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How To Tackle Sleep Concerns In Peri-And Post-Menopausal Women

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Introduction

Sleep concerns represent a common symptom of menopause, affecting approximately half of women during perimenopause and postmenopause. Often, sleep difficulties increase throughout the menopausal transition, particularly when not assessed and treated early on. Recent Canadian data highlights an increased risk among women for insomnia, more daytime sleepiness, and elevated rates of sleep-related conditions such as obstructive sleep apnea (OSA), REM sleep behaviour disorder, and restless leg syndrome.[1] The etiology of poor sleep in this population is multi-factorial. While vasomotor symptoms (VMS) such as hot flashes and night sweats contribute to sleep disturbance, other contributing factors include hormonal changes, comorbidities, chronic pain, and age-related changes in circadian rhythm. A range of helpful options are available, including lifestyle and behavioural approaches and pharmacotherapy, which can ameliorate sleep quality to improve the lives of women during this important transition and thereafter.

Hormone Changes And Sleep Disturbances

Fluctuations and subsequent declines in estrogen and progesterone during perimenopause and following menopause play a central role in sleep disturbances. Estradiol, a primary and active form of estrogen in the body, fluctuates unpredictably during perimenopause, sometimes with significant rises followed by extended periods of decline. This hormone plays a critical role in regulating neurotransmitters such as serotonin, which is essential for maintaining healthy sleep cycles.[2] As estrogen levels decrease, serotonin levels become dysregulated, often leading to longer sleep onset times, more frequent nighttime awakenings, and reduced time spent in deep and restorative sleep.[3,4]

Progesterone, a hormone secreted by the ovaries, also plays a key role in sleep regulation. One of its metabolites, allopregnanolone, functions as a neurosteroid by binding to gamma-animobutyric acid (GABA)-A receptors in the brain, exerting a calming effect. As progesterone levels decline, many women may experience heightened emotional sensitivity or feelings of being overwhelmed. A study conducted by Andréen et al. (2006) identified a bimodal relationship between serum allopregnanolone concentration and mood in postmenopausal women. The study revealed that women experienced the highest levels of negative mood when allopregnanolone concentrations were within a specific range (1.5–2 nmol/L), suggesting that even slight hormonal imbalances can have measurable emotional consequences.[5] In a study conducted by Babalonis et al. (2011), healthy premenopausal women were given oral progesterone at doses of 100 mg and 200 mg. The researchers observed significant sedative effects, particularly when the hormone was taken with a moderate-fat snack to enhance bioavailability.[6] These findings suggest that progesterone naturally facilitates sleep onset and maintenance. As progesterone levels decline during menopause, the loss of its sedative influence likely contributes to symptoms of insomnia and non-restorative sleep. Melatonin is another important hormone that regulates the body's internal clock and prepares the brain for sleep. During the menopausal transition, perimenopause, melatonin production starts to decline, especially at night, resulting in delayed sleep onset, reduced sleep depth, and more frequent awakenings throughout the night.[7] the combined decline of estrogen, progesterone, and melatonin during menopause creates an environment that disrupts circadian rhythm alignment and weakens sleep quality. Low-dose melatonin supplementation (0.3-1 mg) may help improve sleep timing and quality without notable adverse effects.[7] While melatonin is not a cure-

all, its role in synchronizing circadian rhythms and supporting sleep patterns suggests it could be a valuable tool for menopausal women experiencing sleep difficulties. Understanding how hormonal shifts affect the body during menopause helps clarify why sleep disturbances and fatigue are common during this stage of life.

Poor sleep quality among menopausal women can worsen quality of life by increasing the risk of physical and emotional impairment. In addition, negative associations with physical health have been reported, such as an increased risk of heart disease, hypertension, and carotid atherosclerosis. Longitudinal data demonstrates that midlife women experiencing chronic sleep disturbances during the menopause transition may be at greater risk for cardiovascular disease. Findings from the Study of Women's Health Across the Nation (SWAN) revealed that shorter sleep duration and poorer subjective sleep quality were associated with increased carotid intima-media thickness and greater plaque buildup, which are early indicators of atherosclerosis, even after accounting for factors such as hot flashes, estradiol levels, and other cardiovascular risk factors.[8] Additional evidence connects short sleep duration and poor sleep efficiency to elevated blood pressure and a greater likelihood of developing hypertension. According to research by Maas and Franke (2009), the years surrounding menopause are associated with a sharp rise in blood pressure and a higher prevalence of hypertension, partly due to hormonal changes that also influence sleep quality. Poor sleep can elevate sympathetic nervous system activity, making it more difficult for the body to regulate blood pressure. As hypertension is one of the most critical cardiovascular risk factors after menopause, addressing sleep problems during this period is crucial for protecting long-term heart health.[9]

Postmenopausal women are also at increased risk for OSA and sleep-onset insomnia disorder compared with premenopausal and perimenopausal women. Studies show that between 47% and 67% of postmenopausal women may develop OSA, which is higher than rates observed in premenopausal women.[10] Progesterone normally supports breathing by stimulating airway muscles and enhancing the tone of muscles such as the genioglossus, which helps reduce the risk of airway collapse. Estrogen supports this effect by contributing to neuromuscular control of the airway. As women transition through menopause, declining levels of both hormones weaken these protective mechanisms. This hormonal shift increases upper airway resistance, contributing to the higher prevalence of OSA in postmenopausal women.[11]

Treatment

Both pharmacological and non-pharmacological approaches have shown effectiveness in addressing sleep disturbances in this population. However, prior to implementing any of those strategies, the basics of sleep hygiene must be considered. Those going through the menopause transition should aim to maintain a consistent bedtime routine. The bedroom should be reserved solely for sleep and intimacy. Additionally, substances that can negatively impact sleep, such as alcohol, caffeine, or cannabis, should be limited, and if consumed, done so well in advance of bedtime. Screen time should cease one hour prior to going to bed as the blue light emitted from smartphones and other devices activates the brain and interferes with the body's ability to release melatonin. A sleep routine that includes progressive muscle relaxation, body scans, or mindfulness meditation can also improve the ability to fall asleep and improve overall sleep quality.

Non-pharmacological approaches for sleep disturbances include exercise, cognitive behavioural therapy (CBT), sleep restriction therapy (SRT), stimulus control therapy, and mindfulness or relaxation therapy. Cognitive behavioural therapy for insomnia (CBT-I) typically combines several psychotherapeutic techniques and behavioural interventions. It may incorporate SRT, stimulus control therapy, sleep hygiene, and relaxation therapy.[12] These approaches are purported to work by altering dysfunctional beliefs about sleep, providing education, reducing maladaptive behaviours that contribute to sleep issues, and attenuating both cognitive and autonomic arousal levels. The current clinical practice guidelines from the American College of Physicians recommend CBT-I as the first-line treatment for adults with chronic insomnia.[13] Despite this, qualitative studies show that practitioners still tend to rely on pharmacological interventions. This is reflected in the 30-fold increase in prescriptions for non-benzodiazepine sedative hypnotics (e.g., Zolpidem and Zopiclone, referred to as Z-drugs) between 1994 and 2007.[14]

Medications used for the treatment of typical menopause symptoms can also help improve

sleep quality. Both oral and transdermal hormone therapies have demonstrated effectiveness in improving sleep quality and sleep satisfaction. Transdermal hormone treatment can effectively treat sleep disturbances, reduce the number of minutes awake, and decrease the number of nighttime awakenings in perimenopausal women compared to oral hormone treatments.[15] Regular use of transdermal estradiol and progesterone during the perimenopausal and early postmenopausal period can reduce the time it takes to fall asleep and decrease the frequency of nighttime awakenings.

Although pharmacological interventions such as hormone therapy and hypnotics have shown some effectiveness in treating menopause-related sleep disruption and chronic insomnia, some women are hesitant because of potential adverse effects. Furthermore, some women are unable to use these medications because of contraindications, interactions with other medications, and increased risk of falls. A newer class of medications, known as dual orexin receptor antagonists (DORAs), offers a promising alternative which can mitigate some of these risks. Unlike traditional GABA sedatives (i.e., benzodiazepines and Z-drugs) which focus on sleep-promoting systems, DORAs work by targeting wake-promoting systems. This is a novel approach for treating insomnia and sleep disturbances, as it focuses on reducing the drive to stay awake, rather than increasing the drive to sleep. DORAs can impact wakefulness by antagonizing the orexin receptors 1 and 2 (OXR1 and OXR2), preventing activation by orexin neuropeptides and thereby decrease the wake drive, and in turn, allow sleep to occur. With their distinct mechanisms of action and shorter terminal half-lives, the safety profile of the DORAs is better in terms of reduced fall risk and improved safety for driving.

Not all postmenopausal women want to employ pharmacotherapy. For these women, high doses of valerian root can lead to improved sleep quality.[16] Another less commonly used herbal supplement is black cohosh, which has been shown to improve both subjective sleep quality and objective measures such as sleep efficiency and awakenings after sleep onset. However, it must be noted that safety data on black cohosh remains limited, so caution is necessary when considering its use.[17]

Lastly, physical activity and exercise should be considered as they have been shown to improve sleep in both perimenopausal and postmenopausal women. These benefits are thought to occur through several mechanisms, including reduced depression and anxiety, improved thermoregulation, elevation of cytokines, optimized neurochemistry, and improved circadian rhythm regulation. A wide range of physical activities can improve sleep. Practices such as yoga, low and moderate intensity exercise, Pilates, walking, and strength training have all been shown to improve sleep outcomes.

Conclusion

Sleep disturbances are common during the menopause transition, often caused by hormonal changes, shifts in circadian rhythms, and other medical or emotional factors. These sleep challenges can affect nearly every part of a woman's health, from mood and memory to heart and metabolic function. Understanding what drives these disruptions is an essential step in offering meaningful support. While some women benefit from medications or hormone therapy, many also find relief through changes in daily habits, stress management, and sleep routines. There is no one-size-fits-all solution but recognizing sleep as a core part of menopause care is essential. Prioritizing sleep health can lead to meaningful improvements in comfort, wellbeing, and overall quality of life.

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