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Short Communication

The Specifics of Sleep Disorders in Women with Breast Cancer

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The prognostic role of sleep disorders in oncological disorders is still underestimated worldwide. The prevalence of insomnia is highest in breast cancer (42-69%) compared with other localizations (for example, prostate, gynecological diseases, head and neck, urinary tract or gastrointestinal tract, etc.) [3]. Breast cancer patients are prone to chronic insomnia for a range of individual reasons, for example, severe somatic discomfort and pain with a tendency to catastrophize, hot flashes, paresthesia, endocrine therapy and other hormonal changes associated with breast cancer treatment generate a range of fears, including dysmorphophobic experiences. Patients experience high intolerance to uncertainty (on the MSTAT-II scale) regarding cancer and its treatment, prognosis, and their own future, which supports somatic and cognitive hyperexcitation before bedtime (on the White Bear Suppression Inventory scale, WBSI [1]), a tendency to nocturnal panic attacks, nightmares, and anxious dreams. The severity of insomnia (on the ISI scale) is associated with an exacerbation of depression, pain disorder, fatigue, decreased quality of life, disease progression, and even decreased survival. Cancer-related fatigue (according to the Fatigue Assessment Scale) is a false, dysfunctional signal in patients to prolong sleep (prolonged stay in bed without sleep, and to replenish strength, show TIB in the patient's sleep diary), which contributes to insomnia, or rather the development of intrasomnic disorders. Sleep disorders can range from problems falling asleep, prolonged sleep, waking up early in the morning, or with a non-restorative sleep regime, which leads to a decrease in sleep efficiency (according to the sleep diary, the SE indicator based on 10-day monitoring) [3]. The quality of their sleep worsens in patients between four months and about one year after the start of treatment. For five years after diagnosis, symptoms such as difficulty concentrating, insomnia, constant fatigue, vulnerability, irritability, and fear of cancer recurrence persist [5]. Patients may experience sleep complaints for as long as ten years after the end of treatment, and they often abuse sleeping pills, which increases the risks of dependence on them and the development of resistance to them. So far, the putative mechanisms that are assumed to underlie these symptoms include disorders in the immune and endocrine systems. Recently, it became known that along with psychological factors (see for more details [1,2]), circadian rhythm disorder is a pathophysiological mechanism underlying the symptoms associated with breast cancer and its treatment, which allowed the introduction of light therapy (see for more details [4]). Recent evidence suggests that somatic symptoms caused by side effects of chemotherapy and radiation therapy, such as headache, nausea and digestive symptoms, urination and night sweats, play a mediating role in the development of insomnia [5]. When analyzing sleep disorders in psychology, we recommend paying attention to three aspects:

- Antecedents (antecedents) are situations or events that precede sleep disturbance. The causes of previous sleep disorders in breast cancer should be determined: psychological and emotional stress, physical symptoms, cancer treatment,

lack of social support, and socio-demographic factors. There may be several predisposing factors, such as gender, old age, increased excitability as a character trait, personal or family history, mood or anxiety, and a tendency to anxious reflections (rumination); Provoking factors include cancer diagnosis, severity of the disease, and cancer treatment that alter levels of inflammatory cytokines or disrupt circadian rhythms or sleep-wake patterns. Moreover, behavioral factors persist, such as prolonged medication use or the use of inappropriate medications, as well as maladaptive coping (coping strategies, according to the Coping Strategy Indicator scale, CSI), that is, an inaccurate assessment of sleep problems and its quality. Physical symptoms such as vasomotor symptoms, fatigue, and pain. The physical discomfort experienced by cancer patients may be related to sleep disorders. This complaint may also occur due to the effects of chemotherapy. Women who have had breast cancer often experience vasomotor symptoms, especially in young women who were diagnosed before menopause. More pronounced depressive symptoms and sleep disorders were associated with vasomotor symptoms. In addition, pain and anxiety, such as excessive anxiety leading to depression, affect the sleep quality of patients receiving chemotherapy. In this anxious state, the sympathetic nervous system is activated, increasing the level of norepinephrine in the blood. This reduces the NREM phase, increasing the possibility of waking up during sleep. Cancer treatments, including chemotherapy and hormone replacement therapy, are potential inflammatory stimulants, which is associated with a sharp increase in inflammation, increased insomnia and sleep disorders. The patients reported short sleep duration, trouble falling asleep, frequent sleep interruptions, and insomnia. In the course of observations, it was demonstrated that chemotherapy worsens the quality of life, sleep, anxiety and depression. Patients receiving chemotherapy had lower sleep efficiency, REM sleep, and deep sleep than the general population. Lack of social support. Family support will give patients a sense of security, comfort, and hope, leading to peace of mind that makes it easier for them to meet their sleep needs. The severity of insomnia is negatively related to social isolation. Sociodemographic factors. Women with few children had higher levels of anxiety and sadness. This may be due to the fact that these women experienced a lot of psychological stress associated with raising their children. The financial situation of women had a significant impact on sleep disorders: low-income women had the highest sleep problems, while higher-income women had fewer of these problems. An increase in the number of sleep problems was positively associated with low income.

- Attributive features: Changes in sleep hygiene and sleep patterns, the presence of situational, personal anxiety and insecure attachment style. Health anxiety and staying in hyper-vigilance mode. Fixation on sleep, the presence of dysfunctional beliefs related to sleep (on a DBAS-16 scale)
- Consequences are events or phenomena resulting from accumulated micro-macro stress. The consequences of sleep disorders are a decrease in the quality of life. Sleep problems in breast cancer patients can negatively affect all aspects of their quality of life and ability to function during the day: physical, social or family, emotional and functional well-being. In conceptual cognitive behavioral analysis, we use a precedent model and additional precedents, including a boundary precedent, a related precedent, and an opposite precedent. This conceptual analysis provides a deeper understanding of sleep disorders in breast cancer patients by identifying signs, antecedents, and consequences. In conclusion, sleep disorders in breast cancer patients are more complex than other diseases or even breast cancer itself. Each breast cancer patient may perceive the symptoms (signs) differently, and the symptoms of sleep disorders may differ in other cancer patients. Therefore, a more detailed examination is necessary to determine the severity of the symptoms and their specifics, which allows choosing a protocol for cognitive behavioral therapy [4].

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