

Sleep assessment in individuals with cancer

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Abbreviations: INCA, the national cancer institute José Alencar Gomes da Silva; ICSD-3, third international classification of sleep disorders; AASM, American association sleep medicine; ICU, intensive care unit; OSA, obstructive sleep apnea; IH, intermittent hypoxemia; EDS, excessive daytime sleepiness

Introduction

Sleep disorders are increasingly recognized as an important cause of morbidity and mortality. They are among the most common complications that individuals diagnosed with cancer live with during treatment and when untreated have a substantial economic and social impact. Currently, subjective instruments are used to assess sleep patterns in cancer patients, since there is little information investigating sleep disorders in these individuals. Recognizing these changes in sleep patterns is essential as symptoms can interfere with quality of life and well-being.

Sleep and cancer

Sleep is defined as a restorative and healthy stage, regulated by endogenous and exogenous factors that coincide over a 24-hour period, being called the circadian cycle or biological clock. Any change in lifestyle can lead to changes in this cycle and, consequently, in sleep.¹ The National Cancer Institute José Alencar Gomes da Silva (INCA) describes cancer as a disorderly growth of cells that invade tissues and organs. These cells tend to be very aggressive and uncontrollable, being able to generate tumors and spread to other regions of the body.² According to INCA, an estimated 625 thousand new cases of cancer in Brazil, in the years 2020/2022. The division of incidence by geographic region shows that the Southeast region concentrates more than 60% of the incidence, with a predominance of prostate and female breast cancers, as well as lung and intestine.² Cancer is one of the main causes of illness and death in the world, affecting millions of people, partly due to population growth, aging, as well as changes in the distribution and prevalence of cancer risk factors, especially those associated with socioeconomic development.^{3,4} In patients diagnosed with cancer, the sleep regulatory mechanism is altered, being interrupted for a variety of reasons, such as difficulty in initiating sleep, the presence of nightmares, daytime sleepiness, insomnia, waking up in the middle of the night, staying awake for a long period, difficulty falling asleep and waking up very early.³

In 2014, the third international classification of sleep disorders (ICSD-3) was published by the American Association Sleep Medicine (AASM) detailing sleep disorders in 7 categories: Insomnia; Respiratory disorders related to sleep; Central disorders of hypersomnia; Sleep-wake disorders of circadian rhythm; Parasomnias; Movement disorders related to sleep and other sleep disorders.⁵ These sleep disorders are more frequent in cancer patients when related to the general population. The prevalence of these sleep disorders in patients varies from 24% to 95% and the literature showed an association between prognosis, clinical evolution of cancer and poor sleep quality.^{6,7} The association between breast cancer symptoms and poor sleep quality is present in 65% of women.^{8,9} Sleep disorders in cancer patients can occur at different times in the course

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of the disease (diagnosis, treatment and terminal phase), resulting in decreased quality of life, impaired mood and reduced energy, and may persist for up to several months or even years after treatment, becoming chronic.¹⁰ In addition, during cancer treatment, many patients require care in intensive care units (ICUs), which can cause additional sleep disruption. This interruption of sleep in the ICU may be due to environmental factors, frequent interventions and the use of various sedative medications.¹¹ Therefore, cancer patients, especially those who need ICU care, commonly develop sleep problems. And the treatment of these problems can improve morbidity and possibly mortality.¹¹

Sleep disorders in cancer patients

In recent years, some studies have demonstrated the possibility of sleep duration and circadian disorders being linked to an increased risk of developing or promoting adverse cancer outcomes.¹² Among sleep disorders, obstructive sleep apnea (OSA), a clinical condition characterized by recurrent episodes of partial or complete upper airway obstruction during sleep, which can generate intermittent hypoxemia (IH) and sleep fragmentation, can contribute to altered cancer results and tumor growth.^{12,13} It is worth mentioning that OSA is a chronic, progressive, disabling disease, with high mortality and morbidity.¹⁴ Due to IH caused by OSA, there is an increased likelihood of mutation and, therefore, malignant transformation of cells, as well as tumor growth and metastasis.¹² In relation to other sleep disorders, excessive daytime sleepiness (EDS) characterized by the subjective feeling of need for sleep during the day can be one of the important causes of significant changes in work performance, social interaction and quality of life.¹⁵ The main factors that contribute to EDS are: sleep quality, time to wake up; associated medical conditions or a general medical condition that could impact sleep. Cancer being considered one of the common medical conditions for the development of EDS.¹⁶ Another common disorder in these cancer patients is insomnia, which stands out when associated with cancer patients, as many of them report having difficulties sleeping and maintaining sleep, especially during the diagnostic phase (six months pre-diagnosis to eighteen months after diagnosis).¹⁷ Insomnia commonly associated with

stressful events, such as clinical symptoms of the disease, treatment, side effects, palliative care and terminal stages, can also be linked to tumor invasion, which for this reason the patient presents with pain and discomfort leading to difficulty in start sleep.¹⁷ These symptoms negatively affect the quality of life and can aggravate the levels of anxiety and depression faced by these patients during the treatment of the disease. It is not yet clear whether these sleep disorders can lead to cancer progression or development, leaving gaps for further studies.¹²

Quality of life

According to the World Health Organization, quality of life is defined as the individual's perception of cultural, social, political and economic influences, in order to achieve their goals and expectations, which represents well-being with their life. It involves emotional, physical, mental and psychological satisfaction, as well as family and social relationships.¹⁸ Recognizing changes in sleep in cancer patients is essential since their symptoms can negatively impact quality of life and their daytime performance. These changes may be related to adverse effects of treatments, which causes discomfort to the patient and a negative impact on their quality of life.¹⁹ The quality of life in these individuals has been extensively studied during these years, considering this impact and its vulnerability.²⁰ Sleep disorders are associated with health conditions and, consequently, with quality of life.²¹ Being able to increase the chances of emotional disorders, decrease daily productivity, aggravate health problems, among other important commitments.²² In this context, the role of the health team in the care of these patients during and after cancer treatment is important so that they can contribute to the well-being and quality of life of these individuals.

Anxiety and depression

The difficulty in having a good quality of sleep in individuals with cancer can be associated, in addition to the diagnosis, with anxiety and depression, which may occur during or after treatment.²³ In these patients, the probability of developing anxiety, depression, low self-esteem, stress and sleep-related problems is high, despite the fact that cancer treatment has currently achieved a high level of success.^{24,25} The symptoms related to treatment, such as fatigue, nausea, pain and discomfort, lead to these conditions.²³ The family also goes through this anxiety and stress, a common factor, due to the shock and acceptance of reality. However, these have a fundamental role in the improvement or worsening of cancer patients, and may provide support or even lead to abandonment caused by the impossibility of help, which can mitigate the depression of this patient.²⁶ The patient diagnosed with cancer is fragile and when he does not have the support and help of his family makes the healing process even more difficult. The help of this family member can help in understanding this complex moment, in addition to performing tasks that may be difficult during this period. It is believed that this relationship of family support can minimize sadness, stress, fear and anxiety.²³ Insomnia affects up to 50% of individuals with cancer, being able to lead to fatigue, mood disorders, contributing to immunosuppression, which can have a profound impact on the lives of these patients.^{27,28} Sleep disorders, depression and hopelessness are common symptoms and are present before the start of chemotherapy and can last after clinical treatment, negatively affecting quality of life.^{29,30}

Sleep hygiene in cancer

Sleep hygiene measures, despite being relevant for the entire population, are of special interest to patients with different pathologies, standing out in cancer patients, with the general objective of facilitating

restful and sufficient sleep.³¹ Adherence to sleep hygiene components, had a relative increase over time between 68% and 78% compared to the other components of several treatments used by patients. In addition to good sleep hygiene, it is recommended to avoid periods of sleep deprivation.³² Although non-pharmacological therapy is a safe and effective way to treat sleep disorders, many of its components can be difficult to apply to patients undergoing cancer treatment.¹⁷ Individuals diagnosed with cancer who are hospitalized can spend many hours of their day in bed, which makes it difficult to implement techniques such as stimulus control, hygiene and sleep restriction.¹⁷ The hospital environment is often not conducive to a good night's sleep, due to poor lighting, noise and frequent interruptions to procedures and continuous monitoring. And the effects related to cancer treatment, such as fatigue and nausea, can make it difficult to sleep also during the day.¹⁷ Therefore, it is necessary to include therapeutic and rehabilitation measures that aim to mitigate these sleep changes based on the history, condition and place that this patient is, whether in hospitals or at home.

Conclusion

The management of these sleep disorders begins with a good and careful assessment to identify the factors and causes. After this assessment, a care plan can be created to provide good sleep quality, identifying medication schemes that promote sleep and reduce fatigue or suggesting non-pharmacological interventions based on the patient's individual needs and desires as previously mentioned. Identifying sleep disorders in these cancer patients is essential, given that poor sleep quality is among the most frequent problems with which these individuals live during treatment. When these sleep disorders are not recognized and treated, a substantial economic and social impact can occur, which can lead to depression, anxiety and repercussions on quality of life. In addition, all members of the healthcare team need to be aware of the intervention to implement changes and alternatives to meet patients' sleep and energy needs.

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Conflicts of interest

The authors declare that they have no conflicts of interests.

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