

Breast cancer and sleep disturbance: more than simply a quality of life concern

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As most practicing oncologists are well aware, problems with sleep are frequent among women with breast cancer. Insomnia affects approximately one quarter of the general adult population with women most commonly affected (1). Sleep problems are particularly prevalent in perimenopausal and postmenopausal women (2) and sleep patterns change with normal aging (3). Other factors associated with sleep disturbance include pain, anxiety and stressful life events - all of which are likely to be present in individuals newly diagnosed with breast cancer.

In the article accompanying this editorial, Van Onselen *et al.* (4) present a prospective evaluation of sleep disturbance and daytime sleepiness over time in female patients undergoing surgery for breast cancer. The initial assessment is done prior to breast surgery with subsequent assessments performed monthly for 6 months. The authors examine self-reported changes in sleep disturbance and evaluate characteristics associated both with baseline levels of sleep disturbance and with how symptoms change over time. Not surprisingly, sleep disturbance was common at baseline in these women with recently diagnosed breast cancer. Although symptoms generally improved over time, mean measures of sleep disturbance remained at clinically significant levels throughout the study period.

Factors associated with baseline sleep disturbance included anxiety, difficulty with coping, fatigue, hot flashes and having received preoperative chemotherapy. Fatigue and anxiety also correlated with daytime sleepiness. Interestingly, other factors associated with baseline daytime sleepiness were somewhat different and included the type of surgery planned whereas difficulty coping did not appear to correlate with baseline scores of daytime sleepiness. The findings indicate that daytime sleepiness, which often correlates with fatigue, may be due to factors other than

night-time sleep disturbance. It is also clear that problems with sleep and sleepiness may have a variety of contributing factors as well as different manifestations among individuals.

Due to the nature of this study, a true baseline measure of sleep quality is not available as all patients were enrolled following a recent cancer diagnosis, although many had not yet initiated cancer treatment. The presurgical assessment, however, does provide a snapshot of the high level of sleep related symptoms present in newly diagnosed breast cancer patients. The initial assessment also allows the investigators to evaluate factors associated with change over time. For instance, the presence of comorbid medical conditions, which is a well established risk factor for sleep problems (1), did not appear to influence the trajectory of sleep symptoms over time. In contrast, higher education levels did not appear to affect baseline sleep disturbance scores but did correlate with higher subsequent levels of sleep disturbance that took longer to improve.

The current study does not provide information on use of adjuvant endocrine therapy among study subjects. Aromatase inhibitors in particular have been associated with insomnia (5) and it is unclear to what extent endocrine therapy or endocrine changes among participants may also have contributed to the changes in sleep disturbance over time. Clearly women about to undergo surgery for early stage breast cancer represent a heterogeneous group both in terms of baseline demographics and treatment received.

With this study, Van Onselen *et al.* add to our understanding of the prevalence and time course of sleep problems associated with a breast cancer diagnosis and the findings highlight some of the factors that appear to contribute to sleep concerns. A better understanding of patient sleep concerns may lead to improvements in quality of life as well as overall health. There is evidence that the

relationship between sleep and fatigue, anxiety and medical comorbidity may be bidirectional, meaning that not only do these factors contribute to sleep disturbance but may be consequences of sleep disturbance as well (1). This interaction may explain the propensity for sleep problems to persist even after the initial cause is no longer a factor.

It is also likely that excessive fatigue secondary to sleep disturbance may affect a patient's tolerance of chemotherapy and that insomnia due to endocrine therapy may compromise treatment adherence. Recognition of factors that may predict for persistent sleep difficulties and early intervention to improve sleep and reduce hindrances to sleep has the potential to improve breast cancer related outcomes as well as other physical and psychological health outcomes.

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