Original Article

Preliminary Evaluation of a Clinical Syndrome Approach to Assessing Cancer-Related Fatigue

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Abstract

The objectives of this study were to evaluate the reliability, validity, and utility of a newly developed clinical syndrome approach to assessing cancer-related fatigue. Fifty-one patients who underwent blood or marrow transplantation an average of 6.9 months previously were administered a standardized interview designed to identify the presence of a clinical syndrome of cancer-related fatigue. Patients also completed self-report measures of fatigue, depression, and health-related quality of life. Comparisons among independent raters demonstrated high rates of reliability for the presence or absence of a cancer-related fatigue syndrome and its symptoms. Twenty-one percent of patients (n = 11) were found to meet criteria for diagnosis of a cancer-related fatigue syndrome. Compared to patients not meeting the diagnostic criteria, patients meeting the criteria reported fatigue that was greater (P ≤ 0.05) in its severity, frequency, pervasiveness, and interference with quality of life. Patients who met criteria also demonstrated poorer role functioning, less vitality, and more depressive symptomatology (P ≤ 0.05). These findings provide preliminary evidence of the reliability and validity of the methods used to assess the proposed clinical syndrome and suggest their utility in identifying patients experiencing clinically significant cancer-related fatigue.


Key Words

Fatigue, blood or marrow transplantation, quality of life

Introduction

Fatigue is generally recognized to be one of the most common and distressing side effects of cancer treatment.1–4 In addition to the fatigue that may be experienced during the course of treatment, there is mounting evidence that many cancer patients suffer from fatigue for months or even years following the completion of chemotherapy,5–9 radiotherapy,8–10 and blood or marrow transplantation.11–15 As cancer treatments become more effective and survival rates increase, improved symptom management becomes increasingly important. Accordingly, there is a compelling need to better understand the nature of fatigue in cancer patients.

Although much has been learned in the past few years, a lack of consensus about the defini-
tion of cancer-related fatigue has hindered progress. In the absence of a common definition, researchers have used a variety of assessment approaches. Much of the time, fatigue has been assessed using a single item embedded in a symptom checklist such as the Symptom Distress Scale\textsuperscript{16} and the Rotterdam Symptom Checklist.\textsuperscript{17} Due to their format, these single item measures have limited reliability and provide only the most perfunctory information about the patient’s experience of fatigue. Multi-item measures, such as Profile of Mood States Fatigue Scale,\textsuperscript{18} have better psychometric properties but are limited in providing information about only the general level of fatigue severity. In a more comprehensive approach to the assessment of fatigue, several investigators have developed multidimensional measures.\textsuperscript{19–21} For example, the Fatigue Symptom Inventory includes scales that assess the duration and severity of fatigue as well as its perceived interference with quality of life.\textsuperscript{22}

All of these approaches to assessing cancer-related fatigue share a common feature. That is, they yield continuous measures of fatigue along one or more dimensions. In addition to assessing fatigue along a continuum, it may also be possible to identify a set of diagnostic criteria that could be used to identify the presence or absence of a clinical syndrome of cancer-related fatigue. An analogy can be drawn to the assessment of depression. In addition to assessing the severity of depressive symptomatology along a continuum, it is also possible to identify the presence or absence of the clinical syndrome of major depressive disorder using standard criteria adopted by the American Psychiatric Association.\textsuperscript{23} Based on this model, a group of researchers recently proposed criteria for the diagnosis of a clinical syndrome of cancer-related fatigue.\textsuperscript{24} These diagnostic criteria, which have been submitted for inclusion in the tenth edition of the International Classification of Diseases (ICD-10), are presented in Table 1. In order to facilitate and standardize the diagnostic process, a diagnostic interview guide has been developed based on these criteria (see Appendix).\textsuperscript{24}

The primary aim of the current study was to examine the prevalence of the proposed clinical syndrome of cancer-related fatigue in a well-defined patient sample. Additional aims were to determine the inter-rater reliability of diagnoses based on the interview guide and identify the demographic, medical, and quality of life correlates of the clinical syndrome. With regard to the latter, it was hypothesized that patients meeting diagnostic criteria for the clinical syndrome would manifest poorer health-related quality of life, worse fatigue, and greater depressive symptomatology than patients not meeting diagnostic criteria for the clinical syndrome.

**Methods**

**Participants**

Participants were patients who had completed either autologous or allogeneic blood or marrow transplantation (BMT) at the Moffitt Cancer Center between September 1997 and April 1999. To be eligible for the current study, these patients also had to: 1) be between 18 and 65 years of age; 2) be able to speak and read English; 3) have completed at least eight years of formal education; 4) have no clinical evidence of disease progression or recurrence at the most recent follow-up visit; and 5) be no less than five and no more than 12 months post-BMT at the time of follow-up contact.

Of the 83 BMT recipients meeting these eligibility criteria, 15 patients could not be reached, 15 refused to participate, and 2 provided incomplete data. Thus, complete data were obtained from 51 BMT recipients (61%). Analyzes comparing participants to eligible non-participants indicated that there were no significant differences between the groups with regard to demographic variables (i.e., age, gender, education, ethnicity, marital status, and employment status), cancer diagnosis, or length of hospitalization \( (P \text{ values} \geq 0.15) \). Compared to eligible non-participants, participants were found to be more likely to have undergone allogeneic transplantation and less likely to have undergone autologous transplantation \( (\chi^2 = 4.32, P = 0.04) \).

**Procedure**

Approximately five months post-transplant, medical records were reviewed to determine if patients met eligibility criteria. A letter was sent to eligible patients informing them that they would be contacted by telephone to discuss
study participation. Approximately one week later, patients were contacted by telephone and details of the study were provided. The larger study, of which the current report is a component, involved the assessment of a number of quality of life outcomes by means of both patient self-report measures and clinician-administered measures. Measures that are a focus of this report are described below. Those patients who provided verbal informed consent during the telephone contact were given an appointment for an outpatient research visit in order to complete the clinician-administered measures. They were also sent a written informed consent form and a package of self-report questionnaires that included measures of demographic characteristics, depressive symptomatology, fatigue symptoms, and health-related quality of life (see below). Patients were asked to complete the questionnaires at home in the days just before their outpatient appointment. Upon arriving for their appointment, patients returned the signed consent forms and completed questionnaires. They then completed a series of clinician-administered measures that included the diagnostic interview for cancer-related fatigue (see below).

**Measures**

**Demographic Data Form.** Demographic data were obtained through use of a standard self-report questionnaire. Variables assessed included age, gender, ethnicity, marital status, employment status, and education level.

**Medical Record Review Form.** Medical records were reviewed to obtain information on type of cancer, type of transplant, and dates of admission and discharge for BMT.

**Diagnostic Interview Guide for Cancer-Related Fatigue (1998 Draft-Revised).** This structured interview guide was designed to assess whether respondents meet proposed ICD-10 criteria for the diagnosis of cancer-related fatigue. The criteria specify that: 1) six or more symptoms out of 11 possible symptoms of fatigue have been present every day or nearly every day during the same two week period in the past month; 2) one of the six or more symptoms is significant fatigue; 3) the symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning; 4) there is evidence that the symptoms are a consequence of cancer or cancer therapy; and 5) the symptoms are not primarily a consequence of co-morbid psychiatric disorders such as major depression, somatization disorder, somatoform disorder, or delirium.

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**Table 1**

Proposed ICD-10 Criteria for Cancer-Related Fatigue

<table>
<thead>
<tr>
<th>A. Six (or more) of the following symptoms have been present every day or nearly every day during the same 2-week period in the past month, and at least one of the symptoms is (1) significant fatigue.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Significant fatigue, diminished energy, or increased need to rest, disproportionate to any recent change in activity level.</td>
</tr>
<tr>
<td>2. Complaints of generalized weakness or limb heaviness.</td>
</tr>
<tr>
<td>3. Diminished concentration or attention.</td>
</tr>
<tr>
<td>4. Decreased motivation or interest to engage in usual activities.</td>
</tr>
<tr>
<td>5. Insomnia or hypersomnia.</td>
</tr>
<tr>
<td>6. Experience of sleep as unrefreshing or nonrestorative.</td>
</tr>
<tr>
<td>7. Perceived need to struggle to overcome inactivity.</td>
</tr>
<tr>
<td>8. Marked emotional reactivity (e.g., sadness, frustration, or irritability) to feeling fatigued.</td>
</tr>
<tr>
<td>9. Difficulty completing daily tasks attributed to feeling fatigued.</td>
</tr>
<tr>
<td>11. Post-exertional malaise lasting several hours.</td>
</tr>
</tbody>
</table>

| B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. |

| C. There is evidence from the history, physical examination, or laboratory findings that the symptoms are a consequence of cancer or cancer therapy. |

| D. The symptoms are not primarily a consequence of co-morbid psychiatric disorders such as major depression, somatization disorder, somatoform disorder, or delirium. |

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with patients who were not study participants. Study interviews were conducted by two graduate students in clinical psychology experienced in working with cancer patients. Eighteen interviews were audio tape-recorded for purposes of determining inter-rater reliability. Ratings provided by study interviewers were compared with those of an independent rater (I.S.) who was trained in the administration of the interview but not involved in data collection for the current study. There was 94% overall agreement between the study interviewers and the independent rater regarding the presence/absence of cancer-related fatigue. Calculation of kappa, a measure of agreement adjusted for base rates, yielded a coefficient of 0.87. There was 98% overall agreement between the study interviewers and the independent rater regarding the presence/absence of the 14 individual criteria that comprise the interview (kappa = 0.96).

Center for Epidemiological Studies Depression Scale (CES-D). The CES-D is a 20-item measure of depressive symptomatology. Respondents indicate on a four-point rating scale (0 = rarely or none of the time, 3 = most or all of the time) the extent to which they experienced each depressive symptom during the past week. The reliability and validity of the CES-D has been demonstrated with a wide range of populations, including cancer patients.

Fatigue Symptom Inventory (FSI). The FSI assesses the frequency and severity of fatigue as well as its perceived interference with quality of life. Frequency is measured as the number of days in the past week (0–7) respondents felt fatigued as well as the extent of each day on average they felt fatigued (0 = none, 10 = entire day).Severity is measured on separate 11-point scales (0 = not at all fatigued, 10 = as fatigued as I could be) that assess most, least, and average fatigue during the past week as well as current fatigue. Perceived interference is measured on separate 11-point scales (0 = no interference, 10 = extreme interference) that assess the degree to which fatigue in the past week is judged to interfere with general level of activity, ability to bathe and dress, normal work activity, ability to concentrate, relations with others, mood, and enjoyment of life. The interference ratings can be summed to obtain a total perceived interference score. Previous research has demonstrated the reliability and validity of the FSI with cancer patients.

Medical Outcome SF-36 Health Survey (SF-36). The SF-36 is a 36-item self-report measure designed to assess perceived health and functioning. It contains eight subscales that measure the extent to which health status impacts each of the following areas: 1) physical functioning; 2) role functioning-physical; 3) bodily pain; 4) general health; 5) vitality; 6) social functioning; 7) role functioning-emotional; and 8) mental health. On all SF-36 scales, a higher score indicates a better health state. The SF-36 has been found to have acceptable reliability and validity when administered to healthy and chronically-ill individuals.

Results

Demographic and Medical Characteristics

Study participants ranged in age from 23 to 63 years (M = 48, SD = 9). The majority of participants were female (75%), Caucasian (90%), currently married (65%), and had some schooling beyond high school (63%). Forty-five percent were currently working, 10% were on leave, and the remaining 45% were not currently employed. Seventy-six percent of the sample underwent autologous transplantation and 24% underwent allogeneic transplantation. The majority of patients (61%) were diagnosed with breast cancer, followed by multiple myeloma (14%), leukemia (13%), lymphoma (10%), and aplastic anemia (2%). Participants were hospitalized for BMT an average of 23 days (SD = 10; range = 16–77). Participants were approximately 6.9 months post-discharge (SD = 1.1; range = 5–11) at the time of follow-up assessment.

Prevalence of Cancer-Related Fatigue

Twenty-two participants (43% of sample) indicated during the structured interview that they had experienced significant fatigue every day or nearly every day during the same two-week period in the past month. Among these 22 patients, endorsement of the 10 additional symptoms was as follows: complaints of generalized weakness or limb heaviness (77%); perceived need to struggle to overcome inactivity (73%); insomnia or hypersomnia (64%); experience of sleep as unrefreshing or nonrestor-
Table 2 shows that there were no significant differences in these variables and cancer-related fatigue as defined by the proposed ICD-10 criteria. As shown in Table 2, there were no significant ($P \leq 0.05$) associations between these variables and cancer-related fatigue. T-tests were conducted to examine the relation of age, length of hospitalization, and time since discharge to the presence/absence of cancer-related fatigue. As shown in Table 3, none of these variables was significantly ($P \leq 0.05$) associated with cancer-related fatigue.

Table 3 shows the results of the Chi-square analyses. The presence of these additional symptoms in patients who met criteria for cancer-related fatigue was also associated with reports on the FSI of more days of fatigue in the past week ($P = 0.0006$), fatigue for a greater proportion of each day in the past week ($P = 0.0008$), and greater interference with quality of life due to fatigue ($P = 0.01$).

With regard to SF-36, significant ($P < 0.05$) differences were evident on three of the eight scales. Compared to patients who did not meet the criteria, patients who met the criteria reported less vitality ($P = 0.004$), as well as more problems with role functioning due to physical problems ($P = 0.04$) and emotional problems ($P = 0.006$).

**Discussion**

The purpose of the present study was to examine the prevalence of cancer-related fatigue in a sample of BMT survivors using a newly developed clinical syndrome approach. Of additional interest was the examination of the inter-rater reliability of diagnoses based on an interview guide and the identification of the demographic, medical, and quality of life correlates of the clinical syndrome of cancer-related fatigue.

Fatigue has been noted to be a prominent concern among patients previously treated with BMT. Consistent with these findings, we found that 43% of our sample of BMT survivors had experienced significant fatigue every day or nearly every day during the same two-week period in the past month and that 21% of the sample fulfilled the remaining criteria specified in the clinical syndrome definition. Among patients experiencing significant fatigue on a daily basis, eight of the ten additional symptoms considered to be part of the clinical syndrome were found to be present in a majority of patients. The relatively high prevalence of these additional symptoms in patients experiencing daily fatigue provides support for the clinical syndrome as described.
provides support for a multidimensional conceptualization of fatigue. Although there is continuing debate on this topic, research suggests that fatigue in cancer patients has physical, cognitive, emotional, and behavioral manifestations. Consistent with this view, we observed that the presence of a general symptom of fatigue (i.e., significant fatigue on a daily basis) was accompanied in a majority of patients by perceived impairments in the physical domain (e.g., generalized weakness or limb heaviness), cognitive domain (e.g., diminished attention and concentration), behavioral domain (e.g., decreased motivation to engage in usual activities), and emotional domain (e.g., marked emotional reactivity to feeling fatigued).

We are aware of only one other published study that has used this clinical syndrome approach to diagnosing cancer-related fatigue. Participants in this study were 379 individuals with a variety of cancer diagnoses who were previously treated with chemotherapy (with or without radiotherapy). Elements of Criteria A and B of the proposed clinical syndrome were evaluated as part of a larger telephone survey. The prevalence rates reported in this study are similar to those observed in the present study. Among 108 participants who completed treatment within the past year, 50% reported significant fatigue every day or nearly every day during the same two-week period in the past month, and 20% reported the presence of six symptoms including significant fatigue (Criterion A) plus clinically significant distress or impairment in functioning (Criterion B).

Results from the present study suggest that the presence or absence of cancer-related fatigue and its symptoms can be evaluated in a more comprehensive manner by considering multiple domains. This approach may provide a more accurate assessment of fatigue and its impact on patients' quality of life.
reliable manner using a brief semi-structured interview. Among two independent raters, there was 94% agreement about the presence/absence of cancer-related fatigue and 98% agreement about the presence/absence of the individual diagnostic criteria. It should be noted that these rates were achieved by clinicians who had undergone brief training in the use of a structured interview guide. Those seeking to use this clinician syndrome approach for either clinical or research purposes are encouraged to use similar training and interviewing procedures to insure the reliability of their diagnoses.

None of the demographic or medical variables assessed in the current study was found to be significantly related to the presence or absence of cancer-related fatigue. The lack of positive findings with regard to demographic characteristics is partially consistent with previous research. Although some studies have found significant relationships between measures of fatigue severity and variables such as age, gender, and education, several other studies have not. With regard to medical characteristics, the lack of positive findings in the present study is consistent with previous research. Along these lines, at least two prior studies reported no differences in fatigue based on whether patients had previously undergone autologous versus allogeneic transplantation.

There was considerable evidence in the present study of the utility of the clinical syndrome approach in identifying cancer patients experiencing heightened fatigue. Comparisons indicated that, relative to patients who did not meet the diagnostic criteria, patients who met the criteria were experiencing fatigue that was significantly greater in terms of its current, most, least, and average severity as well as its frequency, pervasiveness, and interference with quality of life. The magnitude of these differences appears to be clinically as well as statistically significant. For example, the group that met the diagnostic criteria reported being fatigued an average of 2.3 more days per week. Similarly, current fatigue was 85% greater and interference from fatigue was 143% greater in patients who met diagnostic criteria for cancer-related fatigue. Taken together, these findings suggest that the clinical syndrome approach captures important distinctions in the experience of fatigue among cancer patients.

Results from the SF-36 regarding quality of life suggest that the impact of the cancer-related fatigue syndrome is most evident in the domain of role functioning. Along these lines, we observed that patients who met the diagnostic criteria reported significantly more problems with work or other daily activities due to both physical and emotional problems than patients who did not meet the diagnostic criteria.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Criteria Met</th>
<th>Criteria Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSI</td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
<tr>
<td>Current fatigue</td>
<td>4.8 3.2</td>
<td>2.6 2.7</td>
</tr>
<tr>
<td>Most fatigue</td>
<td>7.5 1.9</td>
<td>4.5 2.9</td>
</tr>
<tr>
<td>Least fatigue</td>
<td>3.3 2.2</td>
<td>1.7 1.8</td>
</tr>
<tr>
<td>Average fatigue</td>
<td>4.8 2.4</td>
<td>3.1 2.4</td>
</tr>
<tr>
<td>No. of days fatigued</td>
<td>5.8 1.4</td>
<td>3.5 2.8</td>
</tr>
<tr>
<td>Percent of day fatigued</td>
<td>4.9 2.4</td>
<td>2.7 2.3</td>
</tr>
<tr>
<td>Fatigue interference</td>
<td>28.8 18.7</td>
<td>11.5 12.0</td>
</tr>
<tr>
<td>CES-D</td>
<td>17.5 11.2</td>
<td>9.6 9.3</td>
</tr>
<tr>
<td>SF-36 Subscale Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>58.6 27.8</td>
<td>73.1 22.4</td>
</tr>
<tr>
<td>Role Physical</td>
<td>25.0 35.4</td>
<td>54.4 43.1</td>
</tr>
<tr>
<td>Bodily Pain</td>
<td>62.0 30.9</td>
<td>73.3 25.7</td>
</tr>
<tr>
<td>General Health</td>
<td>53.3 24.1</td>
<td>67.4 22.1</td>
</tr>
<tr>
<td>Vitality</td>
<td>35.0 18.8</td>
<td>57.9 23.2</td>
</tr>
<tr>
<td>Social Functioning</td>
<td>64.7 26.7</td>
<td>78.1 25.1</td>
</tr>
<tr>
<td>Role Emotional</td>
<td>45.5 37.3</td>
<td>80.8 36.1</td>
</tr>
<tr>
<td>Mental health</td>
<td>72.0 18.5</td>
<td>79.5 19.8</td>
</tr>
</tbody>
</table>

Note: Criteria Met n = 11; Criteria Not Met n = 40.
These results underscore the clinical significance of a diagnosis of cancer-related fatigue and provide further support for the view that fatigue has both physical and mental components. Other findings from the SF-36 indicated that patients who met the diagnostic criteria scored lower on a measure of vitality (i.e., energy level) than patients who did not meet the diagnostic criteria. This pattern of results provides additional support for the view that the clinical syndrome approach can be used to distinguish levels of fatigue among cancer patients.

In previous research with cancer patients, relatively large positive relationships have been noted between levels of fatigue and levels of depressive symptomatology. These findings are not surprising. Fatigue is among the more common symptoms of depression, and negative mood states are a common reaction to heightened fatigue. Consistent with this view and previous research, we found that patients meeting the diagnostic criteria for the cancer-related fatigue syndrome reported significantly greater depressive symptomatology than patients who did not meet the diagnostic criteria. It should be noted, however, that the diagnostic criteria specifically exclude patients whose fatigue is considered to be a primary consequence of psychiatric disorder from receiving a diagnosis of cancer-related fatigue. Based on this criterion, one patient in the current study who otherwise met diagnostic criteria for cancer-related fatigue was excluded from receiving this diagnosis.

Several limitations of the current study should be noted. First, the present study involved the assessment of cancer-related fatigue only in patients treated with BMT. Accordingly, findings cannot be generalized to patients receiving other forms of cancer treatment. Second, the present study focused on the experience of “off-treatment” fatigue. The reliability and validity of the clinical syndrome approach with patients undergoing active treatment is still to be determined. Third, the design of the current study was cross-sectional in nature. That is, the presence of cancer-related fatigue was assessed on only a single occasion. Consequently, the course of cancer-related fatigue following treatment completion remains unknown. These limitations can be addressed in future research by studying other treatment populations, by assessing patients during the active phase of treatment, and by conducting longitudinal research in which the same patients are assessed on multiple occasions during and following completion of cancer treatment. Additional limitations include the relatively low statistical power for the primary analyses due the relatively small sample size and the increased potential for Type I error due to the performance of multiple statistical tests.

In conclusion, the present study provides preliminary information about the utility, validity, and reliability of a clinical syndrome approach to assessing fatigue in cancer patients. Results demonstrate that this clinical syndrome can be diagnosed in a reliable manner by appropriately trained clinicians using a structured interview guide. The validity and utility of the approach were supported by results indicating that patients meeting the diagnostic criteria for cancer-related fatigue differed from patients not meeting the criteria in ways that would be expected. Specifically, the presence of a cancer-related fatigue syndrome was found to be associated with clinically and statistically significant differences in the severity, frequency, and pervasiveness of fatigue as well as its interference with quality of life. Thus, the diagnostic criteria and the interview guide appear to show considerable promise as a method for assessing cancer-related fatigue. In turn, the ability to reliably diagnose a well-defined clinical syndrome of cancer-related fatigue has the potential to advance research into the prevalence, etiology, and treatment of fatigue in cancer patients.

Acknowledgments

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References


33. Cella D, Davis K, Breitbart W, et al. Cancer-


Appendix

Diagnostic Interview Guide for Cancer-Related Fatigue

NOTE: Capitalized text represents instructions to the interviewer. Text in quotations represents statements to be read verbatim to the respondent.

1. “Over the past month, has there been at least a 2-week period when you had significant fatigue, a lack of energy, or an increased need to rest every day or nearly every day?”
   CIRCLE ONE: YES NO

IF NO, STOP HERE. IF YES, CONTINUE.

“For each of the following questions, focus on the worst 2 weeks in the past month (or else the past 2 weeks if you felt equally fatigued for the entire month).”

2. “Did you feel weak all over or heavy all over? (every day or nearly every day?)”
   CIRCLE ONE: YES NO

3. “Did you have trouble concentrating or paying attention? (every day or nearly every day?)”
   CIRCLE ONE: YES NO

4. “What about losing your interest or desire to do the things you usually do? (every day or nearly every day?)”
   CIRCLE ONE: YES NO

5. “How were you sleeping? Did you have trouble falling asleep, staying asleep, or waking too early? Or did you find yourself sleeping too much compared to what you usually sleep? (every night or nearly every night?)”
   CIRCLE ONE: YES NO

6. “Have you found that you usually don’t feel rested or refreshed after you have slept? (every day or nearly every day?)”
   CIRCLE ONE: YES NO

7. “Did you have to struggle or push yourself to do anything? (every day or nearly every day?)”
   CIRCLE ONE: YES NO

8. “Did you find yourself feeling sad, frustrated, or irritable because you felt fatigued? (every day or nearly every day?)”
   CIRCLE ONE: YES NO

9. “Did you have difficulty finishing something you had started to do because of feeling fatigued? (every day or nearly every day?)”
   CIRCLE ONE: YES NO

10. “Did you have trouble remembering things? For example, did you have trouble remembering where your keys were or what someone had told you a little while ago? (every day or nearly every day?)”
    CIRCLE ONE: YES NO

11. “Did you find yourself feeling sick or unwell for several hours after you had done something that took some effort (every time or nearly every time?)”
    CIRCLE ONE: YES NO
IF LESS THAN SIX ITEMS INCLUDING #1 ARE MARKED YES, STOP HERE.

12. “Has fatigue made it hard for you to do your work, take care of things at home, or get along with other people?”
CIRCLE ONE: YES NO

IF #12 IS NO, STOP HERE.

13. Is there evidence from the history, physical examination or laboratory findings that the symptoms are a consequence of cancer or cancer therapy?
CIRCLE ONE: YES NO

IF #13 IS NO, STOP HERE.

14. Are the symptoms primarily a consequence of co-morbid psychiatric disorders such as major depression, somatization disorder, somatoform disorder, or delirium?
CIRCLE ONE: YES NO

IF #14 IS YES, PATIENT DOES NOT MEET CRITERIA FOR CANCER-RELATED FATIGUE.

IF #14 IS NO, PATIENT MEETS CRITERIA FOR CANCER-RELATED FATIGUE

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