Self-Care Strategies to Relieve Fatigue in Patients Receiving Radiation Therapy

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Despite advances in symptom management, patients commonly experience fatigue during radiation therapy (RT). Minimal research has been conducted to determine how evidence-based recommendations are put into clinical practice and used by patients to manage fatigue. The aims of the current study were to identify the self-care strategies used by patients receiving RT, explore the effectiveness of those strategies, and identify how patients learned about fatigue management.

Participants reported using multiple recommended interventions to relieve fatigue. The majority of participants reported they primarily rested or slept to improve fatigue. They also reported decreasing their activity level, exercising, using stimulants and complementary therapies, and eating and drinking nutritious items. More than half of the participants reported some relief of fatigue regardless of the intervention used. The majority of participants reported that they learned how to manage their fatigue mostly through experience and trial and error. Nurses need to explore the complex dynamics of each patient’s fatigue and tailor multiple evidence-based interventions to maximize each patient’s functional status and quality of life.

When assessing and teaching about fatigue, nurses need to explore patients’ daytime activity level and daytime sleep to be sure that excessive inactivity is not contributing to fatigue.

Fatigue is a common and distressing symptom for patients receiving radiation therapy (RT), with 95% of patients reporting fatigue to their healthcare providers (Knobf & Sun, 2005). Fatigue creates a multidimensional sense of energy depletion that has the potential to adversely affect multiple aspects of quality of life, including patient functional status, emotional well-being, motivation, mood, and social relationships (John, 2009; Lundh Hagelin, Wengström, Fürst, 2009; Poirier, 2011; Sood & Moynihan, 2005). The underlying pathophysiology of fatigue is not well understood, but fatigue may result from changes in muscle metabolism, hormonal changes, and circadian rhythm disruptions related to cancer and cancer therapy (Ryan et al., 2007; Wang, 2008). Cancer-related fatigue may be associated with changes in sympathetic and parasympathetic nervous system activity, suggesting a picture of “accelerated aging” (Fagundes et al., 2011). Fatigue during radiation may cluster with pain and sleep disturbances and also may be associated with depression, anemia, poor appetite, anxiety, and neutropenia (Campos, Hassan, Riechelmann, & Del Giglio, 2010; Kim, Barsevick, & Tulman, 2009; Matthews, Schmiege, Cook, & Sousa, 2012; Merriman et al., 2011). Patient and clinical variables, such as age, stage of disease, dose of radiation, and psychosocial factors (e.g., anxiety, depression), have been explored as predictors of fatigue during RT. In patients with breast cancer, evidence regarding those predictors of fatigue during RT has not been consistent across studies (Dhruva et al., 2010). Although patients report fatigue throughout the course of RT, evidence suggests
that fatigue increases in severity during the early weeks of treatment, peaks around the fifth week of therapy, and declines about two months after the completion of treatment (Borthwick, Knowles, McNamara, O’Dea, & Stroner, 2003; Knobf & Sun, 2005; Nail, 2004). For about 50% of patients, acute fatigue becomes a chronic, long-term symptom that persists for months or years after the completion of RT (Ganz & Bower, 2007; Jereczek-Fossa, Marsiglia, & Orrechia, 2002).

A number of evidence-based interventions have been identified to prevent and manage fatigue. The Oncology Nursing Society’s (ONS’s) evidence-based guidelines recommend exercise as the only intervention supported by strong evidence to prevent and manage fatigue (Mitchell, Beck, & Eaton, 2009). Other interventions that likely are effective include screening for additional contributing and treatable factors, such as anemia, pain, nausea, and sleep disturbances, and addressing those individual problems. Teaching energy conservation, measures to promote adequate sleep, stress and activities management, and complementary and alternative therapies (e.g., relaxation, massage, healing touch) also is likely to be effective. Many pharmacotherapies, such as paroxetine, methylphenidate, donepezil, bupropion, modafinil, and sertraline, have been investigated as interventions to relieve fatigue, but their effectiveness has not yet been established. Nonpharmacologic therapies have the benefit of minimal to no side effects and the potential to address multiple symptoms (Bennett et al., 2009).

Because many of the evidence-based interventions to relieve fatigue are self-care behaviors, healthcare providers need information about how patients are incorporating those interventions into their daily activities. After an educational intervention, women receiving chemotherapy for breast cancer increased the use of self-care measures to manage fatigue, such as rest, relaxation, and exercise; however, these measures did not translate into actual self-reported decreases in fatigue (Williams & Schreier, 2004; Yates et al., 2005). Haas (2011) suggested that strategies to improve self-efficacy are needed to increase the effectiveness of the self-care strategies and to identify the source of information for the self-care activities. Unfortunately, some patients believe fatigue is an unavoidable consequence of therapy and, therefore, do not take any preventive actions (Pertl, Hevey, Donohoe, & Collier, 2012). Clinicians need to work to overcome this barrier, educate patients about evidence-based interventions to manage fatigue, and help patients feel confident in their use of self-care measures (Wu & McSweeney, 2007).

**Methods**

**Sample and Setting**

The current study used a convenience sample of adults (aged 18 years or older) at the University of Virginia (UVa) Health System who were receiving external beam RT as adjuvant or primary therapy for cancer. To be eligible for the study, patients needed to understand English, have a Karnofsky performance score greater than 80 (as determined by the RT team), and complete at least two weeks of therapy. Patients were excluded if they were receiving concurrent chemotherapy or they had a cognitive, psychiatric, or communication disorder that would interfere with recall of symptoms or completion of study forms. Thirty patients consented to participate in the study, but one patient withdrew because of time constraints before data were collected. The remaining 29 patients included 18 women (62%) and 11 men (38%). Twenty patients were Caucasian (69%) and nine were African American (31%); the mean age of the sample was 58.8 years (SD = 10.1, range = 40–80 years). Participants were receiving RT for a variety of cancers. At the time of data collection, patients were in their second through seventh week of treatment.

**TABLE 1. Radiation Treatment Characteristics of Participants (N = 29)**

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Cancer Stage</th>
<th>n</th>
<th>Average Week of Therapy</th>
<th>Average Dose of Radiation (Gy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basal cell</td>
<td>IV</td>
<td>1</td>
<td>6</td>
<td>52.5</td>
</tr>
<tr>
<td>Brain</td>
<td>WHO II, III</td>
<td>2</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Breast</td>
<td>0–I</td>
<td>4</td>
<td>4.25</td>
<td>42.1</td>
</tr>
<tr>
<td></td>
<td>II–III</td>
<td>5</td>
<td>4.8</td>
<td>41.36</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>I</td>
<td>2</td>
<td>4.5</td>
<td>39.5</td>
</tr>
<tr>
<td>Gynecologic</td>
<td>0–I</td>
<td>1</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>II–IV</td>
<td>2</td>
<td>4</td>
<td>31.5</td>
</tr>
<tr>
<td>Head and neck</td>
<td>IIIA</td>
<td>3</td>
<td>4.3</td>
<td>38</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>IIIA</td>
<td>1</td>
<td>4</td>
<td>32.4</td>
</tr>
<tr>
<td>Melanoma</td>
<td>IV</td>
<td>1</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>Prostate</td>
<td>II–III</td>
<td>4</td>
<td>5.75</td>
<td>51</td>
</tr>
<tr>
<td>Sarcoma</td>
<td>I–II</td>
<td>3</td>
<td>5.3</td>
<td>45.4</td>
</tr>
</tbody>
</table>

WHO—World Health Organization
Patients receiving radiation therapy may suffer from cancer-related fatigue and use a number of strategies on a daily basis for relief, particularly sleep and rest.

Nurses need to explore patients’ daytime activity levels and daytime sleep to be sure that excessive inactivity is not inadvertently contributing to fatigue.

Continued assessment and discussion about fatigue are necessary to legitimize the symptom of fatigue and tailor interventions to prevent and manage this dynamic symptom.

You told us that you have felt unusually tired or fatigued during this past week. It is common for people to feel tired during radiation therapy. I want to explore what helps people when they feel tired and fatigued during radiation therapy.

1. What do you most often do to relieve your fatigue or tiredness?
   • How often do you do this activity?
   • How much does it help to relieve your fatigue?
   • Where did you hear of this activity to relieve fatigue?
   • How often do you do this activity?
   • Would you recommend this activity to someone else with the same problem? Why or why not?

2. What else do you do to relieve your fatigue or tiredness?
   (Continue with sequence of questions until the participant does not name any activities.)

FIGURE 1. Interview Guide to Elicit Self-Care Behaviors Used to Relieve Fatigue

Implications for Practice

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strategy every day, including two patients who napped twice a day and two patients who took “many small naps” during the day. Of the participants who exercised, three took daily walks and two exercised at the gym 2–4 times a week. Participants who reported using stimulant substances used them every day; one reported an intake of “four cups of coffee throughout the day.”

Participants were asked about the effectiveness of the interventions they used to relieve fatigue. More than half of the participants (68%) reported at least some relief of fatigue, regardless of the intervention they were using. Most participants responded that they would recommend the interventions they were using to others, but also commented that each person has to figure out what works best for them. One person suggested, “If you were an active person before cancer, it will probably help you to try to stay active.”

The majority of participants (80%) reported that they learned how to manage their fatigue from their own knowledge and experience and from trial and error. For example, one participant said that she figured out that keeping busy relieved her fatigue. Another participant shared that laying down when he felt tired was “just what I do.” Only 20% of the participants recalled having a discussion about fatigue management with a nurse, physician, or nutritionist.

Discussion

About 80% of the current sample reported feeling unusually tired during the prior week, consistent with previous studies. The current sample also reported trying a number of interventions to relieve fatigue that are recommended and likely to be effective, according to the ONS Putting Evidence Into Practice (PEP) resources (Mitchell et al., 2009). A few patients reported they used caffeine as a stimulant to reduce fatigue, which is not recommended as an evidence-based intervention, although other stimulant substances, such as methylphenidate and modafinil, have been studied (Jean-Pierre et al., 2010; Minton, Richardson, Sharpe, Hotopf, & Stone, 2011). Patients also reported using nutritional interventions and enlisting the support of family and friends, which also are interventions that are recommended by the experts as consistent with sound clinical practice. With the exception of one patient who used marijuana, patients in this study did not use any interventions that were controversial or potentially harmful. Most patients reported that they received some relief of their fatigue with their chosen interventions and incorporated those strategies into their daily lifestyles, but no patient reported that their fatigue was completely alleviated.

Findings from the current study suggest that the majority of patients report sleep and rest as their primary method to relieve RT-related fatigue. How often the participants napped during the day and decreased their activity level is not known, and, although rest and an adequate amount of quality sleep are recommended, decreased physical activity also can be associated with increased fatigue as well as other negative physical and psychological consequences (Lowe, Watanabe, Baracos, & Courneya, 2009; Schmitz et al., 2010). Patients experiencing fatigue may have a natural instinct to rest or decrease activity when feeling fatigued; however, this practice may achieve the opposite of the desired effect and, in fact, cause more severe

FIGURE 2. Seven Ways to Manage Cancer-Related Fatigue

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fatigue. Nurses need to explore patient daytime activity level and daytime sleep to be sure that excessive inactivity is not inadvertently contributing to fatigue. Nurses should encourage patients to maintain an optimal level of activity through usual daily-life activities as well as mild-to-moderate exercise after ruling out the presence of factors that would contraindicate physical activity, such as anemia or risk for bone instability. Nurses should explore and address barriers to physical activity, such as low self-efficacy, deconditioning, symptoms such as pain, shortness of breath, or fear of injury (Haas, 2011; Wanchai, Armer, Borthwick, D., Knowles, G., McNamara, S., O’Dea, R., & Stroner, P. (2003). Assessing fatigue and self-care strategies in patients receiving radiotherapy for non-small cell lung cancer. European Journal of Oncology Nursing, 7, 231–241).

**Limitations**

Limitations of the study include a small, heterogeneous, convenience sample of patients who were receiving RT. Socioeconomic, cognitive, and psychiatric variables were not measured, which may provide more insight into the choice of self-care strategies reported by the participants. In addition, the teaching each patient received about fatigue management was not explored, so conclusions about the effectiveness of patient education cannot be made. In addition, several patients were interviewed during the second and third weeks of RT, which may have been before the onset of treatment-related fatigue.

**Conclusions**

Despite advances in symptom management, patients commonly experience fatigue during their course of RT. Although many factors contribute to fatigue, a number of evidence-based recommendations are available for nurses to tailor and recommend to patients. The current study illustrates that patients are likely to use a variety of recommended self-care measures to relieve fatigue. Nurses may need to make special efforts to explore how patients are adjusting their physical activity level when experiencing fatigue and to remind them that fatigue is an important symptom that can be prevented and managed. The current study suggests that patients may be more likely to reduce their level of physical activity rather than stay physically active, which actually may contribute to increased fatigue.

**References**


The standard of nursing practice in the RT clinic is to teach patients about symptoms and symptom management at the start of their treatment course and to assess symptom severity at weekly intervals during treatment. However, only 20% of patients in the current study recalled learning about fatigue management from a nurse or other healthcare provider, which may indicate the persistent belief that fatigue is an unavoidable consequence that must be endured during treatment. To legitimize fatigue as a concerning symptom and help patients strategize about relief, nurses must make a concerted effort to continue assessment and ongoing discussions about the management of fatigue. Patient education resources are available in print or electronic format from a variety of organizations, such as the American Cancer Society, ONS, and CancerCare®. Nurses have a responsibility to stay informed about evidence-based symptom management interventions, share the most current recommendations with their patients, and evaluate patient outcomes related to patient education and use of those interventions.

Patients receiving RT become fatigued not only from the actual treatment, but also from travel to daily appointments, physical symptoms such as pain, poor appetite, and emotional distress, as well as other comorbidities. Because a variety of factors contribute to fatigue during RT, nurses need to explore the complex dynamics of fatigue with each patient and tailor multiple evidence-based interventions to improve each individual patient’s functional status and quality of life (Stricker, Drake, Hoyer, & Mock, 2004).

**TABLE 2. Interventions Reported by Patients to Relieve Fatigue (N = 22)**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lie down, rest, sleep</td>
<td>15</td>
</tr>
<tr>
<td>Decrease activity level or do quiet activities</td>
<td>2</td>
</tr>
<tr>
<td>Exercise</td>
<td>2</td>
</tr>
<tr>
<td>Eat or drink something nutritious (e.g., Boost®)</td>
<td>1</td>
</tr>
<tr>
<td>Maintain activity level</td>
<td>1</td>
</tr>
<tr>
<td>Use stimulant substances (e.g., coffee)</td>
<td>1</td>
</tr>
<tr>
<td>Maintain usual activity level</td>
<td>7</td>
</tr>
<tr>
<td>Rely on support of family and friends</td>
<td>7</td>
</tr>
<tr>
<td>Complementary and alternative therapy</td>
<td>5</td>
</tr>
<tr>
<td>Exercise</td>
<td>5</td>
</tr>
<tr>
<td>Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Pray or rely on religion</td>
<td>3</td>
</tr>
<tr>
<td>Use stimulant substances</td>
<td>3</td>
</tr>
<tr>
<td>Decrease activity level or do quiet activities</td>
<td>2</td>
</tr>
<tr>
<td>Lie down, rest, sleep</td>
<td>2</td>
</tr>
</tbody>
</table>

*Note. Participants could choose more than one secondary intervention.*


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