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How do I best manage insomnia and other sleep disorders in older adults with cancer?

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ABSTRACT

Insomnia is common in older adults with cancer, with a reported prevalence of 19–60% in prior studies. Cancer treatments are associated with increased risk of insomnia or aggravation of pre-existing insomnia symptoms, and patients who are receiving active cancer treatments are more likely to report insomnia. Insomnia can lead to significant physical and psychological consequences with increased mortality. We discuss physiological sleep changes in older adults, and illustrated the various sleep disorders. We present a literature review on the prevalence and the effects of insomnia on the quality of life in older adults with cancer. We discuss the risk factors and presented a theoretical framework of insomnia in older adults with cancer. We present a case study to illustrate the assessment and management of insomnia in older adults with cancer, comparing and contrasting a number of tools for sleep assessment. There are currently no guidelines on the treatment of sleep disorders in older adults with cancer. We present an algorithm developed at the City of Hope Comprehensive Cancer Center by a multidisciplinary team for managing insomnia, using evidence-based pharmacologic and non-pharmacologic interventions.

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1. Case Study

Mrs. H is a 74 year-old female with metastatic breast cancer receiving trastuzumab and lapatinib on a clinical trial. During the visit with her oncologist, she reports poor sleep and is requesting a "sleeping pill". She has difficulty with sleep initiation and stays awake until 0400 tossing and turning. Typically she will wake up and take a "Tylenol PM" (diphenhydramine) and then falls asleep until noon. She has been unable to break this cycle of poor sleep. She is frequently tired during the day and is too tired to get exercise except walking her dogs for short periods of time.

2. Introduction

Insomnia is a common concern for the adult population with as many as 30% reporting difficulty sleeping.¹ Older patients have a higher prevalence, ranging from 23 to 50% in prior studies.²⁻⁴ The prevalence of insomnia is also higher among patients with cancer than in the general population, and varies between 30 and 69% in studies.⁵⁻⁷

With the aging population and increase in life expectancy, there will be an increasing number of older adults being diagnosed with cancer.^{8,9} Additionally, older adults with cancer are living longer due to significant advance in cancer treatments in the recent decades. Therefore, a growing number of older survivors of cancer will suffer from insomnia. In this paper, we briefly describe the sleep stages and changes associated with aging, illustrate the prevalence, risk factors and effects of insomnia on quality of life in older adults with cancer, and recommend approaches to assess and manage sleep disorders in this population in both the outpatient and inpatient settings.

3. Sleep Stages and Changes Associated with Aging and Insomnia

Adult sleep is divided into non-rapid eye movement sleep (NREM) and rapid eye movement sleep (REM). NREM sleep is divided into stage 1-4 based on characteristic electroencephalographic and electromyographic criteria.¹⁰ With aging, overall sleep efficiency decreases, and a number of changes are seen including reductions in REM, stage 3 and 4 NREM (slow wave) sleep, decreased total sleep time and maximal sleep capacity, as well as increased nighttime arousals.^{10,11} In addition, aging has been linked to deterioration in the circadian function affecting the daily rhythms of wakefulness/sleep.¹²

Sleep disorders are classified into insomnias, hypersomnias, circadian rhythm disorders, sleep-breathing disorders, parasomnias, and sleep movement disorders.¹³ Of those, insomnia is the most commonly reported sleep disorder. According to Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria, insomnia disorder is defined as a combination of both dissatisfaction with sleep and a significant negative impact on daytime functioning.¹⁴ Dissatisfaction with sleep is further defined as difficulty initiating and/or maintaining sleep, on at least three nights per week for at least 3 months, despite adequate opportunity to sleep.¹⁴ Negative daytime impacts can include significant fatigue, sleepiness, poor concentration, low mood, or impaired ability to perform social, occupational, or caregiving responsibilities.¹⁴ In a study involving approximately 6000 older adults, difficulty maintaining sleep was the most common of insomnia symptoms.¹⁵

Sleep apnea, one of the sleep-breathing disorders, is characterized by complete cessation of respiration (apnea) and/or partial or reduced respiration (hypopnea) during sleep. Obstructive sleep apnea (OSA) is the more common form compared central sleep apnea. OSA is highly prevalent in older adults, but is often under-diagnosed.^{11,16} Differentiating OSA from insomnia is important given the comorbidity associated with OSA including cardiovascular diseases and neurocognitive impairment, and the availability of effective interventions such as continuous positive airway pressure for patients suffering from OSA.^{17,18}

4. Prevalence of Insomnia in Older Adults with Cancer

There are limited studies that assess the prevalence of insomnia in older adults with cancer. In three studies limited to patients with cancer who were age 65 and older, the prevalence of insomnia was found to be from 19 to 60% (Table 1).¹⁹⁻²¹ The wide variability in prevalence is likely due to the difference in the sampled population and in the methods used to assess sleep (for example, insomnia was assessed using a dichotomous response (yes/no) in the study by Mao et al., whereas Cheng et al. assessed insomnia using a Likert-scale). Patients who are receiving active cancer treatment such as in the study by Cheng et al. reported the highest prevalence of insomnia.¹⁹ Prevalence also differs by gender, age, cancer type, treatment duration, and time since cancer diagnosis. In a study of older women with breast cancer who underwent surgical treatment, distress caused by insomnia decreased significantly over time after discharge, nevertheless a significant portion of the patients reported persistent insomnia.²² Notably insomnia was found to be less

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