

Symptoms overlooked in hospitalized cancer patients: Impact of concurrent symptoms on overlooked by nurses

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ABSTRACT

Objective: Physical and psychological symptoms in cancer patients are frequently overlooked by medical staff. However, little is known regarding the potential impacts of concurrent physical and psychological symptoms on the overlooking of other symptoms. The aim of this study was to examine the impact of concurrent symptoms on the overlooking of other symptoms in cancer inpatients.

Method: A total of 255 cancer inpatients in the general wards of one university hospital, who were referred to the palliative care team, were included. On the day of referral, nurses and patients were independently assessed for the presence of the following eight symptoms: pain, fatigue, nausea and vomiting, shortness of breath, lack of appetite, dry mouth, sleep problems, and distressed feelings. The presence of delirium was also separately assessed by nurses and psychiatrists on the team. A total of nine symptoms detected by nurses and those reported by patients or psychiatrists were compared, and logistic regression analysis was performed to identify the variables associated with the overlooking of these symptoms.

Results: The most frequently reported symptom was pain (76.5%), followed by distressed feelings (49.8%), sleep problems (34.1%), and delirium (25.1%). The proportion of those overlooked was more than one quarter (25.0–63.6%) for all symptoms except pain (12.8%). Significant associations were found between the overlooking of shortness of breath and concurrent delirium (odds ratio [OR] = 110.9); the overlooking of sleep problems and concurrent lack of appetite (OR = 9.1); and the overlooking of distressed feelings and concurrent dry mouth (OR = 27.7). No patient demographic characteristic was associated with the overlooking of any other symptoms.

Significance of results: The presence of some specific concurrent symptoms is likely to lead to the overlooking of other symptoms in cancer inpatients by nurses. Comprehensive assessments of physical and psychological symptoms in daily clinical practice are needed.

KEYWORDS: Palliative care, Cancer, Detection of symptoms, Overlooking, Recognition

INTRODUCTION

In light of numerous concomitant symptoms associated with advanced cancer, the comprehensive assessment of physical and psychological symptoms is critically important in providing high-quality

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palliative and supportive care. One previous survey has shown that >90% of cancer patients receiving palliative care exhibit multiple physical as well as psychological symptoms (Salminen et al., 2008). However, previous studies conducted in hospices (Oi-Ling et al., 2005), palliative care units (Brunelli et al., 1998; Nekolaichuk et al., 1999; Stromgren et al., 2001a,b), and primary care (Ewing et al., 2006) have shown that these symptoms are often overlooked by medical staff. For example, a recent international study involving 11 European countries demonstrated discrepancies between patients' reports and medical staff's assessments of various symptoms, including lack of appetite, fatigue, and depression (Laugsand et al., 2010).

Underestimation of physical and psychological symptoms has been reported to be associated with patients' demographic and clinical characteristics, including younger age (Aa Petersen et al., 2007; Wada et al., 2010), low performance status (Stephens et al., 1997; Laugsand et al., 2010), current hospitalization (Aa Petersen et al., 2007; Laugsand et al., 2010), and concurrent pain (Passik et al., 1998; McDonald et al., 1999; Zloklikovits et al., 2005; Kishi et al., 2007). However, these findings are inconsistent in the literature; moreover, most studies focused on one specific symptom or did not separately assess multiple physical and psychological symptoms. Therefore, little is known about the clinical and demographic characteristics associated with the overlooking of individual physical or psychological symptoms. Moreover, except for concurrent pain (Passik et al., 1998; McDonald et al., 1999; Zloklikovits et al., 2005; Kishi et al., 2007), the potential impact of concurrent physical and psychological symptoms on such overlooking of other symptoms has not been investigated.

The aim of this study was to examine the proportion of physical and psychological symptoms that were overlooked by nurses, and the associations between the presence of specific symptoms and overlooking of other symptoms in cancer inpatients in the general wards of one university hospital, who were referred to the palliative care team.

METHOD

Sample

This study was conducted at Keio University Hospital, a private, 1056 bed tertiary care hospital located in central Tokyo, Japan. The palliative care team comprised palliative care physicians, psychiatrists, palliative care nurses, and a pharmacist. All patients included in this study were hospitalized cancer

patients who had been referred to the palliative care team between January 1, 2008 and June 30, 2010.

Procedures

First, on the day of referral to the palliative care team, registered nurses in general wards assessed the presence of the following symptoms on the basis of routine clinical evaluation: pain, fatigue, nausea and vomiting, shortness of breath, lack of appetite, dry mouth, sleep problems, and distressed feelings. These symptoms were selected from the items of the M.D. Anderson Symptom Inventory (MDASI) (Cleeland et al., 2000). In the present study, "nausea" and "vomiting," "disturbed sleep" and "drowsiness," and "distressed feeling" and "sad feeling" were combined and categorized as "nausea and vomiting," "sleep problems," and "distressed feelings," respectively. Moreover, "numbness or tingling" and "problem with remembering" were removed, and in addition, the presence of delirium was also assessed by nurses. Therefore, a total of nine symptoms were evaluated, which were included in routine clinical assessment by nurses on the day of referral at our hospital. On the same day, palliative care physicians on the palliative care team then contacted these patients and asked whether they were experiencing any of those symptoms, other than delirium (i.e., yes or no). Furthermore, the presence of delirium was evaluated by psychiatrists on the palliative care team on the basis of the criteria specified by the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition* (American Psychiatric Association, 1994). Other information collected in this study included age, sex, primary cancer site, and scoring according to the Eastern Cooperative Oncology Group Performance Status (Oken et al., 1982). Because the data were obtained from daily clinical practice, written informed consent specifically for this study was not considered necessary according to the Ethics Guidelines for Epidemiological Research, Japan (Japan Ministry of Health, 2010). All patients provided their general consent at their initial visit to the hospital.

Statistical Analysis

The physical and psychological symptoms detected by nurses and those reported by patients were compared. When a symptom was reported by patients but not detected by nurses, this was regarded as an overlooking of the symptom. One exception was delirium; when delirium was detected by psychiatrists but not by nurses, this was regarded as an overlooking. Logistic regression analysis was then performed to identify the clinical and demographic variables associated with the overlooking of those nine symptoms. The

two groups were compared: the group of patients with each symptom that had been overlooked, and the group of congruent patients with the same symptom. Whereas the presence of oversight of each symptom by nurses was included as a dependent variable, the following variables were entered as independent variables: age (≤ 30 , 31–50, 51–70, and >70 years); sex; Eastern Cooperative Oncology Group Performance Status score (0–2, 3, and 4); the presence of other symptoms reported by patients; and the presence of delirium detected by psychiatrists. *P* values of <0.05 were considered statistically significant, and all tests were two tailed. The statistical software SPSS for Windows, version 18.0 (SPSS Inc., Chicago, IL) was used for all statistical analyses.

Results

A total of 255 patients were included in this study, and their demographic and clinical characteristics are summarized in Table 1. Approximately three quarters of the patients were >50 years of age, and the most frequent primary cancer site was the gastrointestinal system, followed by the respiratory, and hematological systems. The symptoms reported by patients are shown in Figure 1. Whereas the most frequent symptom was pain, psychological symptoms such as distressed feelings, sleep problems, and delirium were also reported by $>25\%$ of the patients, respectively. Distressed feelings, delirium, nausea and vomiting, and dry mouth were overlooked by nurses in the majority of the patients, whereas pain was correctly identified with a congruence rate of about 90% (Fig. 2).

Associations between the overlooking of symptoms by nurses, and patients' demographic and clinical

Table 1. Demographic and clinical characteristics of 255 patients

Characteristics	Category	<i>n</i> (%)
Age (years old)	≤ 30	9 (3.5%)
	31–50	53 (20.8%)
	51–70	139 (54.5%)
	>70	54 (21.2%)
Sex	Male	143 (56.1%)
	Female	112 (43.9%)
Primary cancer site	Gastrointestinal	113 (44.3%)
	Respiratory	40 (15.7%)
	Hematological	33 (12.9%)
	Others	69 (27.1%)
Performance status (ECOG)	0–2	100 (39.2%)
	3	85 (33.3%)
	4	70 (27.5%)

ECOG, Eastern Cooperative Oncology Group.

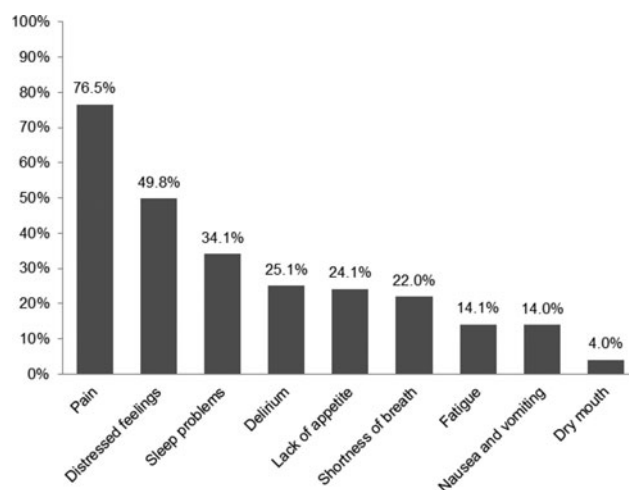


Fig. 1. Percentages of symptoms reported by patients ($n = 255$).

characteristics and the presence of concurrent symptoms are shown in Table 2. Of the nine symptoms evaluated, the overlooking of shortness of breath, nausea and vomiting, lack of appetite, sleep problems, and distressed feelings were found to be significantly associated with the presence of specific concurrent symptoms and/or clinical characteristics, respectively. For example, sleep problems were more likely to be overlooked in patients who reported lack of appetite, whereas they were more correctly detected in patients with self-report of fatigue or distressed feelings, and in those with delirium. On the other hand, no significant association was found between the overlooking of pain, fatigue, dry mouth, or delirium and the presence of concurrent symptoms. No patient demographic characteristic was associated with the overlooking of any other symptoms.

Discussion

To our knowledge, this is the first study to comprehensively investigate the overlooking of physical and psychological symptoms in hospitalized cancer patients, with a focus on the impact of concurrent symptoms. Overlooking of symptoms by nurses, except pain, was frequently observed across various physical and psychological symptoms. Furthermore, out of the nine symptoms that were evaluated, the overlooking of shortness of breath, nausea and vomiting, lack of appetite, sleep problems, and distressed feelings were affected by the presence of specific concurrent symptoms. Concurrent symptoms such as delirium, lack of appetite, and dry mouth may distract nurses from shortness of breath, sleep problems, and distressed feelings. These findings emphasize the need for comprehensive assessments of both physical and psychological symptoms that are

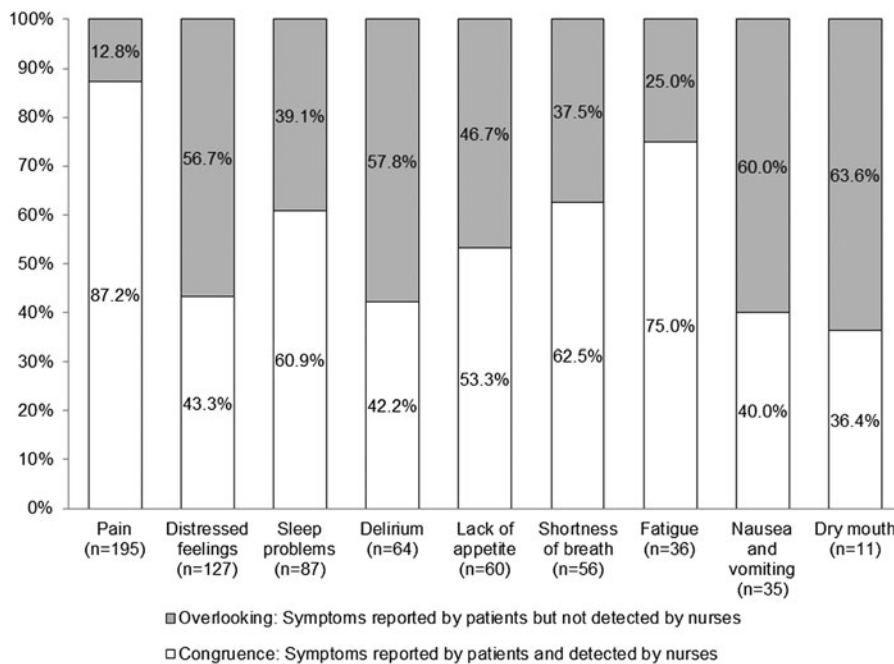


Fig. 2. Percentages of patients' reporting symptoms that were overlooked by nurses.

sometimes overlooked and masked in the presence of concurrent symptoms.

Our study revealed that nurses frequently overlooked various physical and psychological symptoms, except pain. The proportions of physical and psychological symptoms that are overlooked differ widely among treatment settings and populations, ranging from 10% to 80% (Brunelli et al., 1998; Stromgren et al., 2001b; Laugsand et al., 2010). For example, one international study performed in various types of settings (i.e., palliative care centers, outpatient clinics, and general or cancer wards) reported that the proportion of underestimation of psychological symptoms such as depression, anxiety, and sleep problems by physicians and nurses was generally as low as 10–20%, although >90% agreement was found for pain, vomiting, and diarrhea (Laugsand et al., 2010). However, another study performed in a palliative

care department showed that various physical and psychological symptoms were overlooked by nurses at a level of >30%, whereas pain was missed in only 15% of patients (Stromgren et al., 2001b). Given the differences in treatment settings and skills of nurses, direct comparison is not feasible between the present findings and those in the literature. Although pain is likely to be easily detected, the high proportions of various symptoms that are overlooked underscore the need for comprehensive assessments of physical and psychological symptoms in daily clinical practice. Previous studies have shown that in Asia, cancer patients are generally reluctant to talk about psychological distress to the medical staff and are reluctant to receive psychological care, one of the prevalent reasons for which is concern about disturbing medical staff (Endo et al., 2008; Okuyama et al., 2008). Both physicians and

Table 2. Factors associated with symptoms being overlooked by nurses

Symptom	Associated factors	Beta	SE	Odds ratio	95% CI	P value	
Shortness of breath	Delirium	4.71	1.56	110.88	5.17–2376.77	0.003	
	Nausea/vomiting	Fatigue	−4.31	2.01	0.01	0.00–0.68	0.03
		Lack of appetite	−3.44	1.22	0.03	0.00–0.35	0.01
		Sleep problems	2.2	0.92	9.06	1.51–54.45	0.02
		Fatigue	−2.25	0.98	0.11	0.02–0.72	0.02
Distressed feelings	Delirium	−1.39	0.67	0.25	0.07–0.93	0.04	
	Distressed feelings	−1.27	0.62	0.28	0.08–0.94	0.04	
	PS 3 (vs. PS 0–2)	−1.18	0.5	0.31	0.12–0.82	0.02	
	Dry mouth	3.32	1.35	27.70	1.98–386.72	0.01	

PS = Performance Status.

nurses should understand the patients' hesitation, and ask questions regarding their psychological state. On the other hand, the proportion of patients whose delirium was overlooked (58%) in the present study was comparable with that in patients in an intensive care unit (65% of 23 patients) (Spronk et al., 2009) and a palliative care unit (55% of 107 patients) (Fang et al., 2008), and higher than that in patients referred for psychiatric consultation (37% of 60 patients [Wada et al., 2010]; 46% of 48 patients [Kishi et al., 2007]). Because patients who were not recognized as having any psychological symptoms were not included in the latter two studies (Kishi et al., 2007; Wada et al., 2010), the actual proportions of overlooked delirium would have been expected to be higher than reported. These findings point to the necessity of appropriate education in the symptomatology and diagnosis of delirium to improve the ability of nurses to effectively identify this serious condition.

Our study found that the presence of concurrent symptoms was associated with the overlooking of other physical and psychological symptoms by nurses. Significant associations were found between overlooking shortness of breath and concurrent delirium, overlooking sleep problems and concurrent lack of appetite, and overlooking distressed feelings and concurrent dry mouth. These findings suggest that some prominent symptoms may mask other symptoms and, in turn, distract nurses from these. For example, shortness of breath was more likely to be overlooked in patients with delirium because the expression of severe shortness of breath may be recognized as psychomotor agitation. On the other hand, the correct detection of nausea and vomiting, lack of appetite, and sleep problems was significantly associated with the presence of specific concurrent symptoms such as fatigue, nausea and vomiting, delirium, and distressed feelings. Nurses may almost automatically focus on certain symptoms (e.g., lack of appetite) when they evaluate other specific symptoms (e.g., nausea and vomiting). Except for concurrent pain, the influence of concurrent symptoms on the overlooking of other symptoms has not been investigated in previous studies in any treatment settings or populations. Although previous studies demonstrated that concurrent pain was associated with inaccurate estimation of psychological distress (Passik et al., 1998; McDonald et al., 1999) and the overlooking of delirium (Kishi et al., 2007), no such associations were found in our study. A lack of evaluation of the severity of pain in the present study may have overlooked the potential association between severe pain and psychological distress. Moreover, the inconsistent findings between those previous studies (Passik et al., 1998; McDonald et al., 1999; Kishi et al., 2007) and the present study may be related

to differences in statistical analyses; the former failed to evaluate the potential effects of the presence of other concurrent symptoms on their being overlooked by nurses.

Limitations

The present study has some limitations. First, the patients included were all Japanese inpatients of a single facility, which may have limited extrapolation of the data to other populations. Second, although patients and nurses assessed the presence or absence of symptoms, they did not evaluate the severity of those symptoms. It would have been ideal to include such assessment in order to examine associations of symptom severity and the overlooking of other symptoms. Third, because we did not gather information on nurses' training background and experience in caring for cancer patients, we were unable to assess their potential influence on the accuracy of symptom detection. Fourth, some of the symptoms (e.g., dry mouth) were seen only among small number of patients, which made meaningful statistical analysis difficult. Finally, the patient cohort included in this study was limited to those who manifested at least one symptom and were then referred to our palliative care team. Therefore, the proportion of overlooked symptoms might have been higher if all the patients in our facility had been included.

CONCLUSION

In summary, various physical and psychological symptoms, except pain, were frequently observed to be overlooked by nurses, and the presence of concurrent symptoms influenced such overlooking. To effectively detect and treat physical and psychological symptoms, the implementation of brief screening tools for those symptoms, especially designed for cancer patients, may be needed. Furthermore, it may also be necessary to train and educate nurses to decrease the possibility of their overlooking physical and psychological symptoms in cancer patients, especially in the presence of concurrent symptoms.

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