Improving Sleep-Wake Disturbances in Patients With Cancer

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Patients with cancer tend to suffer sleep-wake disturbances at a higher rate than the general population. Insomnia and fatigue should be regarded as a significant patient safety issue, as poor sleep can elevate patients’ risks of falls, motor vehicle accidents, and acute infectious illnesses. To alleviate those risks, oncology nurses should be familiar with effective evidence-based practices for assessing and improving patients’ sleep quality.

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The safety risks associated with fatigue among healthcare workers have been widely documented in the professional literature (Berger & Hobbs, 2006; Lockley et al., 2007). What may be less familiar, however, are the safety risks associated with patients’ own inadequate sleep. Patients with cancer have an elevated risk of sleep-wake disturbances (Berger, 2009). Poor sleep, in turn, increases the risk of accidents, acute illnesses, and certain chronic conditions (Institute of Medicine, 2006). Oncology nurses should be skilled in assessing their patients’ sleep quality and familiar with interventions that can effectively improve sleep.

Several studies have established the prevalence of sleep problems among patients with cancer. A survey (N = 982) by Davidson, MacLean, Brundage, and Schulze (2002) revealed a high prevalence of sleep disorders, including fatigue, insomnia, and excessive daytime sleepiness among patients with different types of cancer. In another study of outpatients with cancer (N = 2,862), sleep problems were reported by 30% and were common in both patients with active cancer and survivors (Sharma et al., 2012). Sleep disturbances have been documented in cancer survivors (Kaleyias, Manley, & Kothare, 2012), hospitalized pediatric patients with cancer (Hinds et al., 2007), those with pain-management problems (Abernethy, Miller, Ancoli-Israel, Bower, Capuron, & Irwin, 2008), and patients with advanced-stage cancer (Mystakidou et al., 2009).

A variety of mechanisms underlie the association between cancer and sleep disturbances. Cancer and chemotherapy can each cause long-term neuroendocrine disruptions that, in turn, cause sleep disturbances (Miller, Ancoli-Israel, Bower, Capuron, & Irwin, 2008). Cancer-associated pain can interfere with rest (Sharma et al., 2012). Anxiety and rumination also frequently disrupt cancer survivors’ sleep (Servaes, Verhagen, & Bleijenberg, 2002).

Consequences

Sleep deprivation has a well-documented effect on vigilance, situational awareness, and reaction time. Sleepiness can lead to impaired attention, performance problems at work and school, and potentially dangerous situations when a patient is driving or taking part in other safety-sensitive tasks (Durmer & Dinges, 2005). In the general population, sleep quality has been conclusively linked to injury rates. Employees with insufficient sleep have more accidents and fatalities at work (Akerstedt et al., 2002; Nakata et al., 2005). Sleep deprivation is a significant contributing factor in motor vehicle accidents (Centers for Disease Control and Prevention, 2011).

In a study of older adults, night sleep problems including trouble falling asleep, trouble with waking during the night, and trouble with waking and getting up in the morning were associated with the occurrence and frequency of falling (Brassington, King, & Bliwise, 2000). Conversely, psychomotor improvement has been associated with increased sleep in different populations (Siensukon & Boyd, 2009).

Sleep deprivation also tends to weaken certain elements of the immune system, generating an increased risk of acute infectious illness (Besedovsky, Lange, & Born, 2012). For patient with cancer who have recently undergone immunosuppressive chemotherapy, sleep disturbances can add to an already high burden of infectious risk.

Assessment

Assessing sleep is an important component of nursing care and Miller et al. (2008) suggested that it be labeled as the sixth vital sign. Oncology nurses have opportunities to assess their patients for problems with sleepiness and help to prevent the safety hazards that can result.

A systematic review on sleep management for patients with cancer (Howell et al., 2014) noted that many guidelines advise a two-step process of sleep assessment. First, nurses can use a simple screen consisting of one or two questions...
such as, “Do you have problems with your sleep or sleep disturbance on average for three or more nights a week?” and “Does the problem with your sleep negatively affect your daytime functioning?” (Howell et al., 2014, p. 793). If the patient responds affirmatively to those questions, the nurse can move on to a more detailed sleep assessment tool, such as the Insomnia Severity Index (Bastien, Vallieres, & Morin, 2001) or the Epworth Sleepiness Scale (Tickoo et al., 2014).

The National Institutes of Health has developed a simple eight-item assessment known as the PROMIS® Sleep Disturbance Short Form (see Figure 1). This form has good precision (i.e., good measurement of sleep disturbance, including validity) (Yu et al., 2011) and may be a useful clinical tool for nurses at the bedside or in the community. The scoring formula is calculated as the raw sum of the values of each response multiplied by 8 and then divided by the number of items that were actually answered.

**Interventions**

When patients with cancer do share a history of sleep difficulties, they often are prescribed medication despite a lack of evidence that this is efficacious (Berger, 2009; Page, Berger, & Johnson, 2006). Older adults commonly use nonprescription medications to sleep, and little is known about the safety of these measures (Sproble, Busto, Buckle, Herrmann, & Bowles, 1999). For example, research has linked the use of zolpidem, a sleep medication, to a higher risk of falls among hospitalized patients (Kolla, Lovely, Manukhani, & Morgensthaler, 2015).

For those reasons, most intervention guidelines emphasize nonpharmacologic interventions to improve sleep among patients with cancer. The Oncology Nursing Society’s (ONS’s) Putting Evidence Into Practice guidelines (Page et al., 2006) summarize four families of nonpharmacologic interventions for sleep disturbances: cognitive-behavioral therapy, exercise, psychoeducation and information, and complementary therapies (e.g., massage, yoga, guided imagery). A systematic review by Howell et al. (2014) broke down interventions into similar categories. Evidence exists to support all four families of intervention, but the evidence for cognitive-behavioral therapies is strongest.

Cognitive-behavioral therapies for sleep disturbances vary, but they are typically built around the principle of stimulus control (Maurin, Hauri, Spielberg, Buss, & Bootzin, 1999). In stimulus-control therapy, patients are trained to associate their beds only with sleeping and sexual activity. They are instructed to spend time in bed only when sleepy, and to leave their beds when they are experiencing sleeplessness. Cognitive-behavioral therapies may also include sleep diaries, education in sleep hygiene, and education in relaxation techniques, among other elements.

Delivering cognitive-behavioral therapy requires specialized training, but evidence exists that oncology nurses can effectively handle this task. A randomized trial in Scotland (Espie et al., 2008) found that outpatient oncology nurses could be trained to deliver cognitive-behavioral therapy to cancer survivors with sleep disturbances. The patients treated with cognitive-behavioral therapy had significantly better outcomes than the control group, including improvements in five of seven sleep-related quality-of-life measures. Similarly, Berger et al. (2009) found that research oncology nurses could be trained by a sleep psychologist to effectively deliver cognitive-behavioral therapy to patients with cancer, resulting in significant improvements in objective measures of the patients’ sleep.

**Conclusions**

In both inpatient and outpatient oncology settings, sleep-wake disturbances should be viewed not only as a quality-of-life concern, but as a matter of patient safety. Ample reason exists to believe that improving sleep might reduce patients’ risks of falls, accidents, and acute infections. For these reasons, oncology nurses should commit to improving their knowledge of effective assessments and interventions for sleep.

**References**


