

the ABID frequency scores termed as 'physically agitated behaviour'. Thus, it seems reasonable to assume that these two items are regarded in a similar manner to the other items included as 'physically agitated behaviour'. Unlike the CMAI, the ABID might not have the sensitivity to discriminate between psychically aggressive behaviour and physically non-aggressive behaviour.

With regard to the second factor of the ABID frequency scores, we observed that most of the items were represented as 'verbally agitated behaviour'. All the previous factor analyses of the CMAI have confirmed that constant requests for attention, complaining and negativism are the core concepts of verbally agitated behaviour.^{5,10,15,21} Interestingly, several items, such as 'easily agitated or upset', 'worrying, anxiety and/or fearfulness' and 'socially inappropriate behaviour', were included in the factor termed 'verbally agitated behaviour' in the ABID. Manifestations of verbally agitated behaviours are often associated with anxiety, pain and discomfort.^{20,23} Cohen-Mansfield *et al.*^{20,23} suggested that some verbal behaviours in dementia might arise as a result of social isolation caused by either loneliness or the need for social contact in patients with dementia and that poor communication abilities are the root of such behaviours. Also, negative social interactions between dementia patients and their caregivers can cause 'easily agitated', 'anxiety' or 'socially inappropriate behaviour'. The study by Cohen-Mansfield and Libin²⁰ showed that environmental factors, including social isolation and discomfort, play an important role in the cause of verbal behaviours. Taken together with these findings, the factor termed 'verbally agitated behaviour' in the present study suggests that verbally agitated behaviour in patients with dementia might reflect a representation of discomfort, anxiety or fear.

A previous study suggested that agitation was strongly associated with both delusions and hallucinations in patients with dementia.²⁴ In our factor analysis of the ABID, both delusions and hallucinations emerged as a third factor (psychosis factor). The factor analyses of the CMAI did not show any psychosis factor because, unlike the ABID, the CMAI does not include any items associated with either delusion or hallucination. However, factor analyses of the NPI in patients with AD have shown that agitation is a distinct syndrome from psychosis.²⁵ In these studies, although agitation was regarded as the sub-

syndrome, 'hyperactivity', both delusions and hallucinations were included in the psychosis syndrome. The findings in the present study support the notion that the psychosis factor in patients with mild to moderate AD can be separated from other physical and verbal agitation factors. Additional studies of patients with more advanced stages of dementia are needed to confirm the presence of this third factor.

Sleep or night-time behavioural disturbances, such as 'waking and getting up at night', can be considered as wandering associated with physically agitated behaviour.^{5,22} However, in the present study, 'waking and getting up at night' did not load on the first factor, which was termed as 'physically agitated behaviour'. Instead, 'waking and getting up at night' was included in the factor termed 'psychosis symptoms' in the frequency rating data of the ABID. In contrast, in the reaction rating data of the ABID, 'waking and getting up at night' was included in the 'verbally agitated behaviour' factor. The reason why 'waking and getting up at night' did not load on the 'physically agitated behaviour' factor for either the frequency rating or the reaction rating of the ABID is unclear. However, the factor loading of the item 'waking and getting up at night' was the smallest among all the factors for both the frequency rating and the reaction rating of the ABID (0.511 and 0.522, respectively). Logsdon *et al.*²² suggested that 'waking and getting up at night' was most common among dementia patients with severe cognitive impairment. Thus, further large-scale studies that include patients with severe AD might be required to determine definitively to which factor the item 'waking and getting up at night' belongs.

Finally, we must address several limitations of the present study. First, our sample did not include AD patients with severe cognitive impairment (grade 3 on the CDR). As the stage of dementia advances, agitated behaviours are known to increase from mild to severe stages.¹¹ When examining changes in agitated behaviors among patients with AD using the Japanese version of the ABID in a longitudinal study, it is important to note that even mild or moderate levels of dementia at the time of the first assessment can progress to a more severe stage during the follow-up period as the disease progresses. Thus, a future study might be required to examine the utility of applying the ABID to patients with more advanced AD. Second, agitated behaviours in dementia are known to fluctuate throughout the day.²⁶ This previous study showed

that agitation gradually increased from the morning until a peak around 1600 hours, then decreased thereafter. However, we did not examine the temporal pattern of the agitated behaviours in AD patients. A study using the ABID to examine the temporal pattern of agitated behaviours in patients with dementia is needed. Third, the data used in the present study was obtained from two outpatient clinics. Future large-scale studies are needed to validate these important findings for a wide range of dementia patients.

In conclusion, the present study suggests that the Japanese version of the ABID is a reliable and valid instrument, and that agitated behaviours can be divided into three subtypes: (i) 'physically agitated behaviour'; (ii) 'verbally agitated behaviour'; and (iii) 'psychosis'. As suggested by Cohen-Mansfield,^{1,20} understanding these subtypes of agitation might have important clinical implications for the formulation of individualized treatment plans for agitation in patients with dementia. Clinical interventions for agitation in patients with dementia that are based on these three subtypes of agitated behaviour might be beneficial for distressed caregivers in Japan.

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Oncologists' Recognition of Supportive Care Needs and Symptoms of Their Patients in a Breast Cancer Outpatient Consultation

Toru Okuyama^{1,2}, Tatsuo Akechi^{1,2,*}, Hiroko Yamashita³, Tatsuya Toyama³, Tomohiro Nakaguchi^{1,2}, Megumi Uchida² and Toshiaki A. Furukawa^{2,4,5}

¹Division of Psycho-oncology and Palliative Care, Nagoya City University Hospital, ²Department of Psychiatry and Cognitive-Behavioral Medicine, Nagoya City University Graduate School of Medical Sciences, ³Department of Oncology, Immunology and Surgery, Nagoya City University Graduate School of Medical Sciences, Nagoya, ⁴Department of Health Promotion and Human Behavior (Cognitive-Behavioral Medicine), Kyoto University Graduate School of Medicine, and ⁵School of Public Health, Kyoto, Japan

*For reprints and all correspondence: Tatsuo Akechi, Division of Psycho-oncology and Palliative Care, Nagoya City University Hospital, Mizuho-cho, Mizuho-ku, Nagoya, Aichi 467-8601, Japan. E-mail: takechi@med.nagoya-cu.ac.jp

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Objective: The purpose of this study was to investigate the accuracy of oncologists' recognition of their patients' supportive care needs and symptoms in breast cancer outpatient consultation in Japan.

Methods: The participants included a sample of randomly selected outpatients with breast cancer and two oncologists. The patients responded to validated self-administered questionnaires to assess their supportive care needs and symptoms. The oncologists responded to a questionnaire in which they indicated their perception of level of the same set of needs or symptoms following consultation. The two data sets were compared statistically.

Results: Complete data sets were available for 408 patients. Low negative predictive values for the psychological (30%) and information domain (30%) indicated that the patients often have psychological and information needs that the oncologists do not appropriately recognize. The sensitivity and specificity of the physicians' assessment for all physical symptoms except pain were <40 and >85%, respectively, indicating that the physicians could not detect, but could rule out the possibility of a patient experiencing physical symptoms. Borderline/clinical depression and anxiety were the only two symptoms that the oncologists reported more frequently than the patients did. As a result, the specificity of the physicians' assessment for the detection of borderline/clinical depression and anxiety was relatively low (74 and 27%).

Conclusions: Oncologists' recognition may not accurately reflect their patients' supportive care needs and symptoms in usual care. Incorporation of a standard assessment system for supportive care needs and symptoms in clinical practice must heighten the oncologists' awareness of their patients' these problems.

Key words: quality of life – palliative care – psycho-oncology – breast neoplasms

INTRODUCTION

Breast cancer has been the most frequently diagnosed cancer among Japanese women since the mid-1990s (1). Currently, more than 40 thousand women are reported to develop breast cancer annually. Patients with breast cancer frequently experience both physical and psychological symptoms.

Anti-cancer treatments, such as surgery, chemotherapy, hormonal therapy or any/all of these modalities in combination, often cause a broad range of symptoms such as lymphedema (2), menopausal symptoms (3), pain, fatigue, nausea/vomiting and appetite loss (4,5). Psychological and behavioral symptoms such as insomnia, depression and cognitive

disturbances are also frequent and disrupt the patients' quality of life (6–8). Furthermore, the quality of life of these patients often deteriorates, especially if they are 50 years of age or younger (9).

More recently, the importance of assessing cancer patients' supportive care needs has come to be recognized (10). Supportive care needs can be defined as requirements for care arising during illness and treatment to manage symptoms and side effects, enable adaptation and coping, optimize understanding and informed decision-making, and minimize decrements in functioning. (11) Each patient's experience of a particular problem varies individually; therefore, the severity of a problem alone is not the best or only indicator of a patient's supportive care needs. Assessment of the patient-perceived needs would enable medical staffs to recognize what kind of help each of our patients requires directly, and to provide care to meet such requirements. Nonetheless, the accuracy of physicians' recognition of their patients' supportive care needs has not yet been investigated. One exception was a study conducted by Newell et al. (12), who explored how well-informed attending oncologists were of the physical symptoms associated with chemotherapy, psychological symptoms and the supportive care needs of 204 patients with cancers of various lesions and stages. They found that (i) fatigue, nausea, vomiting and hair loss were well-recognized symptoms, (ii) the level of awareness for psychological symptoms tended to be lower than that for physical symptoms, (iii) the perception level of oncologists about the supportive care needs of their patients was higher than the level reported by the patients themselves and (iv) the oncologists' workload and rapport with the patients were associated with their awareness of depression and the psycho-social care needs of their patients; however, the fact that the vast majority of participants were undergoing systemic chemotherapy limited the generalizability of their findings. Furthermore, no studies reported how well oncologists recognize patients' supportive care needs in Asian countries.

Effective symptom management has been hindered by the inadequate assessment by medical professionals of their patients' symptoms. A previous study demonstrated that discrepancy in the assessment of pain severity between the patients themselves and their physicians was a strong predictor of inadequate pain management (13). Few studies have investigated how comprehensively an attending oncologist recognizes the severity of the physical symptoms and psychological symptoms of their patients in routine clinical practice. Petersen et al. (14) compared the patients' own and their physicians' assessments of the health-related quality of life in the palliative care setting. They found that the physicians reported fewer problems or symptoms than the patients did, for all domains, except physical and social functioning, and that the agreement between the patients and their physicians was lowest for emotional and social functioning among the symptom and quality-of-life domains defined by EORTC QLQ-C30. Brunelli et al. (15) examined

how accurately health-care providers (including both physicians and nurses) assess the quality of life of terminally ill cancer patients and found that the agreement rate between the physicians and their patients was higher for physical symptoms than for psychological or cognitive symptoms. Some other previous studies have investigated the accuracy of physicians' evaluation of the intensity of single symptoms such as pain (13), fatigue (16), depression (17) and adverse effects of anticancer treatments (18), and of the quality of life of patients with cancer (19).

In this study, we investigated the accuracy of the attending oncologists' assessment of supportive care needs and symptoms of their patients in a large sample of Japanese outpatients with breast cancer in a routine clinical practice setting, in accordance with the principles adopted in Newell's study described above.

PATIENTS AND METHODS

SUBJECTS

This is a secondary analysis of data collected for a previously published study, in which we investigated the psychometric properties of the Japanese version of the Short-form Supportive Care Needs Survey questionnaire (SCNS-SF34-J). The study subjects were ambulatory female patients with breast cancer attending the outpatient clinic of the Department of Oncology, Immunology and Surgery at Nagoya City University Hospital.

The eligibility criteria for inclusion in the study were women who were (i) diagnosed to have breast cancer, (ii) 20 years of age or older, (iii) informed of the cancer diagnosis and (iv) well enough to complete the survey questionnaire (0–3 on the ECOG performance status). The exclusion criteria were patients with (i) severe mental or cognitive disorders, or (ii) inability to understand the Japanese language. We selected the participants at random using a visiting list and a random number table for logistic reasons (to control the number of patients enrolled per day).

This study was approved by the Institutional Review Board and Ethics Committee of Nagoya City University Graduate School of Medical Sciences, Japan, and was conducted in accordance with the principles laid down in the Helsinki Declaration. Written consent was obtained from each patient after she had been given a thorough explanation of the purpose and method of the study.

PROCEDURE

PATIENTS' SURVEY

After informed consent was obtained, the patients were asked to complete the self-administered questionnaire described below at home and return it the following day. In the case of inadequate answers, clarifications were sought over the telephone.

SUPPORTIVE CARE NEEDS

The Short-form Supportive Care Needs Survey questionnaire (SCNS-SF34) is a self-administered instrument for assessing the perceived needs of patients with cancer (20). It includes 34 items mapped to five domains of need: psychological, health system and information, physical and daily living, patient care and support, and sexuality. The psychological domain assesses the needs related to emotions and copings, such as 'Fears about the cancer spreading'. The health system and information need includes items related to hospitals and preferences for information about the disease and its treatment, such as 'being treated in a hospital or clinic that is as physically pleasant as possible' and 'being adequately informed about the benefits and side-effects of treatments before you choose to have them'. The physical and daily living domain assesses the needs related to physical symptoms and performing activities, such as 'work around the home' and 'lack of energy/tiredness'. The patient care and support domain includes items related to health-care providers and choices, such as 'reassurance by medical staff that the way you feel is normal'. Finally, the sexuality domain assesses the needs related to sexual relationships, such as 'changes in sexual feelings'. Respondents are asked to indicate their level of need for help over the last month in relation to their having cancer using the following five response options {1 [no need (not applicable)], 2 [no need (satisfied)], 3 [low need], 4 [moderate need] and 5 [high need]}. The validity and reliability of the Japanese version of this scale have been established by the authors (21).

PHYSICAL SYMPTOMS

The European Organization for Research and Treatment of Cancer Quality of Life-C30 questionnaire (EORTC QLQ-C30) was used for the comparative measurement; this is one of the most frequently used self-rating questionnaires to assess cancer patients' quality of life (22). It consists of 30 items and 5 multi-item function subscales plus global health status/quality-of-life subscales (physical, role, emotional, cognitive and social function), 4 multi-item symptom subscales (fatigue, pain, nausea and vomiting) and 6 separate items to assess the severity of 5 symptoms (dyspnea, sleep disturbance, appetite loss, diarrhea, and constipation) and the financial impact. The Japanese version of the EORTC QLQ-C30 has been established (23). We added three items to determine the severity of chemotherapy-related symptoms that are frequently experienced by the study population (hair loss, hot flushes and tingling).

PSYCHOLOGICAL SYMPTOMS

The Hospital Anxiety and Depression Scale (HADS) was used to evaluate the severity of anxiety and depression (24). This questionnaire consists of a seven-item anxiety subscale and a seven-item depression subscale. It assesses the

patients' mental status over the preceding week. We previously established the reliability and validity of the Japanese version of this questionnaire in cancer patients (25). A previous study suggests that each subscale score enables us to classify patients' anxiety and depression levels as low (a score of 0–7), borderline (8–10) and clinical (11–21).

SOCIO-DEMOGRAPHIC AND BIOMEDICAL FACTORS

An *ad hoc* self-administered questionnaire was used to obtain information on the socio-demographic status of the patients, including the marital status, level of education and employment status. Performance status, as defined by the Eastern Cooperative Oncology Group (ECOG), was evaluated by the attending physicians. All other medical information (e.g. regarding the clinical stage and anti-cancer treatment) was obtained from the patients' medical records.

ATTENDING ONCOLOGISTS' SURVEY

Attending physicians were asked to complete a questionnaire which included the following items immediately after their consultation and were blinded to the results of the patients' questionnaire responses. They were provided with manuals to fill this questionnaire, including the definition of each response option and word definitions.

SUPPORTIVE CARE NEEDS

The questions were designed to determine whether the physician believed whether his/her patient had experienced any/all of the five domains of needs included in the SCNS, with four response options [1 (no need), 2 (low need), 3 (moderate to high need) and 4 (don't know)].

PHYSICAL SYMPTOMS

The questions were designed to determine whether the physician believed that his/her patient had experienced any of the 13 potential symptoms (corresponding to the items in the patients' questionnaire) during the week prior to the outpatient's visit to the clinic. The enquiry about the symptoms was made using the same terms as for the patients. Four response options were used [1 (not had it at all), 2 (had it a little), 3 (had it quit a bit/very much) and 4 (don't know)]. This response system corresponded to the Likert scale applied in the EORTC QLQ-C30 questionnaire.

PSYCHOLOGICAL SYMPTOMS

The questions were designed to determine whether the physician believed that his/her patient was currently experiencing anxiety and depression, respectively, with four response options [1 (low), 2 (borderline), 3 (clinical) and 4 (don't know)].

STATISTICAL ANALYSIS

We consider that whether oncologists perceive their patients have a need/symptom correctly or not is the foundation of symptom management rather than they do the intensity a need/symptom accurately. Thus, each of the responses by both the patients and oncologists was dichotomized as experienced and not experienced, and we compared these two data sets statistically by calculating the following indices.

SENSITIVITY AND SPECIFICITY

Sensitivity is a statement of probability, defined as the proportion of positive results obtained on the patients for the condition being evaluated. Specificity is a statement of the proportion of negative results among those who do not have the condition being evaluated. These two are the measures of the performance of a binary classification test, not influenced by prevalence of the condition being evaluated.

POSITIVE PREDICTIVE VALUE AND NEGATIVE PREDICTIVE VALUE

Positive predictive value (PPV) is the proportion of patients who have the condition among those with a positive test result, and negative predictive value (NPV) is the proportion of patients who do not have the condition among those who have a negative test result. PPV and NPV are dependent on the population being tested and are influenced by the prevalence of the condition being evaluated. A high specificity causes the PPV to increase and a high sensitivity causes the NPV to increase, assuming that the condition being evaluated is constant.

COHEN'S κ INDEX

This measures the agreement, taking into account the agreement occurring by chance, and ranges from -1 to 1 . A value of zero would indicate accidental agreement. The greater the value, the higher the agreement.

A P value of <0.05 was adopted as the significance level in all of the statistical analyses, and all the P values reported were two-tailed. All the statistical procedures were performed using the SPSS software, version 13.0J, for Windows (SPSS Inc., 2004).

RESULTS

PATIENT CHARACTERISTICS

A pool of 420 potential participants was identified for the study (Table 1). Twelve patients were excluded: seven as they refused to participate, two because of cognitive disturbance, one because of very advanced disease and two for not providing responses despite giving their consent to participate. The socio-demographical and clinical characteristics of the remaining 408 patients are shown in Table 1. The mean (\pm SD) and median age of the study population were 56.1 (\pm 12.1) and 55 years, respectively.

SUPPORTIVE CARE NEEDS

The prevalence of psychological needs as perceived by the oncologists (70.0%) was as high as that reported by the patients themselves (74.0%), and the sensitivity and specificity for psychological need were the greatest and the lowest, respectively, among the needs domains (Table 2). The sensitivity and specificity were the lowest (18.8%) and greatest (87.9%), respectively, for the sexual domain. The NPV for the psychological and information domain was very low (30%). The κ value ranged from <0.01 for 'information need' to 0.15 for 'care and support needs'.

PHYSICAL SYMPTOMS

The most prevalent symptom was fatigue (76.5%), followed by pain (57.6%), insomnia (46.2%) and hot flushes (41.4%) (Table 2). For each of the physical symptoms, the prevalence

Table 1. Study characteristics ($n = 408$)

| Characteristic | <i>n</i> | Percent |
|---------------------------------|---|---------|
| Age | Mean: 56.1 (SD = 12.1), median: 55 (range, 27–89) | |
| Sex | | |
| Female | 408 | 100.0 |
| Marital status | | |
| Married | 311 | 76.2 |
| Job | | |
| Employed (full time/part time) | 182 | 44.6 |
| Clinical stage | | |
| 0 | 24 | 5.9 |
| I | 142 | 34.8 |
| II | 148 | 36.3 |
| III | 24 | 5.9 |
| IV | 11 | 2.7 |
| Recurrence | 59 | 14.5 |
| ECOG performance status | | |
| 0 | 369 | 90.4 |
| 1 | 33 | 8.1 |
| 2 | 4 | 1.0 |
| 3 | 2 | 0.5 |
| History of anticancer treatment | | |
| Surgery | 381 | 93.4 |
| Chemotherapy | 180 | 44.1 |
| Radiation therapy | 157 | 38.5 |
| Days after diagnosis | Mean: 1039.8 (SD = 1352.7), median: 701 (range, 11–17915) | |

ECOG, Eastern Cooperative Oncology Group.

Table 2. Supportive care needs and symptoms: patients' report vs. oncologists' perceptions (*n* = 408)

| Measurement | Prevalence (%) reported by | | Sensitivity ^a (%) | Specificity ^b (%) | PPV ^c | NPV ^d | κ |
|----------------------------------|----------------------------|-------------|------------------------------|------------------------------|------------------|------------------|----------|
| | Patients | Oncologists | | | | | |
| Needs | | | | | | | |
| Psychological | 74.0 | 70.0 | 71.8 | 34.9 | 75.8 | 30.3 | 0.06 |
| Health system and information | 69.8 | 31.9 | 32.0 | 68.3 | 70.0 | 30.3 | <0.01 |
| Physical | 47.7 | 44.2 | 51.0 | 62.0 | 55.0 | 58.1 | 0.13 |
| Patient care and support | 44.2 | 27.8 | 35.6 | 78.4 | 56.6 | 60.5 | 0.15 |
| Sexual | 20.8 | 13.5 | 18.8 | 87.9 | 29.1 | 80.5 | 0.08 |
| Physical symptoms | | | | | | | |
| Fatigue | 76.5 | 24.8 | 28.2 | 86.5 | 87.1 | 27.0 | 0.08 |
| Pain | 57.6 | 46.3 | 58.5 | 70.3 | 72.9 | 55.5 | 0.28 |
| Insomnia | 46.2 | 9.1 | 11.2 | 92.7 | 56.8 | 54.9 | 0.04 |
| Hot flashes | 41.4 | 16.0 | 22.6 | 88.7 | 58.5 | 61.9 | 0.12 |
| Numbness | 39.7 | 8.6 | 11.2 | 93.1 | 51.4 | 61.5 | 0.05 |
| Constipation | 39.6 | 2.9 | 3.1 | 97.2 | 41.7 | 60.5 | <0.01 |
| Dyspnea | 32.4 | 1.0 | 2.3 | 99.6 | 75.0 | 68.1 | 0.03 |
| Appetite loss | 23.3 | 8.6 | 17.9 | 94.2 | 48.6 | 79.1 | 0.16 |
| Diarrhea | 17.6 | 1.5 | 5.6 | 99.4 | 66.7 | 83.1 | 0.08 |
| Hair loss | 17.4 | 9.1 | 38.0 | 97.0 | 73.0 | 88.1 | 0.43 |
| Nausea | 14.0 | 6.1 | 28.1 | 97.4 | 64.0 | 89.3 | 0.33 |
| Vomiting | 5.1 | 1.0 | 4.8 | 99.2 | 25.0 | 95.0 | 0.06 |
| Psychological symptoms | | | | | | | |
| Anxiety (borderline/clinical) | 20.8 | 74.0 | 77.6 | 26.9 | 21.9 | 82.1 | 0.02 |
| Depression (borderline/clinical) | 16.9 | 26.5 | 30.4 | 74.3 | 19.4 | 84.0 | 0.04 |
| Depression (clinical) | 5.6 | 1.7 | 8.7 | 98.7 | 28.6 | 94.8 | 0.11 |
| Anxiety (clinical) | 5.1 | 4.4 | 9.5 | 95.9 | 11.1 | 95.1 | 0.06 |

^aThe sensitivity is the proportion of true positives of all patients who have a need/symptom.

^bThe specificity is the proportion of true negatives of all patients who do not have a need/symptom.

^cThe positive predictive value (PPV) is the proportion of patients who have a need/symptom among those who are perceived to do so by oncologists.

^dThe negative predictive value (NPV) is the proportion of patients who do not have a need/symptom among those who are perceived not to have a need/symptom by oncologists.

reported by the physicians was lower than that reported by the patients themselves. The sensitivity was <40% and specificity >85% for all physical symptoms except pain (59 and 70%, respectively). The NPV was the lowest for fatigue (27%). The κ values ranged from <0.01 for constipation to 0.43 for hair loss.

PSYCHOLOGICAL SYMPTOMS

About 5% of the patients reported clinical depression and anxiety, respectively, and about 15% reported borderline depression and anxiety, respectively (Table 2). Borderline/clinical depression and anxiety were the only two symptoms that the oncologists reported more frequently than the patients themselves among all investigated variables. As a result, the

specificity for borderline/clinical depression and anxiety were moderate (74%) and low (27%), respectively. On the other hand, the sensitivity and specificity for clinical depression and anxiety were less than 10% and more than 95%, respectively. Besides the difference in the classification of the symptom severity, the PPVs for psychological symptoms were the lowest, ranging from 11% for clinical anxiety to 29% for clinical depression. The κ value ranged from 0.02 for borderline/clinical anxiety to 0.11 for clinical depression.

DISCUSSION

Provision of supportive care to meet patients' individual needs is instrumental in enhancing their quality of life. Oncologists' awareness of the supportive care needs and

symptoms of cancer patients is crucial to achieving this goal. The results of this study, however, indicate that they may have difficulty in accurately assessing such needs or symptoms of the patients in an oncology breast cancer outpatient clinic.

One of the strengths of this study was the large sample size. Selection of participants at random and the very high participation rate proved the external validity. According to the breast cancer registry developed by the Japanese Breast Cancer Society in the year 2006, there were 20 510 newly diagnosed patients throughout Japan, and the characteristics of the patients with primary breast cancer in Japan were as follows: 99.5% were females, the mean age of the patients was 57.2 years, and the most frequent clinical stage was I (35.4%), followed by IIA (26.2%) and IIB (9.9%); the characteristics of our present study population were similar. Thus, we consider that this population can be thought of as being representative of Japanese breast cancer patients. Third, patients with a broad spectrum of supportive care needs and physical and psychological symptoms were assessed using validated questionnaires.

Before discussing the results, attention should be paid to whether a statistical index is dependent on the prevalence of the condition being evaluated. Sensitivity and specificity are independent of the prevalence of the condition and therefore indicate the screening capability of the test itself. But from the clinical point of view, interest must be focused on the proportion of patients who actually 'have' the condition being evaluated among those who have a 'positive' test result and those who 'do not' have the condition among those who have a 'negative' test result. PPV and NPV provide the clinical usefulness of the test as it is applied in clinical practice. Cohen's κ coefficient values show the overall level of agreement beyond chances, but fail to provide clinically meaningful information equivalent to that provided by the above indexes; the values also depend on the observed marginal prevalence. But this is simply a consequence of the purpose of κ .

One of the important findings of this study is that it clarified that the oncologists' recognition of the supportive care needs of their patients was less than optimal among any of domains, although it is highly important to provide care so as to directly meet the needs of individual patients' requirements. Especially, the lowest NPV for psychological needs and information needs indicated that the patients often have psychological and information needs that are not recognized by their physicians. The very low PPV for sexual needs may suggest that sexual needs remain unreported, even though the importance of sexual problems in cancer patients is getting better recognized (26). Few studies have explored the accuracy of the physicians' assessment of supportive care needs in their patients. Newell et al. conducted an investigation in mixed cancer patients undergoing chemotherapy (12). The patients' supportive care needs were assessed using the Cancer Needs Questionnaire (CNQ), a precursor of the SCNS-SF34, and the physicians reported their recognition using the same questionnaire as that applied in this

study. They found that the rate of supportive care need perceived by the physicians was much higher than that reported by the patients, and that the sensitivity and specificity ranged from 96% (for health information) to 50% (for interpersonal communication), and 49% (for care and support) to 31% (for information need), respectively. As compared with that study, the rate of need reported by the patients was higher in this study, and the sensitivity and specificity obtained in this study were relatively low and relatively high, respectively. These discrepancies may be explained by the difference in the questionnaire used to assess the patients' needs, or the difference in the format of the questionnaire (use of touch-screen computer in Newell's study). Also, physicians may have begun to pay more attention to or better anticipate their patients' need of supportive care, since the participants of Newell's study were undergoing chemotherapy.

Among physical symptoms, pain was one of the best recognized symptoms, but the recognition level was still not optimal. The sensitivity and specificity for all physical symptoms other than pain were <40 and >85%, respectively, indicating that the physicians could not detect, but could rule out the possibility of a patient experiencing physical symptoms. The lowest NPV and highest disagreement level for fatigue suggested that this symptom may be one of the most underestimated symptoms, consistent with a previous report (27). The κ value was the highest for hair loss among all the symptoms and need, but even that remained to be moderate, although hair loss is one of the symptoms that can be observed visually. This result indicated that each patient perceives and reports her symptoms in a very individual manner; therefore, the physicians need to ask each patient directly about her own experience.

Previous literature has reported the difficulty of physicians in assessing the psychological symptoms of their patients (11,16,27). Our results showed that the physicians had a difficulty assessing severity of psychological symptoms and recognized clinical depression and anxiety in less optimal level. The low PPVs for anxiety and depression may indicate that oncologists may not be familiar with depression and anxiety in their patients. The fact that physicians reported borderline/clinical anxiety three times more frequently than the patients themselves indicates that physicians anticipate that many of their patients have some level of psychological distress. Another explanation is that the fact that the research group which mainly consists of psychiatrists observed their practice might partly influence their ratings.

This study had some limitations as well as strengths. First, the results may be dependent on the oncologists' personal ability to recognize patients' problems, and only two oncologists participated in this study. Therefore, enrollment of a larger number of oncologists may be required to allow generalization of the findings in further study. Second, situational factors which might influence the accuracy of assessment in each consultation, such as the workload pressure, duration of the doctor-patient relationship etc., were not taken into account. Third, this study did not

investigate factors associated with oncologists' perception of their patients' needs and symptoms, since this study did not investigate potential factors associated with them comprehensively. And again including only two oncologists hampered those analyses. Forth, the fact that this study was conducted on patients with specific characteristics suggests that caution must be exercised while extrapolating the results to patients with other characteristics.

The results of this study indicate that oncologists' recognition may not accurately reflect their patients' supportive care needs and symptoms. Implementation of routine assessment of patients' problems and feedback them to oncologists using appropriate assessment tools in clinical practice would be beneficial. Other medical professionals, such as nurses, could help with patient examinations and work to facilitate information exchange between the physicians and patients. A randomized controlled trial failed to prove the efficacy of routine quality-of-life measurement in either doctor-patient communication or patient well-being in oncology practice (28). Also, some other randomized controlled trials conducted to investigate the efficacy of provision of psychosocial support based on needs questionnaires have been reported (29,30), but the results were controversial. These studies indicate that intervention combined with routine symptom assessment/feedback to oncologists and psychosocial care provided according to patients' needs may be meaningful, particularly in patients with high needs or distress levels. Further studies to investigate the effectiveness of such interventions are required.

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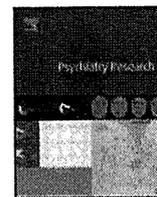
Conflict of interest statement

None declared.

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Brief report

Ictal physiological characteristics of remitters during bilateral electroconvulsive therapy

Hideki Azuma*, Atsurou Yamada, Yoshihiro Shinagawa, Yumi Nakano, Norio Watanabe, Tatsuo Akechi, Toshi A. Furukawa

Department of Psychiatry and Cognitive Behavioral Medicine, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

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ABSTRACT

Ictal heart rate (HR) and postictal suppression in ictal EEG are believed to be predictive of the therapeutic efficacy of electroconvulsive therapy (ECT) for depression. However, regarding ictal peak HR, previous studies investigated ictal HR on only one or two occasions during the course of ECT. We prospectively examined whether two physiological parameters, ictal peak HR and postictal suppression in ictal EEG, during every session, including those with abortive seizure, predicted ECT efficacy. Ictal peak HR and postictal suppression index were analyzed in 53 consecutive inpatients with depression using generalized estimating equations analysis, which corrects for the repeated nature of the observations. The peak HR and postictal suppression index were associated with therapeutic efficacy in remitters during sessions with adequate seizure. The physiological characteristics of the remitters included lower peak HR, lower stimulus energy, and higher postictal suppression index. However, these results could not be generalized, and are limited to non-atropine conditions and bilateral ECT.

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1. Introduction

Electroconvulsive therapy (ECT) represents an effective treatment option for depression (UK ECT Review Group, 2003; Fink and Taylor, 2007). Optimizing the treatment efficacy of ECT using physiological parameters, e.g. ictal EEG (Nobler et al., 1993; Krystal et al., 1995; Nobler et al., 2000) and cardiovascular parameters, including blood pressure and heart rate (HR) (Swartz, 2000; Saravanan et al., 2002; Azuma et al., 2007), has been extensively examined.

Regarding ictal EEG, especially right unilateral ECT, ictal EEG markers were reported to be predictors of therapeutic efficacy (Kimball et al., 2009), but there is some discussion that the appearance of a typical EEG seizure per se may indicate the difference between neurophysiologic response to seizure provocation among patients, which reflects the strength of the endogenous inhibitory processes that terminate seizures, and may result in better ECT outcomes (Perera et al., 2004). Among cardiovascular parameters, the rate pressure product (RPP) and the peak HR during seizure, correlate with electrical stimulus dose, and are associated with atropine use before anesthesia (Mayur et al., 1998a,b; Swartz, 2000). Regarding the efficacy of ECT in terms of cardiovascular response, RPP and peak HR

were reported to be potential indexes of treatment efficacy (Gangadhar et al., 2000; Swartz 2000; Saravanan et al., 2002). Thus, we examined the association between the efficacy of bilateral (BL) ECT and the physiological effects, ictal peak HR, and ictal EEG markers in the naturalistic ECT course throughout ECT sessions, including sessions with abortive seizure, under conditions of no atropine use and under propofol anesthesia.

2. Methods

2.1. Subjects

A consecutive series of 53 depressed inpatients that had not responded to at least 4 weeks of standard pharmacotherapy and were referred for ECT at the Department of Psychiatry, Nagoya City University Hospital, were included in the study. All subjects fulfilled the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, criteria for unipolar major depression or bipolar disorder/most recent episode depressed (American Psychiatric Association, 1994). The diagnosis was determined by at least two psychiatrists through a clinical interview and a review of the psychiatric records. Patients with the following conditions were excluded: a past or present history of schizophrenia, schizoaffective disorder, substance abuse or substance dependence, significant neurological illness, or any other significant medical illness; a grave abnormality on an X-ray, computed tomographic image, or EEG; and/or the administration of ECT within the previous 6 months. Ten days before and after a course of ECT, the severity of depression was assessed using the GRID Hamilton Rating Scale for Depression (GRID-HAMD) (Tabuse et al., 2007). The attending psychiatrists, who were directly involved in the clinical management of the patients, completed the ratings. The study protocol was approved by the Ethics Committee of Nagoya City University Medical School. All subjects were informed as to the purpose and procedures of the study, and all patients provided written informed consent for the study.

* Corresponding author. Department of Psychiatry and Cognitive-Behavioral Medicine, Nagoya City University Graduate School of Medical Sciences, Mizuho-cho, Mizuho-ku, Nagoya 467-8601, Japan. Tel.: +81 52 853 8271; fax: +81 52 852 0837.

E-mail address: azma@med.nagoya-cu.ac.jp (H. Azuma).

2.2. Electroconvulsive therapy and medication

Electroconvulsive therapy was administered through electrodes positioned bilaterally on the fronto-temporal region. For the pulse wave instrument, Thymatron™ System IV (THYMATRON System IV, Somatics, Inc., Lake Bluff, IL, USA) was used. The stimulation dose for the first session was calculated using the half age method for 16 patients and the titrated method on the basis of age for other patients. Our empirical titrating method started at 10% (under 50 years of age) or 20% (above 50 years of age), and if seizure did not occur, the stimulus dose was increased by 10%. We selected the LOW 0.5 pre-set program, which used a 0.5-ms pulse width, and adjusted the frequency to maximize the duration. Intravenous injection of propofol and 3 mg of vecuronium bromide was administered. We recorded the electroencephalographic seizure during the administration of ECT. We checked and transcribed the ictal peak HR and postictal suppression index during EEG seizure from the EEG recordings, which the ECT machine produced and automatically recorded. The postictal suppression index indicated the degree of suppression at the end of the seizure (%). A higher value means good suppression. To ensure the validity of seizure induction, we set the minimum seizure duration at 20 s (adequate seizure). If an electroencephalographic seizure did not occur (missed seizure) or lasted less than 20 s (abortive seizure), re-stimulation at a higher stimulus intensity was subsequently carried out by increasing the pulse wave stimuli by 10% up to 100%, for a maximum of three stimulations per session. The investigator measured the EEG seizure duration. Seizures were further monitored clinically in a cuffed leg.

All patients were on antidepressants, which remained unchanged at the minimal dose through the ECT courses. These antidepressants and the number of patients taking them included 17 patients taking mianserin, 6 patients taking sertraline, 1 patient taking maprotiline, 6 patients taking paroxetine, 8 patients taking fluvoxamine, 8 patients taking amoxapine, 26 patients taking trazodone, 2 patients taking nortriptyline, 1 patient taking imipramine, 4 patients taking amitriptyline, 6 patients taking clomipramine, and 4 patients taking milnacipran. Lithium and antiepileptic drugs were withdrawn before ECT. Because of clinical considerations, the use of benzodiazepine was permitted during the study to alleviate insomnia and anxiety. Benzodiazepine dosage at the time of the first ECT session never exceeded 4 mg/d of lorazepam or its equivalent. Twenty-five (47.2%) and 23 (43.4%) patients were administered antipsychotics and benzodiazepine, respectively, and five (9.4%) received an antiparkinson drug. Two patients received antihypertensive medications and their blood pressure was well controlled.

2.3. Statistical analysis

We analyzed the available physiological measurements, peak HR during EEG seizure (peak HR) and the postictal suppression index, from all available ECT sessions. A remitter was defined as a 50% reduction of the baseline GRID-HAMD score and a score of 7 or less points on the posttreatment GRID-HAMD score. A responder was defined as a 50% reduction of the baseline GRID-HAMD score. The change in treatment response was examined by paired *t*-test. Remitter or responder was the dependent variable, and each physiological measurement (peak HR, postictal suppression index) was an independent variables in generalized estimating equations (GEE) analyses, controlling for number of treatments as a within-subjects covariate. Furthermore, we controlled for age, stimulus dose (which was associated with peak HR) (Swartz, 2000; Swartz and Shen, 2007), pretreatment HAMD, electrical stimulus dose method for the first session (half age method or titrated method), propofol dose (mg/kg), and gender as covariates. To examine the influence of abortive seizure on efficacy, we analyzed both the sessions with adequate seizure and the sessions with adequate and abortive seizures. We used GEE analysis because the measurements in each patient were correlated within subjects, and the number of courses and treatments varied among subjects. Statistical significance was set at $P < 0.05$ (two-tailed).

3. Results

Table 1 shows the demographic data of the 53 patients. From a total of 745 (average sessions \pm S.D. was 14.1 ± 3.8 sessions/patient), we used the available 706 sessions. Of the 706 available sessions, 543 resulted in adequate seizures (10.2 ± 2.4 sessions per patient), 88 resulted in abortive seizures, and 75 resulted in missed seizures. However, of these sessions, 419 sessions with adequate seizures and 466 sessions with adequate and abortive seizures were available for the analysis using both peak HR and postictal suppression index. The patient physiologic data in the 419 and 466 sessions showed a peak HR of 117.9 ± 22.1 /min and 116.8 ± 22.0 /min, a postictal suppression index of $76.4 \pm 21.2\%$ and $76.3 \pm 21.0\%$, a EEG duration of 57.4 ± 34.3 s and 51.4 ± 35.2 s. The patient experimental parameters in the 419 and 466 sessions showed a stimulus energy of $42.8 \pm 24.1\%$ and $44.3 \pm 24.6\%$, and a propofol dose of 2.1 ± 0.6 mg/kg and 2.1 ± 0.6 mg/kg, respectively. The Pearson's correlation coefficients (*r*) between peak HR and energy, controlling for age, were -0.027

Table 1
Patient demographic data and physiological parameters.

| N = 53 | Mean | S.D. |
|-------------------------------|-------|------|
| Age, years | 49.6 | 12.4 |
| Age of onset, years | 41.6 | 14.5 |
| Gender (male/female) | 31/22 | - |
| Diagnosis (MDD/BD) | 49/4 | - |
| Current episode, months | 21.0 | 20.9 |
| Number of previous episodes | 1.7 | 2.0 |
| Pretreatment GRID-HAMD score | 20.2 | 5.7 |
| Posttreatment GRID-HAMD score | 10.2 | 5.7 |

MDD, Major depressive disorder; BD, Bipolar disorder; GRID-HAMD, GRID-Hamilton Rating Scale for Depression.

($n = 419$, $P = 0.58$) in the sessions with adequate seizure and -0.30 ($n = 466$, $P = 0.52$) in the sessions with adequate and abortive seizures. However, among remitters, the Pearson's *r* was 0.26 and 0.28, controlling for age ($n = 105$, $P = 0.007$, $n = 123$, $P = 0.002$), respectively. The total number of stimulus sessions was not significantly different between remitters (13.7 ± 3.5) and non-remitters (14.2 ± 4.0) (*t*-test, $t = 0.457$, $df = 51$, $P = 0.65$). The number of sessions was not significantly different between remitters (10.8 ± 1.9) and non-remitters (10.5 ± 2.2) (*t*-test, $t = -0.377$, $df = 51$, $P = 0.71$). The average stimulus dose was significantly different between remitters ($33.8 \pm 17.7\%$) and non-remitters ($45.9 \pm 25.2\%$) (*t*-test, $t = 5.42$, $df = 417$, $P < 0.001$). The average peak HR was not statistically significant between remitters and non-remitters (*t*-test, $t = 1.71$, $df = 417$, $P = 0.09$).

The GRID-HAMD score decreased from 20.2 ± 5.7 to 10.2 ± 5.7 and was statistically significant (paired *t*-test, $t = 11.1$, $df = 52$, $P < 0.001$). Of 53 patients, 16 (30.2%) and 26 (49.1%) were judged to be remitters and responders, respectively, according to the criteria defined above. The interval between the final treatment and the assessment of the post-ECT outcome was 7.3 ± 6.0 days. There was no significant difference in remitters or non-remitters between patients using major tranquilizers (Mann-Whitney *U*, $z = -1.512$, $P = 0.13$) and minor tranquilizers (Mann-Whitney *U*, $z = -0.632$, $P = 0.53$). In the GEE analysis, peak HR and postictal suppression index were statistically significant only during the sessions with adequate seizure for remitters (Table 2).

4. Discussion

We demonstrated that the physiological characteristics of remitters during bilateral ECT are not associated with higher peak HR, higher stimulus energy, or lower postictal suppression index. The peak HR in our study was lower than that in Swartz's study (Swartz and Shen, 2007), which recommended increasing the electrical dose if the peak HR was less than 140 bpm, although the peak HR in our study was 117.9 ± 22.1 . One of the possible explanations for this difference in peak HR is use or non-use of atropine before anesthesia (Perrin, 1961; Mayur et al., 1998b). Another possible explanation is the relatively higher dose of propofol anesthesia (2.1 ± 0.6 mg/kg) used. Propofol anesthesia lowered the cardiovascular response more than thiopental or methohexital (Rampton et al., 1989; Villalonga et al., 1993), although the peak HR in 0.5-ms pulse widths was reported to be higher than in the 1.0-ms pulse width (Swartz and Manly, 2000). Because the average stimulus dose in remitters was lower than that in non-remitters, we could assume that the change in seizure threshold through the ECT course in remitters was lower than that in non-remitters, and that both the stimulus dose and the peak HR emerged inversely. From the results of the ictal physiological characteristics of remitters, lower stimulus energy implied a lower seizure threshold change during the BL ECT course, and peak HR positively correlated with the lower stimulus dose, and higher postictal suppression index emerged as an ictal seizure marker. Thus,

Table 2
Results from remitter and responder during sessions with adequate seizure ($n = 419$) and adequate and abortive seizure ($n = 466$) by GEE analysis.

| | Adequate seizure ($n = 419$) | | | | Adequate and abortive seizure ($n = 466$) | | | |
|--------------------------------|--------------------------------|-------|-------------|-------|---|-------|-------------|-------|
| | Remitter | | Responder | | Remitter | | Responder | |
| | Coefficient | P | Coefficient | P | Coefficient | P | Coefficient | P |
| Age | -0.007 | 0.829 | -0.025 | 0.412 | -0.006 | 0.862 | -0.018 | 0.540 |
| Gender | 0.217 | 0.800 | -0.370 | 0.605 | 0.264 | 0.758 | -0.348 | 0.627 |
| Pretreatment GRID-HAMD | -0.142 | 0.072 | 0.055 | 0.406 | -0.124 | 0.083 | 0.067 | 0.301 |
| Electrical stimulus method | 1.583 | 0.063 | -0.581 | 0.453 | 1.444 | 0.078 | -0.581 | 0.453 |
| Peak HR | -0.023 | 0.048 | -0.008 | 0.478 | -0.020 | 0.051 | -0.008 | 0.478 |
| Postictal suppression index, % | 0.025 | 0.035 | 0.007 | 0.366 | 0.016 | 0.084 | 0.005 | 0.478 |
| Stimulus dose, % | -0.036 | 0.014 | -0.015 | 0.201 | -0.031 | 0.016 | -0.667 | 0.389 |
| Propofol, mg/kg | -0.443 | 0.295 | -0.431 | 0.258 | -0.333 | 0.434 | -0.276 | 0.458 |

Dependent variable. Remitter, posttreatment GRID-HAMD showed a 50% reduction and was <8 points; Responder, the reduction of posttreatment GRID-HAMD showed a 50% reduction; GRID-HAMD, GRID-Hamilton rating scale for depression; peak HR, peak heart rate; GEE analysis, Generalized Estimating Equations analysis.

we need to further examine patients with depression who show these physiological characteristics.

Before drawing conclusions from this observational study, we must mention the limitations of the study. Firstly, our patients were prescribed antidepressants, benzodiazepines, major tranquilizers, and antihypertensive medications. These drugs could influence the ECT-induced physiological parameters. Secondly, it was reported that, under thiopental anesthesia, the timing of the electrical stimulus influences the depth of narcosis (Sartorius et al., 2006). We stimulated when the musculature was effectively reluctant, and did not check the depth of induced narcosis. Therefore, the actual depth of narcosis might influence the ictal physiological effects. Thirdly, the rate of remitters in our study was low. We assumed that the variation in the rating days might influence the posttreatment GRID-HAMD (Prudic et al., 2004), and the 0.5-ms pulse width we used, might associate with the relatively lower response, because the ultrabrief BL ECT of 0.3-ms pulse width showed lower final remission rate (Sackeim et al., 2008). In conclusion, we demonstrated that the characteristics of remitters were lower seizure threshold change during BL ECT, lower peak HR, and higher postictal suppression under conditions of no atropine use before ECT, and with propofol anesthesia, and that these characteristics of remitters that were in line with our method need to be examined.

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Development of a Japanese Benefit Finding Scale (JBFS) for Patients With Cancer

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Michiyo Ando, RN, PhD¹, Tatsuya Morita, MD², Kei Hirai, PhD³,
Tatsuo Akechi, MD, PhD⁴, Haruko Kira, MA⁵, Eiko Ogasawara, MA⁶,
and Kenichi Jingu, MD⁷

Abstract

The primary aim of this study was to develop a scale to evaluate benefits for patients with cancer under treatment in Japan (the Japan Benefit Finding scale [JBFS]). The participants were 98 patients with cancer who completed the JBFS, which has 26 items, the General Health Questionnaire short version (GHQ 12). Factor analysis, structural equation modeling (SEM), and correlation analysis were performed. Three key domains were identified: "Recognition of one's role in the family and priorities," "Appreciation for life," and "Faith." Validity was confirmed by SEM. There was a significant correlation between the JBFS and GHQ 12. The reliability and validity are adequate, and the JBFS shows that Japanese patients who found benefits in cancer were able to adjust to their disease.

Keywords

benefit finding, scale, cancer patient, Japanese

Introduction

Patients with cancer experience physical problems such as pain, fatigue, and nausea, and psychological problems such as anxiety, depression, distress,^{1,2,3} and spiritual pain. A growing body of literature suggests that individuals coping with trauma seek to make sense of their experience and that some individuals derive benefits of personal growth from the experience.^{4,5} Positive changes that result from this trauma are referred to as benefit finding.

A study shows that posttraumatic growth of disease-free women 5 to 15 years diagnosis showed slight association with mental quality of life (QOL) and happiness,⁶ posttraumatic growth marginally related to lower perceived stress,⁷ and meta-analysis of posttraumatic growth after cancer revealed that growth was related to increased positive mental health, reduced negative mental health, and better subjective physical health.⁸ These studies show that some of patients with cancer find benefits after posttraumatic experiences, and benefit finding relate with QOL. To improve patients' QOL, examination of benefit finding is important.

As for details of benefit findings, Antoni et al found that most women diagnosed with early-stage breast cancer reported that their lives had changed in positive ways.⁴ The reported common positive changes included becoming more accepting, focusing more on the importance of relationships with family and friends, and changing life priorities. Another study showed that women with breast cancer reported greater positive psychosocial adaptation, such as improved life

outlook, enhanced interpersonal relationships, and deeper spiritual and religious satisfaction, in comparison with controls.⁹

The Benefit Finding scale was developed to evaluate this phenomenon, with domains of growth, personal priorities, daily activities, and family.^{10,11} The studies referred to above are from Western countries, and relatively few studies of benefit finding have been performed in Japan. In our previous study about meaning of illness for terminally ill patients with cancer,¹² there were differences in attitude toward cancer; patients in Western countries tended to confront with illness or fight against illness, however, those in Japanese tended to live together with the illness. We predicted that there were some differences in construction of the benefit findings.

¹ Faculty of Nursing, St Mary's College, Kurume city, Fukuoka, Japan

² Department of Palliative and Supportive Care, Palliative Care Team, and Seirei Hospice, Seirei Mikatahara General Hospital, Hamamatsu, Japan

³ Osaka University, Osaka, Japan

⁴ Department of Psychiatry and Cognitive-Behavioral Medicine, Graduate School of Medical Sciences, Nagoya City University, Nagoya, Japan

⁵ Kurume University, Kurume, Japan

⁶ Gunma University, Maebashi City, Gunma, Japan

⁷ Department of Radiation Oncology, St Mary's Hospital, Kurume city, Fukuoka, Japan

Corresponding Author:

Michiyo Ando, St Mary's College, Tsubukuhonmachi 422, Kurume city, Fukuoka, Japan
Email: andou@st-mary.ac.jp

Table 2. Results of Factor Analysis Showing Items and Factor Loadings

| Items in Each Factor | F 1 | F 2 | F 3 | Commonality |
|--|------|------|------|-------------|
| Factor 1: Recognition of one's roles in the family and priorities | | | | |
| (12) Having cancer has made me more sensitive to my family issues | 0.87 | | | 0.69 |
| (13) Having cancer has made me realize the importance of planning for my family's future | 0.66 | | | 0.38 |
| (1) Having cancer has brought my family closer together | 0.53 | | | 0.30 |
| (2) Having cancer has brought me feel family's love | 0.50 | | | 0.42 |
| (14) Having cancer has made me think about my life and work | 0.47 | | | 0.45 |
| (9) Having cancer has taught me to be patient | 0.42 | | | 0.22 |
| (10) Having cancer has led me to be more accepting of things | 0.42 | | | 0.29 |
| (16) Having cancer has helped me plan what I can do in my life | 0.38 | | | 0.18 |
| Factor 2: Appreciation for life | | | | |
| (19) Having cancer has made me appreciate life | | 0.81 | | 0.63 |
| (17) Having cancer has made me realize that life is limited and that time is precious | | 0.67 | | 0.46 |
| (11) Having cancer has made me to live along with illness well | | 0.61 | | 0.50 |
| (5) Having cancer has made me more grateful for each day | | 0.47 | | 0.28 |
| Factor 3: Faith | | | | |
| (20) Having cancer has made me religious | | | 0.73 | 0.57 |
| (18) Having cancer has made me think that there is meaning or purpose in my life | | | 0.66 | 0.47 |
| (22) Having cancer has made me think that there is meaning in a difficult experience | | | 0.55 | 0.37 |
| (21) Having cancer has made me feel that there is a transcendent power exceeding human power | | | 0.49 | 0.24 |

the patient and the interviewer obtained informed consent after the patient agreed to participate. The patient then completed the JBFS and GHQ 12 questionnaires orally over about 30 minutes. This study was approved by the St Mary's Hospital Ethical Board.

Statistical Analysis

A mean score of each question item of the JBFS was calculated, and items which showed the ceiling effects or floor effects were deleted. Thus, 22 items of 26 items were used for factor analysis. The validity of the JBFS was confirmed by factor analysis. Seven-point Likert scores for each item were used for statistical analysis. A factor analysis by weighted least squares and promax rotation was performed on the 22 items of the JBFS. Factors with an eigenvalue ≥ 1 and items with a factor loading >0.4 were selected. The conceptual structure of the JBFS, including factors confirmed by factor analysis, was assessed by structural equation modeling (SEM) using Amos 16.0 SPSS 16.0.¹⁵ Values of $P < .05$ were considered significant. A correlation analyses between JBFS and GHQ scores were also performed.

Results

Factor Analysis

Three domains validated by factor analysis are shown in Table 2. The first was interpreted as "recognition of one's roles in the family and priorities," and consisted of the following 8 items: "having cancer has made me more sensitive to family issues," "having cancer has made me realize the importance of planning for my family's future," "having cancer has brought my family close together," "having cancer has made me feel

my family's love," "having cancer has made me think about my life and work," "having cancer has taught me to be patient," "having cancer has led me to be more accepting of things," and "having cancer has helped me plan what I do in my life."

The second domain was interpreted as "appreciation for life," and consisted of the following 4 items: "having cancer has made me appreciate life," "having cancer has made me realize that life is limited and that time is precious," "having cancer has taught me to cope with my illness well," and "having cancer has made me more grateful for each day."

The third domain was interpreted as "Faith," and consisted of the following 4 items: "having cancer has made me religious," "having cancer has made me think that there is meaning or purpose in my life," "having cancer has made me think that there is meaning in a difficult experience," and "having cancer has made me feel that there is a transcendent power exceeding human power."

To assure the internal consistencies of this inventory, Cronbach α was calculated. Cronbach α values for the 3 subordinate domains were .80, .74, and .70, respectively.

Structural Equation Modeling of the JBFS

Structural equation modeling was performed to examine the conceptual structure of the JBFS, based on the 3 subordinate domains obtained in factor analysis. The fit indices of this model were as follows: Goodness of Fit Index (GFI) = 0.826, Adjusted Goodness of Fit Index (AGFI) = 0.766, Comparative Fit Index (CFI) = 0.83. The more than 0.9 score shows the best fitness of the mode. The Root-Mean-Square Error of Approximation (RMSEA) = 0.087 and the score under 1.0 shows the best fitness. All of the standardized coefficients were significant ($P < .05$). "Recognition of one's role in the family"

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Original Article

Treatment Response to Psychiatric Intervention and Predictors of Response Among Cancer Patients with Adjustment Disorders

Ken Shimizu, MD, PhD, Nobuya Akizuki, MD, PhD, Naoki Nakaya, PhD, Maiko Fujimori, PhD, Daisuke Fujisawa, MD, Asao Ogawa, MD, PhD, and Yosuke Uchitomi, MD, PhD

Psycho-Oncology Division (K.S., M.F.), National Cancer Center Hospital, Chuo-ku, Tokyo; Psycho-Oncology Division (N.A.), Chiba Cancer Center, Chiba City, Chiba; Psycho-Oncology Division (N.N., D.F., A.O., Y.U.), Research Center for Innovative Oncology, National Cancer Center Hospital East, Kashiwa, Chiba, Japan; and Department of Psychosocial Cancer Research (N.N.), Institute of Cancer Epidemiology, Danish Cancer Society, Copenhagen, Denmark

Abstract

Context. Although adjustment disorders (ADs) are common among patients with cancer and such patients are frequently referred to consultation-liaison psychiatrists, little is known about the clinical courses of these patients.

Objectives. The present study investigated treatment response to psychiatric intervention and predictors of response in a relatively large sampling of cancer patients with ADs.

Methods. We created a database of all referral cases with ADs that included data on the patients' demographic and medical factors and physician-rated Clinical Global Impression (CGI) scale to assess treatment response and clinical course. A CGI-Improvement scale score of better than "much improved" was regarded as indicating a response to treatment; the number of patients who responded to treatment during a four-week follow-up period was assessed. Also, predictors of treatment response were explored by examining demographic and medical factors using a multivariate analysis.

Results. Among the 238 eligible patients, 136 (57.1%) responded to psychiatric treatment; most of these responders improved to a subthreshold level of illness. On the other hand, 56 patients (23.5%) did not respond to psychiatric treatment, seven patients (2.9%) developed major depressive disorders, and 39 patients (16.4%) discontinued treatment before achieving a response. Among the predictive factors that were explored, suffering from pain significantly predicted a good treatment response, whereas a worse performance status predicted a poor treatment response.

Address correspondence to: Ken Shimizu, MD, PhD, Psycho-Oncology Division, National Cancer Center Hospital, 5-1-1 Tsukiji, Chuo-ku, Tokyo 104-0045 Japan. E-mail: keshimiz@ncc.go.jp

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Conclusion. Cancer patients with ADs can respond to psychiatric treatment, but a few cases develop major depressive disorders. Several predictors of treatment response were identified. *J Pain Symptom Manage* 2011;41:684–691. © 2011 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

Key Words

Adjustment disorders, prognosis, cancer, psychiatry, therapeutics, oncology

Introduction

Adjustment disorder (AD) is the most common psychiatric issue in patients with cancer, with a reported prevalence of 4%–35%.^{1–7} AD is a diagnosis that bridges normality and pathology, has an indefinite symptomatology in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR),⁸ and has an essential place in psychiatric taxonomy.⁹ Many patients assigned the diagnosis of AD have had suicidal ideation or suicidal behavior,^{10,11} low quality of life,¹² longer length of hospital stay,¹³ and severe caregiver distress.¹⁴ Previous studies have shown that about 10% of the cases referred to consultation-liaison psychiatrists in general hospitals have AD,^{15,16} and this percentage may be higher in cancer centers.¹⁷ Indeed, one-third of the referred patients to our department were diagnosed as having AD.

Although AD is such a prevalent, burdensome, and frequently treated disorder, little is known about its treatment response in cancer patients compared with other disorders that are also frequently referred to psychiatrists, such as major depressive disorders or delirium, and psychiatrists must care for these patients with few benchmarks available for reference. Razavi et al.^{18,19} conducted two pharmacologic trials, one which showed the superiority of trazodone to clorazepate for patients with AD and another that showed that fluoxetine did not have a significant effect, compared with a placebo, in patients with AD or major depressive disorders. Other similar trials are lacking. Our previous study suggested that a multifaceted psychosocial intervention program can decrease the prevalence of ADs in patients with advanced cancer, with six of eight patients with AD responding to treatment.¹¹ The relatively small sample sizes and limited number of studies prevent conclusions about the percentage of patients who respond to psychiatric

intervention or who worsen and develop major depressive disorders despite intervention. Moreover, predictors of treatment response have not yet been assessed, and the types of patients who tend to respond to treatment also remain unclear.

The primary aim of this study was to investigate the response of cancer patients with AD to psychiatric treatment; the secondary aim was to explore predictors of treatment response. We assessed the percentage of referred cases with AD who responded to commonly used psychiatric interventions in combination with brief supportive psychotherapy and pharmacotherapy.¹⁵ Also, we explored the demographic and medical factors capable of predicting the treatment response to intervention.

Method

Study Sample

The study period was from May 2005 to April 2008. Consecutive patients referred to the Psycho-Oncology Division of the National Cancer Center Hospital East and diagnosed by psychiatrists as having AD based on the DSM-IV criteria were included. Patients who could not be followed up because they were physically too ill, had died, or because of hospital transfer were excluded.

This study was approved by an institutional review board. Because all the data assessed in this study were obtained as part of routine clinical assessments, written consent was not obtained from the patients, in accordance with the guidelines of the Japanese Ministry of Health, Labor and Welfare.

Referral Process and Psychiatric Intervention

Patients who were suspected of having any psychiatric problem were referred to the Psycho-Oncology Division by oncologists. At this time point, the patients had not completed

any self-reported distress scale, and oncologists usually do not speculate as to the specific psychiatric diagnosis as they are not qualified to do so. If patients accepted the consultation, each referred patient was assigned to one of the five trained psychiatrists of the Psycho-Oncology Division, and a clinical diagnostic interview based on the DSM-IV criteria was conducted. The diagnosis of AD in medically ill patients is confounded by the symptoms of the medical illness itself, and this is an ongoing problem that the DSM must address. In cases where the symptoms were not definitively caused by a medical illness or for psychiatric disorders with vegetative signs, the accuracy of the psychiatric diagnoses of the patients was discussed at a weekly meeting of the psychiatry department.

Although no consensus guidelines exist for the treatment of AD in medically ill patients, our psychiatric intervention for AD involves a combination of psychotherapy and pharmacotherapy, both complying with our original treatment manuals, which were developed based on the evidence of previous studies and have been described in detail elsewhere.²⁰ Regarding psychotherapy, group therapy was not provided, and most of the patients received brief individual supportive counseling sessions; additional techniques, such as relaxation, also were used depending on each patient's situation and preference. Ambulatory patients were usually seen every one to two weeks, when they visited their oncologists; inpatients were usually seen once or twice a week.

For patients who did not respond to psychotherapy alone, pharmacotherapy was considered, with anxiolytics used as the drugs of first choice.²¹ For patients with a limited life expectancy and without liver dysfunction, we often chose a short-acting drug, such as alprazolam, because the risk of addiction is not a notable problem for these patients. But for long-term survivors or patients with liver dysfunction, we often use a benzodiazepine, such as lorazepam, on a short-term basis, considering the hepatic metabolism. For patients who did not respond to anxiolytics and who manifested considerable depressive symptoms, the use of an antidepressant was considered. These intervention principles are in agreement with those of teaching hospitals in the United States, Canada, and Australia.¹⁵

Demographic and Clinical Variables

During the study period, we constructed a database of patients with AD to clarify their response to treatment and clinical course. This database was designed so that all the items assessed during routine clinical practices could be extracted from the patients' medical charts, including patient age, sex, cancer site, disease stage, marital status, employment status, and performance status as defined by the Eastern Cooperative Oncology Group (ECOG) criteria (ranging from 0 [no symptoms] to 4 [bedridden]). To assess pain, the psychiatrists directly asked the patients about their pain at the time of the first interview; each patient's pain was rated from 0 (not at all) to 3 (intolerable pain).

Assessment of Severity and Response to Treatment

The psychiatrist in charge assessed the severity of AD and determined whether any improvement had occurred at every clinical examination. To assess the severity of AD, the physician-rated Clinical Global Impression-Significant (CGI-S) scale was used. This scale ranges from 1 to 7 and is rated using the following benchmarks: 1 = normal, 2 = borderline mentally ill, 3 = mildly ill, 4 = moderately ill, 5 = markedly ill, 6 = severely ill, and 7 = among the most extremely ill. To assess improvement, the physician-rated Clinical Global Impression-Improvement (CGI-I) scale was scored during follow-up assessments. This scale ranges from 1 to 7 and is scored using the following benchmarks: 1 = very much improved, 2 = much improved, 3 = minimally improved, 4 = no change, 5 = minimally worse, 6 = much worse, and 7 = very much worse.²² A treatment "response" was regarded as a CGI-I rating of 1 or 2. A correlation between the CGI and generally used rating scales, such as the Hamilton Depression Rating Scale, the Montgomery Åsberg Depression Rating Scale, and the Beck Depression Inventory, has been previously reported.²³

Analysis

The patients' demographic and medical characteristics were obtained from the database and were described separately for the eligible and excluded group. Intergroup comparisons were made using a univariate analysis with the *t*-test, Mann-Whitney *U*-test, and Chi-squared test

used for parametric variables, nonparametric variables, and categorical variables, respectively.

All the eligible cases were classified into the following four categories, and the proportion of cases in each category was determined: 1) "responded case:" a response was observed at a four-week follow-up assessment or treatment was terminated before four weeks after a treatment response had been achieved; 2) "nonresponded case:" no response was observed at a four-week follow-up assessment; 3) "case developed major depressive disorder:" the depressive symptoms worsened, and the patient developed major depressive disorder; and 4) "case dropped out from treatment:" treatment was terminated before four weeks without achieving a treatment response.

We used a multivariate logistic regression analysis to examine predictors of treatment response. For this purpose, the patients were dichotomized into "responded case" and "others," which included the other three categories described above. Age, sex, tumor stage, pain, performance status, marital status, and employment status, which have been suggested to be associated with the development of AD in previous observational studies,^{3,5-7,24} were entered as independent variables. All the reported *P*-values are two-tailed. All the data analyses were conducted using SPSS 14.0 J for Windows statistical software (SPSS Japan Institute, Tokyo, Japan).

Results

Clinical Demographics

During the study period, 259 patients were referred to the Psycho-Oncology Division for the treatment of ADs. Among these 259 patients, 238 (91.9%) were eligible for this study and 21 (8.1%) who could not be followed up because they were physically too ill, had died, or because of hospital transfer were excluded from the study sample. The clinical characteristics of both the eligible and excluded group, including the subtype of AD, age, sex, tumor sites, tumor stage, pain intensity, ECOG performance status, marital status, and employment status, are listed in Table 1 and compared between the two groups. The excluded group had a worse performance status and tended to have greater pain than the eligible group.

Treatment Response and Course of Severity

Among the 238 eligible patients, a "response" was achieved in 95 (39.9%) patients at a four-week follow-up examination, and 41 (17.2%) patients terminated treatment before four weeks after a "response" had been achieved. Overall, 136 of the 238 patients (57.1%) were classified as "responded case," 56 (23.5%) patients were classified as "nonresponded case," seven (2.9%) were classified as "case developed major depressive disorder," and 39 (16.4%) were classified as "case dropped out from treatment."

The mean CGI-S score of all the eligible patients was 3.45 ± 0.78 at baseline and 2.25 ± 0.94 at a four-week follow-up examination or at the termination of treatment, representing a significant decrease ($P < 0.001$). Among the 136 patients who responded to treatment, 111 (81.7%) decreased to a sub-threshold illness level (CGI-S score of 1 or 2).

Predictors of Treatment Response

The results of a multivariate analysis investigating predictors of response to treatment are shown in Table 2. Among the factors, suffering from pain predicted a good response to treatment, whereas a performance status worse than 2 predicted a poor response, compared with a performance status of 0.

Discussion

The results of this study demonstrated that more than half (57.1%) of the cancer patients with AD responded to the psychiatric intervention within four weeks and that the degree of AD severity decreased to normal or a borderline illness level in most of the patients who responded. On the other hand, a comparatively small proportion of patients (2.9%) developed major depressive disorders. Among the factors that were explored, suffering from pain predicted a good response to treatment, whereas a worse performance status predicted a poor response.

Snyder et al.²⁵ assessed the course of referred patients who were diagnosed as having AD with a depressed mood in an acute care inpatient hospital setting, and 76.4% of these patients were judged to have exhibited improvements after psychiatric intervention.