnosis, and recurrence (Northouse et al., 2000). In a survey of caregiving family members of terminal-stage cancer patients, depression was noted in approximately one-third within one month after the patient's death (Prigerson et al., 1997). As for the social problems of caregivers, caring for cancer patients often requires family members to abandon their social lives and to suffer an economic burden (Covinsky et al., 1994). Therefore, families are increasingly recognized as requiring treatment and care and are regarded as second order patients (Lederberg, 1998).

Confronting the mortality of loved ones is the most stressful event in life (Holmes & Rahe, 1967). However, preparing for a loved one's death is important because bereaved caregivers who perceived that could not prepare for their family member's death demonstrated more depression, anxiety, and complicated grief (Hebert et al., 2009). In addition, one survey reported that 90% of caregivers stated that the key elements of quality end-of-life care were completing things, resolving conflicts, and saying goodbye (Heyland et al., 2006). Therefore, it is recommended that clinicians intervene early to help caregivers, facilitate appropriate management of each problem, and make time for caregivers to prepare for their loved one's death (Hebert et al., 2009).

Akathisia is a common adverse effect of antipsychotics and, less commonly, antidepressants (Khamam et al., 2006). The clinical symptoms of akathisia include subjective complaints of restlessness accompanied by observable restless movements (e.g., fidgety movements of the legs, rocking from foot to foot, pacing, or the inability to sit or stand still) developing within a few weeks of starting or raising the dose of antipsychotics and/or antidepressants (American Psychiatric Association, 2000). The reported prevalence of akathisia varies between 20 and 75%. Its onset is within a few days of the initiation of medication, but it can also occur later in the treatment course (Hsin-Tung & Simpson, 2000).

Akathisia can cause great discomfort and even agitation and is often described by the patient as the most distressing sensation, and suicide is also a re-

ported complication (Shear et al., 1983; Cem Atbasoglu et al., 2001). However, the condition is often underdiagnosed or misdiagnosed as anxiety, agitation, or violent behavior (Siris, 1985; Rodgers, 1992; Hirose, 2003). The reasons for underdiagnosis are considered to be related to both the patient's symptoms and the clinician's attitude toward akathisia. Patient-related factors include a mild degree of akathisia; a lack of apparent motor restlessness; and a lack of clear communication about subjective sensations of restlessness, restlessness in body areas other than the legs, and other clinical signs. Clinician-related factors include an overemphasis on objective restlessness, a failure to consider akathisia during antipsychotic therapy, and a failure to fully implement anti-akathisia treatments in ambiguous cases (Hirose, 2003).

Several studies of akathisia in cancer patients have been reported (Fleishman et al., 1994; Kawamishi et al., 2007; Onishi et al., 2007); however, akathisia has not been reported as a cause of distress in family members caring for cancer patients.

In this article, we report a case of akathisia in a spouse caregiver of a terminally ill cancer patient. Initially, family members of the spouse caregiver thought that she was unable to visit the hospital where her husband was being treated because of her depression and the grief she was suffering about the impending loss of her husband. However, careful clinical examination revealed that she had akathisia. After treatment for the akathisia and subsequent palliation of her akathisia symptoms, the spouse caregiver was able to visit the hospital and take part in the care of her terminally ill husband.

To standardize physicians' judgment, Francis' criteria (Francis et al., 1990) were proposed for the diagnosis of akathisia. These criteria are based on a combination of a clinical assessment and a medical chart review, and the potential cause was categorized as 1) definite: if it was temporally related, there was laboratory confirmation, the patient improved with treatment or cessation of the offending agent, and there was no other cause present; or 2) probable: if all the previous criteria were met but another possible cause was present or laboratory confirmation was not achieved.

## CASE REPORT

### Medical History of the Cancer Patient – Husband

The patient was a 77-year-old man with a stage IV bladder carcinoma. At the initial operation, because of the presence of peritoneal dissemination and rectum stenosis, only colostomy was performed. He received chemotherapy and completed three courses. However,

when he was admitted to the hospital for the fourth course of chemotherapy, his chemotherapy was discontinued because pulmonary embolism developed. After that, pain, nausea, and vomiting developed, and he received medication to control his symptoms. His general condition gradually deteriorated, and his life expectancy ranged from several days to weeks.

### Medical History of the Spouse Caregiver – Wife

The patient's wife was a 74-year-old. She had lost her appetite and was diagnosed with major depressive disorder at another mental clinic after her husband started the second chemotherapy course. She received 75 mg sulpiride, 10mg clonazepam, and 0.25 mg triazolam, and her appetite improved a month later. However, she lost her appetite again when her husband was hospitalized for his fourth chemotherapy course. After that, the administered sulpiride dose was gradually increased from 75 mg to 150 mg, and 5 mg paroxetine was added over 2 weeks. However, her emotional condition did not improve, and she could scarcely go out or visit her hospitalized husband for a month — she met her husband just one time, but she left after 5 minutes because of restlessness. The daughters, who were living with the wife, also reported that she was wandering around the house. In addition, the daughters thought that their mother's depressive symptoms would worsen as she was confronted with the expected loss of her husband. Therefore, they brought her to our outpatient service so that we could provide her with mental support.

At the initial visit, she was depressed, but not frustrated. We found that both her legs were moving a little. She mentioned that she felt a sense of inner restlessness in both legs while she was sitting, which was relieved by walking around the room, and that these symptoms had developed when the dose of sulpiride was increased. Her symptoms fulfilled the *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition, Text Revision* criteria for drug-induced akathisia. We directed her to stop taking sulpiride. After 2 days, one daughter reported that the distress of their mother was reduced compared with on the day of the medical examination. Three days and five days after the discontinuation of sulpiride, the patient visited her husband was able to take care of him calmly at the hospital. Six days later, her husband died.

### DISCUSSION

We reported a spouse caregiver of a cancer patient who had akathisia. This is the first case of akathisia in the caregiver of a cancer patient.

Initially, we thought that the symptoms of the spouse caregiver were caused by the exacerbation of her major depressive disorder and her grief about losing her husband, because we had not met the wife before and believed the information from the daughters that she was under treatment for major depressive disorder. However, careful examination of the spouse caregiver revealed that her symptoms of restlessness had developed after the dose of sulpiride that she was being administered had been increased, and that she was suffering from akathisia in addition to her grief. Her distress was palliated after the sulpiride treatment was discontinued, and she visited her husband three times and was also able to take care of him before he died. Sulpiride is an antidepressant that can also cause akathisia (Jimenez-Jimenez et al., 1997; Janno et al., 2004); therefore, based on Francis' criteria, we identified sulpiride to be the offending drug in this case.

We consider that the caregiver's grief became stronger as her husband's condition got worse, but that this was misdiagnosed as depression; therefore, the dose of sulpiride was increased, and akathisia developed. There were several aspects of the spouse caregiver's akathisia that were underdiagnosed for 2 weeks or that were difficult to diagnose. First, the doctor of the mental clinic did not have a chance to examine the wife directly because her symptoms prevented her from leaving the house. Therefore, the doctor of the mental clinic could not recognize her grief and akathisia. Second, the daughters believed that their mother was grieving about losing her husband and thought that her distress was a normal psychogenic reaction. Third, the akathisia was mild, and the symptom of motor restlessness was unremarkable, and therefore it was difficult for the family members to properly recognize the symptoms. Finally, we had a bias toward a diagnosis of major depressive disorder because we had received information from a psychiatrist at the mental clinic and the statements of the family members.

The detection and treatment of the wife's akathisia resulted in the improvement of her distress-related symptoms, and she was able to take care of her terminally ill husband. This might have reduced any potential regret about her caregiving role. This case suggests that drug-induced akathisia is a cause of distress in spouse caregivers who are taking certain drugs. It is therefore important for clinicians to realize that family caregivers might suffer from not only socioeconomic, physical, and psychological problems but also from side effects of medication.

### REFERENCES

- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition*,

- Text Revision*. Washington, DC: American Psychiatric Press.
- Braun, M., Mikulincer, M., Rydall, A., et al. (2007). Hidden morbidity in cancer: Spouse caregivers. *Journal of Clinical Oncology*, *25*, 4829–4834.
- Carter, P.A. (2002). Caregivers' descriptions of sleep changes and depressive symptoms. *Oncology Nursing Forum*, *29*, 1277–1283.
- Cem Atbasoglu, E., Schultz, S.K. & Andreasen, N.C. (2001). The relationship of akathisia with suicidality and depersonalization among patients with schizophrenia. *Journal of Neuropsychiatry and Clinical Neurosciences*, *13*, 336–341.
- Covinsky, K.E., Goldman, L., Cook, E.F., et al. (1994). The impact of serious illness on patients' families. SUPPORT Investigators. Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment. *Journal of the American Medical Association*, *272*, 1839–1844.
- Fleishman, S.B., Lavin, M.R., Sattler, M., et al. (1994). Antiemetic-induced akathisia in cancer patients receiving chemotherapy. *American Journal of Psychiatry*, *151*, 763–765.
- Francis, J., Martin, D. & Kapoor, W.N. (1990). A prospective study of delirium in hospitalized elderly. *Journal of the American Medical Association*, *263*, 1097–1101.
- Hebert, R.S., Schulz, R., Copeland, V.C., et al. (2009). Preparing family caregivers for death and bereavement. Insights from caregivers of terminally ill patients. *Journal of Pain and Symptom Management*, *37*, 3–12.
- Heyland, D.K., Dodek, P., Rocker, G., et al. (2006). What matters most in end-of-life care: Perceptions of seriously ill patients and their family members. *Canadian Medical Association Journal*, *174*, 627–633.
- Hirose, S. (2003). The causes of underdiagnosing akathisia. *Schizophrenia Bulletin*, *29*, 547–558.
- Holmes, T.H. & Rahe, R.H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research*, *11*, 213–218.
- Hsin-Tung, E. & Simpson, G.M. (2000). Medication-induced movement disorders. In *Comprehensive Textbook of Psychiatry* (7th ed.). Sadock, B., & Sadock, V.A. (eds.), pp. 2267–2268. Philadelphia: Lippincott Williams & Wilkins.
- Janno, S., Holi, M., Tuisku, K., et al. (2004). Prevalence of neuroleptic-induced movement disorders in chronic schizophrenia inpatients. *American Journal of Psychiatry*, *161*, 160–163.
- Jimenez-Jimenez, F.J., Garcia-Ruiz, P.J. & Molina, J.A. (1997). Drug-induced movement disorders. *Drug Safety*, *16*, 180–204.
- Kawanishi, C., Onishi, H., Kato, D., et al. (2007). Unexpectedly high prevalence of akathisia in cancer patients. *Palliative & Supportive Care*, *5*, 351–354.
- Khawam, E.A., Laurencic, G. & Malone, D.A., Jr. (2006). Side effects of antidepressants: An overview. *Cleveland Clinic Journal of Medicine*, *73*, 351–353, 356–361.
- Kiecolt-Glaser, J.K., Glaser, R., Gravenstein, S., et al. (1996). Chronic stress alters the immune response to influenza virus vaccine in older adults. *Proceedings of the National Academy of Sciences of the United States of America*, *93*, 3043–3047.
- Lederberg, M.S. (1998). *The Family of the Cancer Patient*. New York: Oxford University Press.
- Northouse, L.L., Mood, D., Templin, T., et al. (2000). Couples' patterns of adjustment to colon cancer. *Social Science & Medicine*, *50*, 271–284.
- Onishi, H., Onose, M., Okuno, S., et al. (2005). Spouse caregivers of terminally-ill cancer patients as cancer patients: A pilot study in a palliative care unit. *Palliative & Supportive Care*, *3*, 83–86.
- Onishi, H., Yamamoto, W., Wada, M., et al. (2007). Detection and treatment of akathisia in advanced cancer patients during adjuvant analgesic therapy with tricyclic antidepressants: case reports and review of the literature. *Palliative & Supportive Care*, *5*, 411–414.
- Prigerson, H.G., Shear, M.K., Frank, E., et al. (1997). Traumatic grief: A case of loss-induced trauma. *American J Psychiatry*, *154*, 1003–1009.
- Rodgers, C. (1992). Extrapyramidal side effects of antiemetics presenting as psychiatric illness. *General Hospital Psychiatry*, *14*, 192–195.
- Shaw, W.S., Patterson, T.L., Semple, S.J., et al. (1997). Longitudinal analysis of multiple indicators of health decline among spousal caregivers. *Annals of Behavioral Medicine*, *19*, 101–109.
- Shear, M.K., Frances, A. & Weiden, P. (1983). Suicide associated with akathisia and depot fluphenazine treatment. *Journal of Clinical Psychopharmacology*, *3*, 235–236.
- Siris, S.G. (1985). Three cases of akathisia and "acting out." *Journal of Clinical Psychiatry*, *46*, 395–397.

Original Article

## Psychiatric Disorders in Cancer Patients at a University Hospital in Japan: Descriptive Analysis of 765 Psychiatric Referrals

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**Objective:** In cancer patients, adjustment disorders, delirium and depression have been identified as common psychiatric disorders. Although a comparable result was reported in the National Cancer Center in Japan, the nature of patients in that hospital may differ from that in local hospitals. There is a possibility to expand the findings of psycho-oncology by evaluation of the data from a local university hospital and comparison with the National Cancer Center data.

**Methods:** We retrospectively reviewed the medical records of cancer patients who were referred to the Department of Psycho-Oncology at Saitama Medical University International Medical Center. We identified their characteristics and psychiatric diagnoses and compared these with the National Cancer Center data.

**Results:** During the study period, 765 cancer patients were referred. The numbers of inpatients and outpatients were almost the same. The most common psychiatric diagnosis was adjustment disorders (24%), followed by delirium (16%) and then major depressive disorder (12%). The rank of these three was the same as that at the National Cancer Center. Outpatients constituted more than 80% of the patients with major depressive disorder. The proportion of cancer patients with schizophrenia in this study (4.3%) was higher than that in the National Cancer Center (1.6%).

**Conclusions:** This study revealed basic information about the consultation data of cancer patients at a local university hospital in Japan. The importance of communication with outpatients was suggested. It seems that cancer treatment for patients with schizophrenia in a local hospital is also important.

*Key words: cancer – psychiatric consultation – university hospital – outpatient – schizophrenia*

### INTRODUCTION

In Japan, when the Cancer Control Act came into effect in April 2007, 20% improvement of the 5-year survival rate and quality of life improvement of cancer patients and their

family members became two major targets. In addition, psycho-oncology has begun to attract attention as well as palliative care. Psycho-oncology aims to clarify the anthropological side of cancer by making use of scientific techniques and is associated with numerous disciplines, not

only psychology and psychiatry, but also oncology, immunology, endocrinology, sociology, ethics and philosophy, among others.

According to the psychiatric consultation data of 1721 cancer patients referred to the psychiatry division of two Japanese cancer hospitals, the most common psychiatric diagnosis was adjustment disorders, followed by delirium and depression (1). Comparable results were reported previously (2–5), and these three are considered common psychiatric disorders in cancer patients in epidemiological surveillance. However, no report of a large-scale study except for that at the National Cancer Center has been published in Japan, so further research was anticipated.

Saitama Medical University International Medical Center is affiliated to a private university and is located in a small city with a population of ~57 000. There is a comprehensive cancer center in this hospital, and treatment policy is decided through cooperation of physicians, surgeons, radiologists and pathologists, among others, for all cancer patients. Not only hospitalization but also regular outpatient treatment at a unit that specializes in outpatient chemotherapy is provided in the comprehensive cancer center, and various patients are treated for different kinds and stages of cancer.

The Department of Psycho-Oncology was established in April 2007 (simultaneously with the opening of this hospital) as the first of its kind at a university hospital in Japan; consultation at this department involves the cooperation of psychiatrists with psychologists. In addition, efforts are made not only in the psychiatric consultation of cancer patients but also in the care of their family members, both generally and after bereavement. To date, we have not reported on the consultation activity of cancer patients, although we reported on the characteristics and psychiatric diagnoses of bereaved family members (6). Although this hospital is a university hospital, it is an institution that is closely related to its locality. In contrast, cancer patients at the National Cancer Center come from all over Japan and the nature of patients in that hospital may differ from that in local hospitals. Therefore, there is a possibility to expand the findings of psycho-oncology by developing a greater understanding of the activity in this hospital and comparing the data with that from the National Cancer Center.

Given the above-mentioned goal, we investigated the characteristics and psychiatric diagnoses of cancer patients referred to the Department of Psycho-Oncology at Saitama Medical University International Medical Center.

## PATIENTS AND METHODS

We retrospectively reviewed the medical records of cancer patients who were referred to the Department of Psycho-Oncology at Saitama Medical University International Medical Center between April 2008 (when a database system was established) and March 2011. This hospital consists of a comprehensive cancer center, a heart

disease center and an emergency medical service center with a capacity of 600 beds. A computerized database was used to identify the characteristics and psychiatric diagnoses of the referred cancer patients. The database included demographic variables such as age and gender, medical factors such as cancer site and performance status (PS) as defined by Eastern Cooperative Oncology Group (ECOG) criteria (7), and in- or outpatient status. The database also included the psychiatric diagnoses according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (DSM-IV-TR) (8). When two or more diagnoses were made, the diagnosis that was most problematic was adopted.

The staff of the Department of Psycho-Oncology at Saitama Medical University International Medical Center comprises two full-time psychiatrists, one part-time psychiatrist (available 1 day per week), one full-time psychologist and one part-time psychologist. In the inpatient section, we specialize in consultation liaison activity with cancer patients, and work as members of a palliative care team. In the outpatient section, we examine not only cancer patients and their family members but also bereaved family members. We conferred on all referred patients, their family members and bereaved family members and improved the validity of their diagnoses. The characteristics and psychiatric diagnosis were compared with the data from the National Cancer Center (1). In addition, the  $\chi^2$  test was used to analyze differences in the psychiatric diagnosis. Statistical analyses were conducted using the SPSS 17.0 package.

This study was approved by the Institutional Review Board of Saitama Medical University International Medical Center (11-026).

## RESULTS

### CHARACTERISTICS OF REFERRED CANCER PATIENTS

During the study period, 765 cancer patients were referred to the Department of Psycho-Oncology (Table 1). The numbers of inpatients and outpatients were almost the same. There were about 1.3 times as many female patients as male patients (437 vs. 328). When limited to outpatients, there were about twice as many females as males. Patients without physical impairment (PS of 0) accounted for 15.0%. The number of outpatients with a low level of physical impairment (PS of 0–2) was higher than that of inpatients (349 vs. 240); outpatients tended to exhibit good physical function. The most common cancer site was the breast (20%), followed by the head and neck (15%) and then the lung (13%). In inpatients, the most common was the head and neck, followed by the lung and then the breast. In outpatients, the most common was the breast, followed by the lung and then the colon.

### PSYCHIATRIC DIAGNOSES OF REFERRED CANCER PATIENTS

The most common psychiatric diagnosis was adjustment disorders, accounting for ~24% of the referred patients

**Table 1.** Characteristics of referred cancer patients

	No. (%)			Reference 1, 1721
	Inpatient, 384 (50.2)	Outpatient, 381 (49.8)	Total, 765	
<b>Age (years)</b>				
Mean ± SD	58 ± 16	59 ± 13	59 ± 15	56 ± 14
Range	11–93	13–87	11–93	15–88
<b>Gender</b>				
Male	204	124	328 (42.9)	898 (52.2)
Female	180	257	437 (57.1)	823 (47.8)
<b>Performance status</b>				
0	34	81	115 (15.0)	421 (24.7)
1	114	190	304 (39.7)	496 (29.1)
2	92	78	170 (22.2)	296 (17.4)
3	90	27	117 (15.3)	266 (15.6)
4	49	2	51 (6.7)	227 (13.3)
Unknown	5	3	8 (1.0)	
<b>Cancer site</b>				
Breast	37	115	152 (19.9)	215 (12.5)
Head and neck	80	32	112 (14.6)	179 (10.4)
Lung	51	51	102 (13.3)	322 (18.7)
Colon	20	43	63 (8.2)	153 (8.9)
Stomach	32	20	52 (6.8)	114 (6.6)
Uterus	22	17	39 (5.1)	No data
Esophagus	25	9	34 (4.4)	101 (5.9)
Pancreas	10	21	31 (4.1)	57 (3.3)
Unknown	3	7	10 (1.3)	No data
Others	109	68	177 (23.1)	

(Table 2). The second most common diagnosis was delirium, accounting for ~16%. When limited to inpatients, delirium was the most common. The third most common diagnosis was major depressive disorder, accounting for ~12%. Unexpectedly, outpatients constituted more than 80% of the patients with major depressive disorder. Other diagnoses were schizophrenia (4.3%), anxiety disorders (3.9%), dementia (3.4%) and sleep disorders (3.1%). Patients with no diagnosis accounted for ~20%.

Compared with the data from the National Cancer Center, the rank of the three most common psychiatric diagnoses was the same. The proportions of cases of delirium and major depressive disorder did not differ significantly, that of adjustment disorders was low and those of schizophrenia and dementia were high. The proportion of cases with no diagnosis was also high compared with that at the National Cancer Center.

**Table 2.** Psychiatric diagnoses of referred cancer patients

	No. (%)			Reference 1, 1721	P value
	Inpatient, 384 (50.2)	Outpatient, 381 (49.8)	Total, 765		
Adjustment disorders	86	101	187 (24.4)	585 (34.0)	<0.01
Delirium	112	9	121 (15.8)	299 (17.4)	0.34
Major depressive disorder	15	79	94 (12.3)	247 (14.4)	0.17
Schizophrenia	16	17	33 (4.3)	28 (1.6)	<0.01
Anxiety disorders	7	22	30 (3.9)	Cannot compare	
Dementia	19	7	26 (3.4)	36 (2.1)	<0.01
Sleep disorders	18	6	24 (3.1)	No data	
Somatoform disorders	5	9	14 (1.8)	No data	
Others	25	21	46 (6.0)	No data	
No diagnosis	82	65	147 (19.2)	223 (13.0)	<0.01

**PATIENT CHARACTERISTICS AND PSYCHIATRIC DIAGNOSES**

Regarding age, less than 10% of younger patients (<60 years) were diagnosed as having delirium, as opposed to more than 20% of older patients (≥60 years) (Table 3). Regarding gender, about a quarter of referred male patients were diagnosed as having delirium, while this occurred in less than 10% of female patients. Regarding PS, less than 10% of the patients with a low level of physical impairment (PS of 0–2) were diagnosed as having delirium, as opposed to more than 40% of the patients with marked physical impairment (PS of 3–4). Regarding the cancer site, the proportion of adjustment disorders was high in the cases of breast and pancreatic cancer, that of delirium was high in the cases of esophageal and stomach cancer and that of major depressive disorder was high in the cases of pancreatic cancer.

**DISCUSSION**

This study provides information about psychiatric disorders in cancer patients referred to a cancer center at a university hospital in Japan. According to the national estimates of local cancer registration in Japan (9), the number of males affected by cancer in 2006 was about 388 000, and the number of females was about 276 000. The total number of males was about 1.4 times that of females. In over 40% of the cases, the cancer site was the stomach, colon or lung. Although the above-mentioned order only for male patients was the same, the most common cancer site for female patients was the breast, followed by the colon and then the

**Table 3.** Patient characteristics and psychiatric diagnoses

	No. (%)			
	Adjustment disorders, 187 (24.4)	Delirium, 121 (15.8)	Major depressive disorder, 94 (12.3)	All patients, 765
<b>Age</b>				
<60	91 (26.1)	26 (7.4)	40 (11.5)	349
≥60	96 (23.1)	95 (22.8)	54 (13.0)	416
<b>Gender</b>				
Male	62 (18.9)	80 (23.4)	31 (9.5)	328
Female	125 (28.6)	41 (9.4)	63 (14.4)	437
<b>Performance status</b>				
0–2	164 (27.8)	45 (7.6)	84 (14.3)	589
3–4	20 (11.9)	74 (44.0)	9 (5.4)	168
<b>Cancer site</b>				
Breast	63 (41.4)	6 (3.9)	24 (15.8)	152
Head and neck	16 (14.3)	19 (17.0)	13 (11.6)	112
Lung	27 (26.5)	18 (17.6)	13 (12.7)	102
Colon	18 (28.6)	6 (9.5)	10 (15.9)	63
Stomach	12 (23.1)	14 (26.9)	4 (7.7)	52
Uterus	4 (10.3)	7 (17.9)	2 (5.1)	39
Esophagus	4 (11.8)	16 (47.1)	5 (14.7)	34
Pancreas	11 (35.5)	4 (12.9)	6 (19.4)	31

stomach. Since the latter half of the 1970s, the prevalence of cancer for males and females has continued to increase. Although the proportions of lung cancer, colon cancer and prostate cancer have increased, the proportion of stomach cancer has decreased in males. On the other hand, although the proportions of colon cancer, breast cancer and lung cancer have increased, the proportion of stomach cancer has decreased in females. According to population statistics (10), the number of deaths of males and females from cancer is consistently increasing. Cancer has been the leading cause of death since 1981 and, for several years, it has accounted for more than 30% of the overall death toll in Japan. In 2009, the number of cancer deaths was about 206 000 for males and about 138 000 for females. The total number of males was about 1.5 times that of females. In over 40% of the cases, the cancer site was the lung, stomach or colon. Lung cancer surpassed stomach cancer to become the leading cause of cancer death in males in the 1990s. In addition, colon cancer and lung cancer became the leading causes of cancer death in females in the late 2000s.

In a previous study by the National Cancer Center in Japan (1), the ratio of males to females in terms of psychiatry consultation was almost 1:1. However, in this study, the number of female patients was more than that of male patients. In addition, the number of female outpatients was

nearly double that of male outpatients. Although this was thought to have contributed to the number of breast cancer patients, there might be other factors involved. Regarding the cancer site, in the former study, the most common was the lung, followed by the breast and then the head and neck. Although the order was different, the result in this study was similar. This study indicated that the most common cancer site was the breast, particularly in outpatients. Many recently reported studies about psychiatric disorders of cancer patients have focused on breast cancer patients (11–14). Breast cancer shows a tendency to increase worldwide. In Japan, the breast became the most common cancer site among females in the 2000s (9). Many previous studies indicated the serious psychosocial impacts of breast cancer (15,16). It seems that the high prevalence of breast cancer and the severe psychological effects provide important insight for psychiatric consultation. The second most common cancer site was the head and neck in this study and this was the most common among inpatients. Although in Japan, at present, the proportion of cases of head and neck cancer is not high, it has been increasing (9). Previous studies reported that patients with head and neck cancer face functional impairment and disfigurement, and they also suffer from psychological distress (17,18). It seems that the results provide important insight for psychiatric consultation.

Although this study indicated that adjustment disorders were the most common psychiatric disorder among referral patients, the proportion of cases of adjustment disorders was significantly low compared with that in a former report (1). Although about 20% of the patients had no diagnosis, most of them were potential adjustment disorder patients and there was a possibility that such patients were referred before their condition deteriorated. Although the proportion of patients with major depressive disorder in this study was not significantly different from that in the above-mentioned report, outpatients constituted more than 80% of the patients with major depressive disorder in this study. It should be noted that the number of inpatients accounted for 80% among referred patients in a previous study, while the numbers of inpatients and outpatients were almost the same in this study. As a result, it is expected that there were many patients who were treated as outpatients. Although it was reported that adjustment disorders can develop into major depressive disorder if not adequately treated (19,20), it can be difficult to deal with patients in hospital because of their tendency for a short stay. Thus, it may be increasingly important to promote communication with outpatients. It may also become important to perform screening of outpatients (21,22). In addition, to the best of our knowledge, there have been no large-scale studies reported about psycho-oncology outpatients, and there is a possibility that this could become an important research focus in the future. Delirium occurred in 30% of the cases and was the most common psychiatric disorder among inpatients. This observation is similar to that in a report from a palliative care team at the National Cancer Center Hospital East in Japan

(23). In previous studies, there was an increased prevalence of delirium in the advanced phase or terminal phase (2,24). Many advanced cancer and recurrent cancer patients were previously reported on (23). While the present study did not include information on disease stage, it is expected that the disease stage of the patients described herein was similar because the PS distribution was similar to that in the previous report.

Of particular note in this report is that patients with schizophrenia accounted for more than 4% of the total. Although it seems that there is a high probability of schizophrenic patients being referred, the reports from the National Cancer Center in Japan (1,23) showed the proportion to be at the level of 1%. However, according to reports from abroad, this proportion varies. Some values were similar to that in this study (3,5), while some were less than 1% (2,4). It is expected that patients with schizophrenia have difficulty going to a distant hospital, and the proportion will be low in a hospital in which patients are admitted from a wide area. In Japan, the admission rate of patients with schizophrenia is high, and older age has been reported in inpatients (25). It is expected that inpatients have more difficulty going to a distant hospital. Therefore, it seems that cancer treatment for patients with schizophrenia in a local hospital is important. Although the reports about the cancer death rate for schizophrenic patients were inconsistent (26–30), the cancer death rate for schizophrenic patients was found to be four times as great as that for the general population in a large prospective study in France (31). In Japan, to the best of our knowledge, there have been no prospective studies and few cases of retrospective study. There is also the possibility that this will become an important research focus in the future.

The finding of a relationship between characteristics and psychiatric diagnoses of referred cancer patients was similar to that in a previous report (1): pancreatic cancer patients and breast cancer patients made up a large proportion of the cases of adjustment disorders and major depressive disorder. Pancreatic cancer is one of the most dismal prognoses among cancers and it was previously reported that patients with pancreatic cancer develop depressive symptoms at high rates (32,33). In addition, whereas patients with esophageal cancer had a high proportion of delirium, this was not mentioned in previous reports and might just have been due to the small number of cases in this study. Information on liver cancer and its association with delirium as reported previously was not provided here because our hospital does not provide medical treatment for this.

There are some limitations to this study. First of all, as in the case with the National Cancer Center report, the patient sample could have been affected to a large degree by physician bias. Secondly, the psychiatric diagnosis was that made at the first medical examination, and the course was not considered. Moreover, diagnosis bias by a psychiatrist was to some degree inevitable.

In conclusion, this study revealed basic information about the consultation data of cancer patients at a local university

hospital in Japan. The importance of communication with outpatients was suggested. It seems that cancer treatment for patients with schizophrenia in a local hospital is also important.

**Conflict of interest statement**

None declared.

**References**

1. Akechi T, Nakano T, Okamura H, Ueda S, Akizuki N, Nakanishi T, et al. Psychiatric disorders in cancer patients: descriptive analysis of 1721 psychiatric referrals at two Japanese cancer center hospitals. *Jpn J Clin Oncol* 2001;31:188–94.
2. Derogatis LR, Morrow GR, Fetting J, Penman D, Piasetsky S, Schmale AM, et al. The prevalence of psychiatric disorders among cancer patients. *JAMA* 1983;249:751–7.
3. Grassi L, Gritti P, Rigatelli M, Gala C. Psychosocial problems secondary to cancer: an Italian multicentre survey of consultation-liaison psychiatry in oncology. Italian Consultation-Liaison Group. *Eur J Cancer* 2000;36:579–85.
4. Kissane DW, Smith GC. Consultation-liaison psychiatry in an Australian oncology unit. *Aust N Z J Psychiatry* 1996;30:397–404.
5. Massie MJ, Holland JC. Consultation and liaison issues in cancer care. *Psychiatr Med* 1987;5:343–59.
6. Ishida M, Onishi H, Wada M, Tada Y, Ito H, Narabayashi M, et al. Psychiatric disorders in patients who lost family members to cancer and asked for medical help: descriptive analysis of outpatient services for bereaved families at Japanese cancer center hospital. *Jpn J Clin Oncol* 2011;41:380–5.
7. Oken MM, Creech RH, Tormey DC, Horton J, Davis TE, McFadden ET, et al. Toxicity and response criteria of the Eastern Cooperative Oncology Group. *Am J Clin Oncol* 1982;5:649–55.
8. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th edn. Text revision. Washington, DC: American Psychiatric Press 2000.
9. Matsuda T, Marugame T, Kamo K, Katanoda K, Ajiki W, Sobue T. Cancer incidence and incidence rates in Japan in 2005: based on data from 12 population-based cancer registries in the Monitoring of Cancer Incidence in Japan (MCIJ) project. *Jpn J Clin Oncol* 2011;41:139–47.
10. Ministry of Health, Labour and Welfare [Internet]. Vital Statistics of Japan 2010 [cited 1 December 2011]. <http://www.e-stat.go.jp/SG1/estat/ListE.do?lid=000001082327>.
11. Alexander S, Palmer C, Stone PC. Evaluation of screening instruments for depression and anxiety in breast cancer survivors. *Breast Cancer Res Treat* 2010;122:573–8.
12. Gandubert C, Carriere I, Escot C, Soulier M, Hermes A, Boulet P, et al. Onset and relapse of psychiatric disorders following early breast cancer: a case-control study. *Psychooncology* 2009;18:1029–37.
13. Mehnert A, Koch U. Prevalence of acute and post-traumatic stress disorder and comorbid mental disorders in breast cancer patients during primary cancer care: a prospective study. *Psychooncology* 2007;16:181–8.
14. Ozalp E, Soygur H, Cankurtaran E, Turhan L, Akbiyik D, Geyik P. Psychiatric morbidity and its screening in Turkish women with breast cancer: a comparison between the HADS and SCID tests. *Psychooncology* 2008;17:668–75.
15. Bogaarts MP, Den Ouden BL, Roukema JA, Van Riel JM, Beerepoot LV, De Vries J. Development of the Psychosocial Distress Questionnaire-Breast Cancer (PDQ-BC): a breast cancer-specific screening instrument for psychosocial problems. *Support Care Cancer* 2010;19:1485–93.
16. Andreu Y, Galdon MJ, Dura E, Martinez P, Perez S, Murgui S. A longitudinal study of psychosocial distress in breast cancer: Prevalence and risk factors. *Psychol Health* 2011 [Epub ahead of print].
17. Bond SM, Dietrich MS, Murphy BA. Neurocognitive function in head and neck cancer patients prior to treatment. *Support Care Cancer* 2011;20:149–57.
18. Elani HW, Allison PJ. Coping and psychological distress among head and neck cancer patients. *Support Care Cancer* 2010;19:1735–41.

19. Ayuso-Mateos JL, Nuevo R, Verdes E, Naidoo N, Chatterji S. From depressive symptoms to depressive disorders: the relevance of thresholds. *Br J Psychiatry* 2010;196:365–71.
20. Grassi L, Rosti G. Psychosocial morbidity and adjustment to illness among long-term cancer survivors. A six-year follow-up study. *Psychosomatics* 1996;37:523–32.
21. Shimizu K, Ishibashi Y, Umezawa S, Izumi H, Akizuki N, Ogawa A, et al. Feasibility and usefulness of the 'Distress Screening Program in Ambulatory Care' in clinical oncology practice. *Psychooncology* 2010;19:718–25.
22. Newell S, Sanson-Fisher RW, Girgis A, Ackland S. The physical and psycho-social experiences of patients attending an outpatient medical oncology department: a cross-sectional study. *Eur J Cancer Care (Engl)* 1999;8:73–82.
23. Ogawa A, Shimizu K, Akizuki N, Uchitomi Y. Involvement of a psychiatric consultation service in a palliative care team at the Japanese cancer center hospital. *Jpn J Clin Oncol* 2010;40:1139–46.
24. Minagawa H, Uchitomi Y, Yamawaki S, Ishitani K. Psychiatric morbidity in terminally ill cancer patients. A prospective study. *Cancer* 1996;78:1131–7.
25. Ministry of Health, Labour and Welfare [Internet]. Summary of Patient Survey (JPN); 2008 [cited 3 December 2009]. [http://www.mhlw.go.jp/english/database/db-hss/sps\\_2008.html](http://www.mhlw.go.jp/english/database/db-hss/sps_2008.html).
26. Brown S, Inskip H, Barraclough B. Causes of the excess mortality of schizophrenia. *Br J Psychiatry* 2000;177:212–7.
27. Lichtermann D, Ekelund J, Pukkala E, Tanskanen A, Lonnqvist J. Incidence of cancer among persons with schizophrenia and their relatives. *Arch Gen Psychiatry* 2001;58:573–8.
28. Osby U, Correia N, Brandt L, Ekblom A, Sparen P. Mortality and causes of death in schizophrenia in Stockholm county, Sweden. *Schizophr Res* 2000;45:21–8.
29. Catts VS, Catts SV, O'Toole BI, Frost AD. Cancer incidence in patients with schizophrenia and their first-degree relatives—a meta-analysis. *Acta Psychiatr Scand* 2008;117:323–36.
30. Brown S. Excess mortality of schizophrenia. A meta-analysis. *Br J Psychiatry* 1997;171:502–8.
31. Tran E, Rouillon F, Loze JY, Casadebaig F, Philippe A, Vitry F, et al. Cancer mortality in patients with schizophrenia: an 11-year prospective cohort study. *Cancer* 2009;115:3555–62.
32. Jia L, Jiang SM, Shang YY, Huang YX, Li YJ, Xie DR, et al. Investigation of the incidence of pancreatic cancer-related depression and its relationship with the quality of life of patients. *Digestion* 2010;82:4–9.
33. Carney CP, Jones L, Woolson RF, Noyes R, Jr, Doebbeling BN. Relationship between depression and pancreatic cancer in the general population. *Psychosom Med* 2003;65:884–8.

**Original Article**

## Experience with Prognostic Disclosure of Families of Japanese Patients with Cancer

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**Abstract**

**Context.** Prognosis is difficult to discuss with patients who have advanced cancer and their families.

**Objectives.** This study aimed to explore the experiences of families of patients with cancer in Japan in receiving prognostic disclosure, explore family perception of the way the prognosis was communicated, and investigate relevant factors of family-perceived need for improvement.

**Methods.** A multicenter questionnaire survey was conducted with 666 bereaved family members of patients with cancer who were admitted to palliative care units in Japan.

**Results.** In total, 86.3% of the families received prognostic disclosure. The overall evaluation revealed that 60.1% of the participants felt that the method of prognostic disclosure needed some, considerable, or much improvement. The parameter with the highest value explaining the necessity for improvement was the family perception that the amount of information provided by the physician was insufficient ( $\beta = 0.39$ ,  $P < 0.001$ ). Furthermore, the family perception that they had lost hope and that health care providers failed to facilitate preparation for the patient's death had significant direct effects on the necessity for improvement ( $\beta = 0.21$ ,  $P < 0.001$ ; and  $\beta = 0.18$ ,  $P < 0.001$ , respectively). The feelings for the necessity for improvement also were affected significantly by seven communication strategies (i.e., not saying "I can do nothing for the patient any longer," pacing explanation with the state of the patient's and family's preparation, saying "We will respect the patient's wishes," making an effort to

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understand the family's distress, being knowledgeable about the most advanced treatments, assuring continuing responsibility as the physician for medical care, and respecting the family's values).

**Conclusion.** This model suggests that strategies for care providers to improve family perception about prognostic disclosure should include 1) providing as much prognostic information as families want; 2) supporting families' hopes by keeping up with up-to-date treatments and by assuring the continuing responsibility for medical care; 3) facilitating the preparation for the patient's death by providing information in consideration of the family's preparations and values; 4) stressing what they can do instead of saying that nothing can be done for the patient; and 5) assuring the family that they will respect the patient's wishes. *J Pain Symptom Manage* 2011;41:594–603. © 2011 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

### Key Words

*Prognostic disclosure, family, cancer, communication, Japan*

## Introduction

Prognosis is an issue that most physicians and patients describe as difficult to discuss,<sup>1</sup> and whether to tell patients with cancer about their diagnosis and prognosis is a matter of great debate.<sup>2</sup> Although it is said to be important to give patients prognostic information so that they can make important decisions in an informed manner,<sup>2</sup> the concern that prognostic information can cause distress<sup>3,4</sup> and loss of hope<sup>5–7</sup> can lead some physicians to avoid the topic<sup>8,9</sup> or to disclose vague<sup>4</sup> or overly optimistic information.<sup>10</sup> Therefore, it is very important to consider better ways of prognosis communication.

To date, many studies have been carried out to clarify patients' preferences<sup>11–13</sup> and experiences<sup>14</sup> in receiving prognostic disclosure. At the same time, methods of prognosis communication also have been explored, and several suggestions have been made.<sup>12,15</sup> As important factors for optimal ways of presenting a prognosis to a patient, several themes have been identified, as follows: communication within a caring, trusting, long-term relationship; open and repeated negotiations for patient preferences for information; clear, straightforward presentation of the prognosis where desired; incorporation of strategies to ensure patient understanding; encouragement of hope and a sense of control; consistency of communication within the multidisciplinary team; and communication with other members of the family.<sup>15</sup> Through these communication strategies,

physicians hope to strike a balance between maintaining a patient's positive attitude and facilitating the preparation for possible death.<sup>9,16,17</sup>

The description of these strategies has been accompanied by only a few empirical studies that have specifically addressed the preferences and experiences of the family in receiving information about the patient's prognosis,<sup>18</sup> and familial views on optimal ways of presenting a prognosis have not been explored. In Japan, family members have a special role in communicating bad news, including prognoses.<sup>19</sup> Although many studies recommend that physicians disclose the prognosis first to the patient,<sup>11,20,21</sup> it is culturally approved that family members receive the information before the patient, and in Japan and other Asian countries, families are requested to decide how and to what degree the patient should be told.<sup>21–23</sup> It is also noteworthy that many Japanese patients agree to follow a family member's decision.<sup>24</sup> Therefore, family members are typically the first to receive the full medical information, whereas patients receive the information gradually, and often partially, based on their own or on their family members' preferences. For this reason, improvement in the methods of prognostic disclosure for family members is a major task for Japanese medical professionals.

A large survey was undertaken to help understand the methods of disclosure and opportunities for improvement in Japan. The primary aims were to 1) explore the experiences of

families of patients with cancer in Japan in receiving prognostic disclosure, 2) explore family perception of the way the prognosis was communicated, and 3) investigate relevant factors of family-perceived need for improvement.

## **Methods**

### *Procedure*

This study was part of a large cross-sectional, anonymous nationwide survey named the J-HOPE Study (Japan Hospice and Palliative Care Evaluation Study). The detailed methodology of this survey was described in a previous article.<sup>35</sup> All 153 palliative care units (PCUs) of Hospice Palliative Care Japan approved before September 2005 were recruited for this study, and 100 PCUs participated. We asked each institution to identify the bereaved family members of patients who died from November 2004 to October 2006 consecutively (up to 80 subjects from each institution). A total of about 8000 subjects were randomly allocated to receive 10 different questionnaire surveys. We mailed questionnaires to bereaved families in June 2007, and then again in August 2007 only to nonresponding families.

### *Participants*

Primary physicians identified potential participants based on the following inclusion criteria: 1) bereaved family member of an adult patient with cancer (one family member was selected for each patient), 2) at least 20 years of age, 3) capable of replying to a self-report questionnaire, 4) aware of the diagnosis of malignancy, and 5) no serious psychological distress recognized by the primary physician. The last criterion was adopted on the assumption that primary physicians could identify families who would suffer serious psychological burden by taking this survey. In total, 8402 subjects were assigned to the J-HOPE study, and 12 questionnaires including this study were randomly assigned to them.

Completion and return of the questionnaire were regarded as consent to participate in this study. The ethical and scientific validity were confirmed by the institutional review board of each hospital.

### *Questionnaire*

The questionnaire was developed by the authors based on information from previous

studies<sup>15,17,26–28</sup> and extensive discussions among the authors. Content validity was confirmed by unanimous agreement of the authors. The primary endpoint was the family-perceived evaluation of prognosis communication that was provided by the physician who was in charge of the patient's treatment. As a result of the lack of previously validated instruments, the outcome parameters were developed by the authors similar to previous surveys. As an overall evaluation, we assessed the necessity for improvement, based on the answer to the question "How much improvement do you think was needed in the prognosis communication?" rated on a 4-point scale as 1: no improvement, 2: some improvement, 3: considerable improvement, and 4: much improvement.

In addition, family perception on amount of information, loss of hope, and usefulness of prognostic disclosure in preparation for patient death were assessed. The amount of information was rated on a 5-point scale as "much less than expected," "less than expected," "appropriate," "should have been a little less," and "should have been much less." For the other two aspects, the following questions were asked: "Did you lose hope after the prognosis communication?" and "Was the prognosis communication useful in preparing for the patient's death?" These questions were rated on a 5-point scale from 1: strongly disagree to 5: strongly agree.

The family members also were requested to report the level of prognostic disclosure they received, from 1: no disclosure (they did not receive any disclosure at all), 2: no answer (physician said "I don't know" or "I cannot answer"), 3: specific survival periods with some ranges or probability (e.g., several weeks or months), or 4: definite survival periods without ranges or probability (e.g., "until May" or "for three months"). We also asked about the amount of prognostic disclosure the patients received relative to their family members, from 1: no disclosure, 2: the same level of disclosure as the family received, 3: less specific information than the family received, or 4: more specific information than the family received.

In addition, we investigated 24 communication strategies derived from prior empirical studies on the assumption that physicians' communication skills could influence families'

emotional distress.<sup>12,18</sup> The family members were requested to rate their level of agreement with the listed physicians' communication behaviors on a 5-point Likert-type scale from 1: strongly disagree to 5: strongly agree, or with a yes-no format.

### Analysis

Descriptive analyses were carried out summarizing the participants' backgrounds and scores following psychological measurements. To explore the determinants of the family perception of prognostic disclosure, we initially screened 11 background variables (patient's age and sex, number of hospital days, type of cancer, bereaved family member's age, sex, relationship with the patient, health status during the caregiving period, frequency of attending to the patient, presence of other caregivers, and financial expenditure during the last month), the type of disclosure, family perception on amount of information, loss of hope, and usefulness of prognostic disclosure in preparation for patient death, and 24 communication strategies by univariate analyses. Univariate analyses were carried out with Student's *t*-test or the Chi-square test, where appropriate. To assess the results of the 31 comparisons, the *P*-value necessary for statistical significance was set at 0.002 (0.05/39) using the Bonferroni correction. For the comparisons, the respondents were classified into two groups: family members who rated the necessity for improvement as "some," "much," or "considerable" vs. "none." This cut-off point was determined on the basis of the actual

data distribution to divide the whole sample into approximately equal-sized comparison groups.

Next, a path analysis was carried out to test the model. All potential predictors with statistical significance by univariate analyses were entered in the model as independent variables.

We conducted all statistical analyses using SPSS version 11.0 (SPSS Inc., Chicago, IL) and AMOS version 5.0 (SPSS Inc., Chicago, IL).

### Results

Of the 427 questionnaires returned (response rate 64.4%), 409 were valid for statistical analyses. The rest ( $n = 18$ ) were invalid because of missing data on the primary endpoint, such as the necessity for improvement. Thus, the rate of valid replies was 61.9%. Table 1 summarizes the main background information for the family members. Only the participant's age was observed to be a significant predictor of necessity for improvement in the univariate analysis.

#### Family Reported Practices of Prognosis Disclosure

The types of prognostic disclosure received were no disclosure (7.6%,  $n = 31$ ), no answer (4.9%,  $n = 20$ ), specific survival periods with some ranges or probability (52.1%,  $n = 213$ ), and definite survival periods without ranges or probability (34.2%,  $n = 140$ ). Meanwhile, the types of prognosis communication that patients received were no disclosure (46.5%,  $n = 190$ ), same as family (29.6%,  $n = 121$ ),

Table 1  
Background of Participants

Characteristic	Total		No Improvement		Some or More Improvement		<i>P</i>
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Total	409		163		246		
Age (mean ± SD)	59 ± 12		61 ± 11		58 ± 12		0.004
Sex							
Male	114	27.9	46	28.2	68	27.6	0.345
Female	291	71.1	114	69.9	177	72.0	
Relationship to patient							
Spouse	203	49.6	83	50.9	120	48.8	0.176
Child	130	31.8	42	25.8	88	35.8	
Child-in-law	23	5.6	11	6.7	12	4.9	
Sibling	28	6.8	15	9.2	13	5.3	
Other	22	5.4	10	6.1	12	4.9	

SD = standard deviation.

Table 2  
Family-Reported Practice in Prognosis Disclosure

No.	Item	n	%
1	The physician assured sufficient symptom control	315	77.0
2	The physician assured sufficient care at the patient's last hour	303	74.1
3	The physician said, "We will respect the patient's wishes"	276	67.5
4	The physician explained mainly in words	275	67.2
5	The physician made maximum efforts to understand my distress	262	64.1
6	The physician paced his/her explanation with the state of my/patient's preparation	243	59.4
7	The physician gave concrete advice for my actual concern	242	59.2
8	The physician was knowledgeable about the most advanced treatments	236	57.7
9	The physician respected my values	229	56.0
10	The physician assured the continuing responsibility of physician for medical care	226	55.3
11	The physician suggested what we should do because the patient's condition was relatively good	213	52.1
12	The prognosis is an "average," and it does not have to be suitable for the patient	199	48.7
13	The physician discussed how to achieve my wishes, such as home care	190	46.5
14	The physician clearly told me the disease is incurable	172	42.1
15	The physician showed the thought, "I don't want to give up"	147	35.9
16	The physician explained in terms of daily life perspectives	131	32.0
17	The physician said, "I can do nothing for the patient any longer"	117	28.6
18	The physician told the longest predicted prognosis	94	23.0
19	The physician told the shortest predicted prognosis	93	22.7
20	The physician said, "Treatment might be possible at some time in the future"	73	17.8
21	The physician told the average prognosis	65	15.9
22	The physician used graphs and tables	40	9.8
23	The physician told the one-year survival rate	24	5.9
24	The physician told the five-year survival rate	16	3.9

less specific than family (11.7%,  $n = 48$ ), and more specific than family (4.6%,  $n = 19$ ).

Table 2 shows the percentages of family members who agreed (agree or strongly agree/yes) with each statement. Over 70% of the respondents reported that the physician assured sufficient symptom control at the patient's last hour.

#### Family Perception of Prognostic Disclosure

In the overall evaluation of prognosis communication, more than half of the family members felt that the method of prognostic disclosure should be improved: no improvement (39.9%,  $n = 163$ ), some improvement (40.8%,  $n = 167$ ), considerable improvement (11.5%,  $n = 47$ ), and much improvement (7.8%,  $n = 32$ ).

About half of the bereaved family members stated that the amount of prognostic information provided by the physician was more or less than they expected: much less than expected (13.7%,  $n = 56$ ), less than expected (19.8%,  $n = 81$ ), more than expected (11.7%,  $n = 48$ ), and much more than expected (3.2%,  $n = 13$ ). The responses to "Did you lose hope after the prognosis communication?" were strongly agree 24.7% ( $n = 101$ ), agree 25.9% ( $n = 106$ ), and agree a little 25.7% ( $n = 105$ ), and the responses to "Was the

prognosis communication useful in preparing for the patient's death?" were strongly agree 13.9% ( $n = 57$ ), agree 43.3% ( $n = 177$ ), and agree a little 26.4% ( $n = 108$ ).

#### Factors Associated with the Family-Perceived Necessity for Improvement

Table 3 shows the results of the univariate analyses of the family perception on amount of information, loss of hope, and usefulness of prognostic disclosure in preparation for patient death, types of prognostic disclosure, and communication strategies obtained from family members at each level of necessity of improvement. There were significant differences across family perception on amount of information, loss of hope, and usefulness of prognostic disclosure in preparation for patient death and 12 communication strategies between families who rated a high necessity for improvement and families who rated a low necessity.

#### Path Analysis for Familial Evaluation

We carried out a path analysis by first selecting 12 communication strategies, family perception on amount of information, loss of hope, and usefulness of prognostic disclosure in preparation for patient death, and type of

Table 3  
Determinants of Family-Reported Necessity for Improvement in the Prognostic Disclosure

Item	Total	No Improvement		Some or More Improvement		P
	n	n	%	n	%	
The physician assured sufficient symptom control	315	146	89.6	169	68.7	0.000
The physician explained mainly in words	275	109	66.9	166	67.5	0.324
The physician assured sufficient care at the patient's last hour	303	139	85.3	164	66.7	0.000
The physician said, "We will respect the patient's wishes"	276	127	77.9	149	60.6	0.000
I lost my hope after the prognostic disclosure	216	70	42.9	146	59.3	0.000
The physician made maximum efforts to understand my distress	262	129	79.1	133	54.1	0.000
The prognostic disclosure was useful in preparing for patient's death	243	114	69.9	129	52.4	0.000
The physician was knowledgeable about the most advanced treatments	236	111	68.1	125	50.8	0.000
The physician gave concrete advice for my actual concern	242	121	74.2	121	49.2	0.000
The prognosis is an "average," and it does not have to be suitable for the patient	199	80	49.1	119	48.4	0.484
The physician paced his/her explanation with the state of my/patient's preparation	243	126	77.3	117	47.6	0.000
The physician assured the continuing responsibility of the physician for medical care	226	111	68.1	115	46.7	0.000
The physician respected my values	229	115	70.6	114	46.3	0.000
The physician suggested what we should do because the patient's condition was relatively good	213	103	63.2	110	44.7	0.000
The physician told me clearly the disease is incurable	172	63	38.7	109	44.3	0.151
The physician discussed how to achieve my wishes, such as home care	190	93	57.1	97	39.4	0.000
The physician said, "I can do nothing for the patient any longer"	117	32	19.6	85	34.6	0.001
The physician explained in terms of daily life perspectives	131	54	33.1	77	31.3	0.389
I felt that the amount of information was insufficient	205	130	79.8	75	30.5	0.000
The physician showed the thought, "I don't want to give up"	147	73	44.8	74	30.1	0.002
The physician told the shortest predicted prognosis	93	38	23.3	55	22.4	0.526
The physician told the longest predicted prognosis	94	40	24.5	54	22.0	0.366
The physician said, "Treatment might be possible at some time in the future"	73	30	18.4	43	17.5	0.455
The physician told the average prognosis	65	26	16.0	39	15.9	0.520
The physician used graphs and tables	40	14	8.6	26	10.6	0.287
The physician told the five-year survival rate	24	12	7.4	12	4.9	0.222
The physician told the one-year survival rate	16	8	4.9	8	3.3	0.295

prognostic disclosure received as independent variables in the initial model, because they were observed to be significant predictors of necessity for improvement in the univariate analysis. Next, we drew all paths according to the results of the correlation analysis. We repeated the analysis and sequentially dropped paths that were not significant until all of the paths in the model became significant ( $P < 0.05$ ). The variables "The prognosis represents an average, and it doesn't have to turn out that way for the patient," "The physician told me the disease is definitively incurable," "The physician said, "Treatment may be possible at

some time in the future," and "The physician explained daily life perspectives" were dropped from the model, because all of the paths from these variables did not reach significance. Fig. 1 represents the final model. The fit indices for this model were Chi-square (40) = 177.4,  $P = 0.000$ ; goodness-of-fit index = 0.94; adjusted goodness-of-fit index = 0.86; comparative fit index = 0.91; and root mean-square error of approximation = 0.10. Correlations between independent variables were omitted to simplify the model. Overall, the final model accounted for 41% of the variance in the necessity for improvement.