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REVIEW ARTICLE

# INSOMNIA AND HOMOEOPATHY

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**Abstract**

Insomnia is a sleep disorder characterized by complaints of trouble falling asleep or staying asleep, or early morning awakening despite having adequate opportunity and environment to sleep. The symptoms include waking up too early, distress or impairment in functioning, daytime tiredness, drowsiness, depression, anxiety, headaches, difficulty remembering and focusing, and irritability. Insomnia contributes to the risk of developing conditions such as psychiatric disorders and cardiovascular diseases. Conventional treatment therapies to treat insomnia are classified as sedatives and hypnotics, which include benzodiazepines, barbiturates, and various other hypnotics. Most of them are habit forming and can cause drug dependence, drug tolerance, abuse of the medication. Homoeopathic medicine offers an alternative treatment option for those seeking long-term relief from insomnia symptoms without the potential side effects. Homoeopathic medicine for insomnia focuses on addressing the root causes of the sleep disorder, such as stress, anxiety, or hormonal imbalances, and aims to restore balance within the body to promote sleep.

## INTRODUCTION

Insomnia is a common sleep disorder that can make it hard to fall asleep

or stay asleep. It can also cause a person to wake up too early and not be able to get back to sleep. It is characterized by dissatisfaction with sleep quantity or quality, difficulty in falling asleep or maintaining sleep, frequent awakenings during night-time, and awakening earlier than desired in the morning. (1)

Insomnia is more prevalent in women than in men, and the prevalence of insomnia increases with age (2). Due to the physiology female hormones play, women suffer from insomnia at nearly twice the rate of men. Low estrogen levels typically cause insomnia, because estrogen helps move magnesium into tissues, which is crucial for catalyzing the synthesis of important sleep neurotransmitters, including melatonin. (3)

Insomnia can be classified into short-term insomnia if it persists for less than 3 months and chronic insomnia if it persists for at least 3 months and occurs at least three times per week. (4)

The exact causes of insomnia are unknown. Some contributing factors include environmental, genetic, psychological, and behavioral factors leading to hyperarousal. (5) Psychiatric and medical conditions like depression, anxiety, specific substances, unhealthy sleep habits, and/or specific biological factors may cause insomnia. Insomnia may be caused by an unhealthy lifestyle, certain food substances, eating patterns, or specific neurotransmitters that are associated with sleep and wakefulness as well as medical conditions like sinus allergies, asthma, lower back pain, chronic pain and arthritis. Other risk factors for insomnia include lower socioeconomic status, older age, and female gender. Comorbid diseases such as depression and other neurologic illnesses, diabetes, cardiovascular disease, respiratory disorders, gastrointestinal disorders, and cancer are often associated with insomnia.(6)

**Diagnosis**

The diagnostic criterion for insomnia involves knowing if the patient has difficulty falling asleep or staying asleep or having nonrestorative sleep despite having adequate opportunity and circumstances to sleep. This impairment in sleep is associated with daytime impairment or distress, and this sleep difficulty occurs at least three times per week and has been a problem for at least one month. There is no specific test to diagnose insomnia; however, different methods, such as maintaining a sleep log or gathering information with the help of a sleep inventory, a sleep study, or polysomnography, as well as certain blood tests to exclude other medical conditions, can be used to diagnose the sleep disorder. (7)

**Role of Brain in Sleep and Insomnia**

Several structures within the brain are involved with sleep.

The hypothalamus contains clusters of nerve cells that function as arousal and sleep regulation centers. The suprachiasmatic nucleus (SCN) in the hypothalamus, receives information about light exposure directly from the eyes and regulates circadian rhythm i.e., controls body's internal clock. During dark, the SCN sends messages to the pineal gland. The pineal gland, is responsible for production of melatonin, also known as sleep hormone. Melatonin secretion is stimulated by darkness and inhibited by light, and in coordination with the SCN, it is centrally involved in maintaining circadian rhythmicity and regulating sleep. The SCN regulates the timing of melatonin release, while melatonin feeds back to the SCN to decrease SCN neuronal firing. (8)

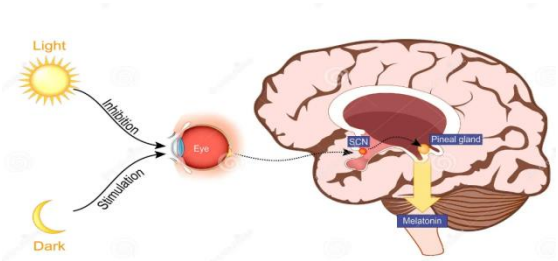


Fig: Melatonin synthesis in pineal gland

The brain stem and hypothalamus work together to regulate the shifts in wakefulness and sleepiness. GABA is a brain molecule that is produced by sleep-promoting cells in the brain stem and hypothalamus. This chemical works to decrease the activity of arousal centers in these regions of the brain. Additionally, the brain stem—particularly the pons and medulla—plays a unique function in REM sleep by sending signals to relax the muscles necessary for maintaining proper posture and limb motions, preventing us from acting out our dreams.

Information is transmitted from the senses to the cerebral cortex through the thalamus. Thalamus is dormant during most of the sleep stages but active during REM sleep and sends the cortex information like images, sounds, and other sensations that fill the dreams.

The basal forebrain, near the front and bottom of the brain, also promotes sleep and wakefulness, while part of the midbrain acts as an arousal system. Release of adenosine from cells in the basal forebrain and probably other regions supports sleep drive. Adenosine is produced during both intense physical work and mental work. It slowly builds up in the body over the course of the day, eventually making you sleepy. As adenosine gradually attaches to adenosine receptors, it begins to promote muscle relaxation and tiredness, which is why you start to get tired later in the day. Its levels will slowly decrease over the course of the night, eventually waking you up. (10)

The amygdala is involved in the regulation of cognitive and emotional behaviors and is critically involved in emotional reactivity, stress regulation, and fear memory. Studies suggest that the amygdala plays a key role in the consolidation of emotional memories during sleep. It is prominently active during REM sleep. (11)

In response to fear and danger, the amygdala sends distress signals to the hypothalamus, which in turn sends chemical messages to the adrenal glands to release epinephrine (or adrenaline), activating the sympathetic nervous system that will ultimately help to fight off a threat or flee to safety. If the threat is not resolved immediately, the body can maintain this state of hyperawareness by producing cortisol, which keeps the body in a state of alertness or stress. Once the threat has passed, the stimulation of the parasympathetic nervous system results in a return to a state of repose. But activities or stimuli associated with that distressed situation are stored as memories in the hippocampus, and one becomes conditioned to avoid such situations. This interplay between the potential threat and memory results in various phobias, which are responsible for disrupting one's normal life.

In most cases, once the cause of the stress is resolved, individuals can resume normal sleeping patterns. But in insomnia, increased amygdala activity due to the stimuli associated with insomnia can be the root cause of the insomnia itself, as lack of sleep causes stress and further desire to sleep becomes a stress in itself, leading to the development of conditioned fear in patients of not being able to sleep and further resulting in a state of hyperarousal when they attempt to sleep, i.e., the fixation on getting sleep leads to a feeling of stress over not falling asleep, which begins a vicious loop. (12)

**Sleep Cycle**

Sleep is important for maintaining optimal health and well-being. Sleep is involved in various brain functions, like memory, performance, and cognition. Like exercise and a balanced diet, getting enough sleep may help prevent a range of health issues. Research has shown a relationship between sleep deprivation, obesity, and better calorie regulation. Getting adequate rest each night allows the body's blood pressure to regulate itself, lowers inflammation, and prevents depression. Getting a good night's sleep can also reduce the chances of sleep-related conditions such as apnea and promote better overall heart health. (13-16) Sleep also appears to activate the glymphatic system to promote the efficient elimination of neurotoxic waste products,

including β-amyloid produced during wakefulness. (17)

The circadian rhythm regulates the sleep cycle, which is driven by the suprachiasmatic nucleus (SCN) of the hypothalamus. The sleep cycle consists of two phases: the non-rapid eye movement (NREM) phase and the REM (rapid eye movement) phase. The NREM stage is divided into three stages. Sleep begins with NREM stage 1 that progresses into NREM stage 2, followed by NREM stage 3, then NREM stage 2 is repeated, followed by REM sleep. The time spent in each stage changes throughout the night as the cycle repeats. A typical night's sleep is made up of 4 to 5 sleep cycles. The first sleep cycle is often the shortest, ranging from 70 to 100 minutes, while later cycles tend to fall between 90 and 120 minutes.

Stages N1 to N3 are considered non-rapid eye movement (NREM) sleep, with each stage leading to progressively deeper sleep. Approximately 75% of sleep is spent in the NREM stages, with the majority spent in the N2 stage. (S7) The first REM period is short, and as the night progresses, longer periods of REM and decreased time in deep sleep (NREM) occur.

During non-REM sleep, the mind slows down. The circulation slows, too, as the heart rate and blood pressure fall. Breathing is slow and steady. The muscles are relaxed, but body movements do occur. The body repairs and regrows tissues, builds bone and muscle, and strengthens the immune system. Though dreams can occur in any sleep stage, but they are less common and intense in the NREM periods.

During REM sleep, the brain is more active, and one can have intense dreams. REM sleep correlates with activities of the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system in healthy humans. REM is important because it stimulates the areas of the brain that help with cognitive functions like learning, memory and creativity and is associated with increased production of proteins. Babies can spend up to 50% of their sleep in the REM stage, compared to only about 20% for adults. (18)

**Homoeopathy Medicine for Insomnia**

Homoeopathic remedies are selected based on the principle of individualization and the peculiar symptoms of the patient. Homoeopathic medicines are safe and effective, and treatment is aimed at eliminating the cause of insomnia from the roots; hence, both the disorders and symptoms are cured. Some of the homoeopathic remedies that may be considered for insomnia are as follows: (19-22)

1. **Kalium Phosphoricum**: is the phosphate of potassium. It is a great remedy for sleeplessness during later part of night, due to business worry, mental exertion, nervousness, due to brain fag in students from over-study. Sleepiness in early evenings, after eating, sleeplessness with drowsiness, somnambulism. It is adaptable to the cases suffering from insomnia showing great want of nerve power, a true state of adynamia due to the long-lasting mental depression. Also indicated for night terrors, in children awakening with fright and screaming. Patients feel difficulty falling asleep due to noises in head, feeling as if a rocket had passed through head.
2. **Aconitum Napellus:** Derived from the plant monkshood, is useful in treating acute insomnia caused by fear, fright or anxiety and anguish in mind; insomnia due to worry with restlessness and tossing about; sleeplessness associated with nightmares. It is used in insomnia in the aged. Patient has fear of death and believe that he will soon die and predicts the day of his death.
3. **Coffea Cruda:** This remedy is derived from the unroasted coffee beans and is often used for insomnia caused by over-active mind with full of ideas and they flow in such as quick succession that they prevent sleep. Insomnia caused after happy news, pleasant surprise, after over work, attending social events, taking care of the sick. Coffea will also help in insomnia brought on by too much coffee (or other form of caffeine stimulation). Can be given to female suffering from insomnia during pregnancy and after childbirth.
4. **Cocculus Indicus:** Derived from Indian berry, Cocculus is a remedy often helpful in sleeplessness from exhaustion. Insomnia due to anxiousness about the health of others typically brought on by caring for the sick, or for kids. Constant drowsiness and spasmodic yawning on the day after the loss of sleep accompanied along with weakness and vertigo. Good medicine for jet lag due to disruption of circadian rhythm with result in fatigue and irritability. Many evil effects of night watching are relieved by this medicine.
5. **Nux Vomica:** It is a homoeopathic remedy derived from the seeds of the strychnos nux-vomica tree. Good remedy for insomnia for literary person intellectual who leads a sedentary life and overindulged in stimulants like coffee, tobacco, alcohol. The most important point to remember in this remedy is that the patients are always

worse after a disturbed sleep. They generally wake up at about 3 a.m. or later half of the night and face difficulties in sleeping again. Ideas keep on crowding upon them till at least out of sheer exhaustion. Patients feels congestive headache in the morning due to the disturbed sleep. Patients feel drowsy after meals and in early evening. Patient is very irritable and sensitive to all impressions such as noises, odors and light etc. Patient feels better after a short sleep unless aroused.

6. **Passiflora Incarnata:** It derived from the passionflower, has a sedative and calming properties. It is good for insomnia due to nervous erethism. It is indicated especially in feeble, infants, aged and mentally worried and over-worked person, who have a tendency to convulsions, chorea. It is a powerful agent for inducing sleep wonderfully in delirium tremens in old men. Person is restless and wakeful resulting from exhaustion.
7. **Pulsatilla Nigricans:** This is obtained from windflower, remedy often used to treat insomnia related to hormonal imbalances or emotional stress. This remedy may be particularly helpful for women, as it can help to address the causes of insomnia in females, such as premenstrual syndrome (PMS) or menopause. For women and children who are particularly emotional and do not like sleeping alone. Also used when sleeping in a warm room tends to worsen insomnia or when the individual may weep due to the inability to fall asleep. Pulsatilla Nigricans is a medicine for insomnia appearing during the first half of night. The person stays awake and restless during the first half of the night. The person eventually falls asleep during the late hours (towards dawn). The person wakes up feeling tired and may experience excessive yawning and sleepiness during the daytime in afternoon. Patient sleeps with hands over the head.
8. **Opium** – Opium is a medicine for insomnia where a person feels sleepy but is unable to sleep. Insomnia of the opium is associated with the acuteness of hearing. Distant and small noises like the clocks striking, cocks crowning, the wagons rattling on the streets, doors closing and shutting may disturb the person, keeping him awake for long duration. Person wakes up in the morning feeling unrefreshed and tired. It is a remedy for insomnia in children whose sleep are disturbed due to dreams of cats and dogs.

## CONCLUSION

Homoeopathy medicines are derived from natural substances and help restore the natural healing processes of the body. Unlike conventional medicines that cause side effects like drug dependence, drug tolerance, abuse of medication, drowsiness, dizziness, headache, changes in thinking and behavior, difficulty with movement, impaired focus, allergic reactions, etc., homoeopathy medicines are safe as they do not produce any side effects and are not habit forming. Homoeopathy follows a holistic approach in the treatment of insomnia and treats all aspects mental, emotional, and physical of the person who happens to be suffering from insomnia. The physicians' interest is not only to alleviate the patients' present symptoms but also their long-term wellbeing.

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