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Non-pharmacological treatment of chronic insomnia review

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Abstract

Introduction and aim: Chronic insomnia is a sleep disorder defined by the presence of difficulty initiating or maintaining sleep, or early morning awakening and being unable to return to sleep, occurring at least three times per week for a duration of three months or more. This condition is associated with significant daytime functional impairment or distress, including fatigue, mood disturbances, and cognitive deficits. The aim of this article is to present the non-pharmacological methods of treatment of chronic insomnia.

Review methods: The review was based on *International Classification of Sleep Disorders*. 3rd ed. American Academy of Sleep Medicine; 2014 and publicly available PubMed and Google Scholar databases from 2020 to 2024 using the following phrases: chronic insomnia; non-pharmacological treatment of chronic insomnia; Cognitive Behavioral Therapy for Insomnia; CBT-I; Mindfulness-Based Cognitive Therapy (MBCT); MBCT for insomnia; Acupuncture for insomnia

Brief description of the state of the art: Chronic insomnia is one of the most common sleep disorders, characterized by persistent difficulty in falling or staying asleep, occurring at least three times a week for three months or longer. Affecting approximately 15-20% of the adult population, it is associated with significant health consequences, including impaired cognitive function, mood disturbances, and an increased risk of comorbidities. In order to reduce the risk of developing diseases associated with chronic insomnia and improve patients' quality of life, doctors use pharmacological and non-pharmacological treatment. The aim of this study is to present non-pharmacological methods for treating chronic insomnia. This type of therapy includes elements such as: Cognitive Behavioral Therapy for Insomnia (CBT-I), which incorporates strategies such as: sleep restriction, stimulus control, cognitive restructuring, sleep hygiene and relaxation techniques; Mindfulness-Based Cognitive Therapy (MBCT) and acupuncture. CBT-I have emerged as the gold standard for long-term management.

Summary: It is not entirely clear which method of non-drug treatment is the best for chronic insomnia. The authors recommend tailoring the therapy to the individual needs and preferences of the patient, as well as the type of insomnia. Furthermore, they highlight the significant importance of behavioral therapy in the treatment of the disorder; however, it is a method that demands considerable time and patience.

Keywords: chronic insomnia; non-pharmacological treatment of chronic insomnia; Cognitive Behavioral Therapy for Insomnia (CBT-I); Mindfulness-Based Cognitive Therapy (MBCT); Acupuncture for insomnia

Introduction

Insomnia affects approximately 15-20% of the adult population worldwide.¹ Chronic insomnia is a prevalent and debilitating sleep disorder characterized by persistent difficulty in initiating or maintaining sleep despite having adequate sleep opportunities. This condition, defined by the American Academy of Sleep Medicine, persists for at least 3 nights per week for a minimum of 3 months² and can significantly affect daily functioning, for example, by reducing physical and mental abilities or causing chronic fatigue. Additionally, it increases the risk of developing cardiovascular diseases, mental health disorders such as depression, and obesity.^{3,4}

The development of insomnia is complex. In order to understand the development and persistence of insomnia, authors often refer to Spielman's "3-P" model. This model includes three interconnected factors responsible for the development of chronic insomnia: predisposing, precipitating, and perpetuating factors.^{5,6} Predisposing factors include genetic, psychological, and personality traits that increase an individual's susceptibility to developing insomnia. Precipitating factors, such as stress-related and environmental factors, can lead to the onset of acute sleep disturbances. Perpetuating factors involve maladaptive sleep habits and cognitive factors, such as negative thoughts related to sleep, which can deepen the problem of insomnia. Therefore, the diagnosis should include a detailed sleep history- sleep and wake patterns, daytime consequences, pre-sleep conditions and time spent napping during the day.

Additionally, to make a diagnosis, it is necessary to ask about medications and other substances used to aid sleep, an insomnia complaint questionnaire, and a two-week sleep diary.⁷

Insomnia can be classified into primary and secondary types. Primary insomnia is not caused by any underlying medical or psychiatric disorder, whereas secondary insomnia results from or is exacerbated by other conditions, such as depression, anxiety or chronic pain.⁸ In the case of secondary insomnia, it is important to remember to treat co-existing conditions. However, regardless of the type of insomnia, non-pharmacological treatment is similar and is often used in conjunction with pharmacological treatment.⁸ This article aims to present the current knowledge on the treatment of chronic insomnia, focusing on non-pharmacological methods.

Review methods

The review was based on *International Classification of Sleep Disorders*. 3rd ed. American Academy of Sleep Medicine; 2014 and publicly available PubMed and Google Scholar databases from 2020 to 2024 using the following phrases: chronic insomnia; non-pharmacological treatment of chronic insomnia; Cognitive Behavioral Therapy for Insomnia; CBT-I; Mindfulness-Based Cognitive Therapy (MBCT); MBCT for insomnia; Acupuncture for insomnia

Non-pharmacological Treatment

In recent years, non-pharmacological treatments have garnered increasing attention due to their ability to address the underlying causes of insomnia without the risks associated with medication, such as the development of addiction or tolerance with prolonged use.⁵ Cognitive Behavioral Therapy for Insomnia (CBT-I) is the gold standard non-pharmacological intervention. Other methods, such as Mindfulness-Based Cognitive Therapy (MBCT) and acupuncture are used as complementary or alternative therapies in the treatment of insomnia.

Cognitive Behavioral Therapy for Insomnia (CBT-I)

CBT-I is a structured, evidence-based therapeutic approach that targets dysfunctional thoughts, behaviors, and attitudes toward sleep. Techniques such as: sleep restriction, stimulus control, cognitive therapy, sleep hygiene and relaxation training are employed to help patients

re-establish healthy sleep patterns and improve overall sleep quality.^{5,9} All elements of the therapy are applied together for 8 weeks.⁸ Numerous studies have shown that CBT-I is not only effective in treating insomnia but also leads to long-lasting improvements, making it a preferable option for many individuals, particularly those with chronic insomnia or those who are reluctant to use medications. Additionally, this form of therapy can be used in patients without psychiatric disorders and after incorporating the appropriate components it can also be used in patients with disorders such as PTSD, bipolar disorder or ADHD.⁹ The core components of CBT-I are:

1. Sleep Restriction Therapy (SRT) is one of the most critical components of CBT-I. This method reduces the time spent in bed to the actual sleep time, even if this initially results in sleep deprivation. As a result, sleep drive is increased, which over time, helps individuals fall asleep more quickly and experience more consolidated sleep.^{10,11}
2. Stimulus Control Therapy (SCT) aims to break the association between the bed and wakefulness. This therapy helps falling asleep easily and improve sleep quality by associating the bed and bedroom with sleep, rather than with other activities such as eating, watching TV, or reading and reducing the anxiety that often builds when a patient lies awake in bed and can't fall asleep.^{10,12} The main principles include:
 - 1) retire to bed only when experiencing sleepiness,
 - 2) reserve the bed for rest and intimacy only,
 - 3) maintain a consistent bedtime and wake-up time every day,
 - 4) if unable to fall asleep within 10-20 minutes, get out of bed and engage in a quiet, relaxing activity until feeling sleepy.^{10,12,13}
3. Cognitive Therapy (CT) focuses on negative thoughts and beliefs related to sleep, and additionally reduces anxiety and stress associated with falling asleep. This component of CBT-I works by helping the patient identify these maladaptive thoughts, challenge their validity, and replace them with more realistic and balanced beliefs. This aims to facilitate falling asleep and maintaining sleep.^{12,13}
4. Sleep Hygiene (SH) is a method that, by introducing healthy habits and behaviors such as a regular sleep schedule, avoiding distractions before sleep and stress, limiting naps, and optimizing the sleep environment, aims to improve sleep quality and reduce insomnia. Sleep hygiene is an essential component of CBT-I, which helps create the right conditions for sleep.^{10,11,12,13}
5. Relaxation Training (RT) is included in CBT-I to reduce physiological arousal and ease the transition into sleep. The training include deep breathing exercises, progressive

muscle relaxation and visualization exercises.¹³ These relaxation strategies can be particularly beneficial for patients who suffer from heightened stress or anxiety. However, in order to see the effects of the training, regular practice is essential.^{11,12,13}

Mindfulness-Based Cognitive Therapy (MBCT)

Mindfulness-Based Cognitive Therapy (MBCT) is a 8 week therapy that combines mindfulness, practiced through meditation, and behavioral therapy, which includes stimulus control, sleep hygiene, and sleep restriction.^{14,15} It may serve as an alternative non-pharmacological treatment for individuals who have not responded adequately to first-line therapy.¹⁶ This form of therapy aims to improve sleep quality and increase sleep duration, while also reducing sleep onset latency.¹⁷ Additionally, it seeks to decrease the cognitive arousal associated with sleep-related negative thoughts and helps the individual focus on the present moment. However, it is a gradual process that requires the patient to demonstrate patience and adherence to the therapeutic process.¹⁴

Acupuncture

Acupuncture is a specific non-pharmacological method of treating many diseases, including chronic insomnia, that has been used for years, especially in China.¹⁸ This method involves inserting and appropriately rotating thin needles into specific points on the body to stimulate the human nervous system.¹⁹ The therapeutic effect is achieved by influencing neurotransmitters and neurohormones such as: catecholamine, glutamic acid, and melatonin, which helps reduce stress and improve sleep quality. Additionally, acupuncture improves blood circulation by relaxing the muscle walls of blood vessels and expanding them, which aids in falling asleep and relaxation. Furthermore, a therapeutic effect may include a reduction in cortisol levels, which positively affects patients with chronic insomnia caused by stress.¹⁹ The advantages of this therapy include its low cost, relatively few side effects, and long-lasting therapeutic effects.²⁰ The goal of acupuncture is to increase the duration and effectiveness of sleep, while simultaneously reducing the number of night awakenings. In China, acupuncture is also combined with massage – Tuina, which helps achieve better therapeutic effects.²¹

Applications

Non-pharmacological methods for the treatment of chronic insomnia currently include CBT-I, MBCT, and acupuncture. The most widely recognized method is CBT-I, which is also the most complex form of therapy. The other methods are typically utilized as adjunctive treatments to improve the therapeutic effect or as an alternative to first-line therapies. The MBCT method appears to be particularly promising, as it combines elements of behavioral therapy with exercises aimed at improving attention. In the future, it may be possible to further refine behavioral therapies, enhance the role of acupuncture in chronic insomnia treatment, and explore additional non-pharmacological approaches.

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Conflicts of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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