Cancer-related fatigue (CRF) has often been called the “sixth vital sign” and was the focus of a symposium at the Oncology Nursing Society’s 32nd Annual Congress, where nurses discussed CRF’s impact on patients. Despite this dialogue, current nursing perspectives and practice still need to be determined. The definition of CRF as a multidimensional symptom will be considered in this article. CRF may create psychological, functional, cognitive, and socioeconomic issues in patients. Challenges for effective management will be considered.

At a Glance
- Nurses may not routinely assess patients for cancer-related fatigue (CRF).
- Nurses have indicated that they often did not document CRF in patients’ medical records.
- Serious psychological, functional, cognitive, and socioeconomic issues may occur in patients suffering from CRF.

Cancer-Related Fatigue

Definition

According to the NCCN, CRF is a “distressing persistent, subjective sense of tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and that interferes with usual functioning” (Mock et al., 2007, p. 1). CRF is a multidimensional symptom that presents as a continuum—ranging from tiredness to exhaustion—and reflects patients’ subjective perceptions of their energy, mental capacity, and psychological status. Fatigue is an unrelenting condition that interferes with individuals’ ability to carry out usual functions. Unlike normal fatigue experienced by healthy individuals, CRF is of greater severity, often is disproportionate to levels of physical activity or exertion, and is less...
likely to be relieved by rest or sleep. The experience can cause patients with cancer to have an overwhelming and persistent sense of exhaustion (Ahlberg, Ekman, Gaston-Johansson, & Mock, 2003; Cella, Peterman, Passik, Jacobsen, & Breitbart, 1998; Portenoy & Itri, 1999).

**Prevalence**

Differences in study designs, patient populations, and methodologies have contributed to some variability in the prevalence of CRF reported in various clinical settings; however, fatigue is one of the most common symptoms experienced by patients with cancer and can be associated with both the malignant disease itself and its treatment (Cella et al., 1998; Portenoy & Itri, 1999). Prevalence and severity depend on the disease stage, treatment type, and treatment phase. The prevalence and severity of fatigue may be high in patients who undergo different types of cancer treatment. CRF may be more prevalent in patients undergoing multimodal treatment and dose-dense chemotherapy, and the fatigue may be so severe that it affects treatment decisions, possibly resulting in dose delays or reductions.

A temporal relationship typically exists when fatigue is primarily related to cancer treatment. Fatigue often is cumulative during courses of fractionated radiotherapy and may peak after several weeks. Fatigue also tends to reach maximal levels within several days after chemotherapy and diminishes but does not disappear until the next treatment cycle (Portenoy & Itri, 1999). For a considerable number of patients, fatigue may persist for a significant time period after treatment is completed. Broeckel, Jacobsen, Horton, Balducci, and Lyman (1998) reported that fatigue in patients with breast cancer was 50% higher at a mean of 16 months after chemotherapy relative to a comparator group. Similarly, 38% of breast cancer survivors had severe fatigue at a mean of 29 months after completion of definitive treatment compared with 11% in a matched sample of women without cancer. In a cross-sectional study by Servaes, Verhagen, and Bleijenberg (2002), no association was found between the occurrence of fatigue and the type of treatment previously received.

**Pathophysiology**

Numerous factors can contribute to CRF, and multiple causes may coexist and exert additive effects. Common etiologies that have been implicated in the development of CRF include direct effects of the cancer and tumor burden, side effects associated with various types of treatments, comorbid medical conditions (e.g., anemia, cardiac disease, lung disease, malnutrition, infection), exacerbation of comorbid symptoms (e.g., pain, sleep disturbances, deconditioning), and psychosocial factors (e.g., anxiety, depression) (Stasi, Abriani, Baccaglia, Terzoli, & Amadori, 2003; Wagner & Cella, 2004). The pathophysiology of CRF and its underlying mechanisms are not well understood but are discussed in more detail by Wang (2008) beginning on page 11 in this supplement.

**Potential Consequences**

CRF can profoundly impact patients on many levels. From a clinical perspective, severe CRF development may lead to dose reductions or delays during antineoplastic therapy or to decreased adherence with prescribed regimens, which may influence treatment efficacy. CRF also can significantly impair patients’ quality of life and normal ability to function (Curt et al., 2000; Ferrell, Grant, Dean, Funk, & Ly, 1996; Potter, 2004). Table 2 provides an overview of how CRF can negatively affect various aspects of patients’ lives and daily activities.

In a study by Curt et al. (2000) of 379 patients with CRF, 91% reported that it prevented them from living a normal life. Decreased motivation or interest (62%) and feelings of sadness, frustration, or irritability (53%) also were described (Curt et al.). In addition, 75% of patients with cancer with jobs had to change their employment status because of fatigue (Curt et al.). This and other studies indicate that a high percentage of patients with CRF may experience debilitating effects from fatigue that compromise their physical, social, and economic well-being.

### Table 1. Strategies Used by Nurses to Manage Cancer-Related Fatigue

<table>
<thead>
<tr>
<th>STRATEGY</th>
<th>RESPONDENTS (N = 703)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia management</td>
<td>522 74.3</td>
</tr>
<tr>
<td>Education</td>
<td>465 66.2</td>
</tr>
<tr>
<td>Nutritional intervention</td>
<td>460 65.4</td>
</tr>
<tr>
<td>Screening for and management of insomnia, pain, and depression</td>
<td>449 63.8</td>
</tr>
<tr>
<td>Exercise</td>
<td>311 44.3</td>
</tr>
</tbody>
</table>

### Table 2. Domains of Potential Consequences of Cancer-Related Fatigue in Patients With Cancer

<table>
<thead>
<tr>
<th>DOMAIN</th>
<th>CONSEQUENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological</td>
<td>Depression, anxiety, emotional reactivity (instability and irritability), altered interest in daily activities, withdrawal or isolation, listlessness or lack of motivation, and inability to enjoy life</td>
</tr>
<tr>
<td>Functional</td>
<td>Interference with usual daily function, weakness or limb heaviness, inactivity, deconditioning or inability to function, disability, and too tired to eat</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Decreased capacity to concentrate, decreased capacity to direct attention, inability for problem solving and decision making, and difficulty focusing on tasks</td>
</tr>
<tr>
<td>Socioeconomic</td>
<td>Payment to treat and manage, inability to work, disability, missed work, quit work early or retired, supportive care drugs, and social limitations</td>
</tr>
</tbody>
</table>
Current Challenges for Effective Management

Despite the high prevalence of fatigue in patients with cancer, this symptom often is not routinely and adequately assessed by healthcare providers or discussed with patients (Portenoy, 2000). Patients may accept fatigue as an expected symptom of their illness; therefore, fatigue may be underreported and undermanaged (Vogelzang et al., 1997), as is the case with pain (Ward et al., 1993).

Using appropriate and validated assessment tools is important. CRF may extend well beyond the initial treatment period in some patients and require long-term follow-up and intervention; however, a relative paucity of evidence-based interventions exist for patients with CRF, and more research in this area is needed.

Summary

CRF is a significant issue for patients and healthcare providers but often is not adequately assessed or managed. The etiology and experience of CRF are complex and multifactorial and are not completely understood. CRF can have negative effects on treatment efficacy as well as many aspects of patient QOL. Additional research is needed on the mechanisms involved in the development and duration of CRF and the strategies to effectively address this pervasive and debilitating symptom.

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References


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