

Effect of Nidranash on Circadian Rhythm and its Management by Ayurveda

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Abstract - Ayurveda, the ancient life-science emphasizes on prevention of disease and maintaining the health. For this, *trayopstambha* i.e *aahara*, *nidra* and *brahmacharya* forms the three essential pillars of life. Today due to changed lifestyle we can see changed pattern of diet and sleep which eventually leads to disease. Sound and adequate sleep has various benefits on mind and body. *Nidranash* i.e primary insomnia is increasing nowadays due to changed work pattern and food habits. The increasing number of hormonal disorders, hypertension, obesity is due to the lack of proper sleep. Ayurveda has also emphasized on dietary, daily regimen, *panchakarma* techniques to overcome the *nidranash*. In this article, an attempt has been made to review the effects of *nidranash* on hormones and its management.

KEYWORDS:- *Nidra*, Sleep, *Nidranash*, Circadian Rhythm, *Nidranash* Management.

I. INTRODUCTION

Ayurveda considers *aahara* (diet), *nidra* (sleep) and *brahmacharya* (sexual energy) as the three important pillars of life. These three when taken in appropriate quantity and at proper time help to maintain the health and prevent diseases. *Nidra* i.e Sleep is an essential part of day to day human life. After a tiresome day, stress or during illness one needs to have sleep to refresh themselves. The disturbance in sleep pattern might be due to the changed life style, mental tension, stress and changed food habits. Various research work says that insufficient sleep can increase risk of developing obesity, diabetes, high blood pressure or heart disease. ⁰¹

According to Ayurveda when the mind and sense organs are tired, they retire from their objects and the person eventually falls asleep. Adequate sleep on proper time gives *sukh* (happiness), *Pushti* (nourishment), *bala* (strength), *vrusha* (virility), *dnyan* (knowledge) and *jivitam* (vitality). Also *varna*, *utsah*, *agnidipti*, *dhatu samya* are gained by sleep on proper time.

Circadian rhythm refers to the natural, internal biological clock that regulates various physiological and behavioral processes in living organisms, primarily in response to the 24-

hour day-night cycle. This intrinsic timekeeping system helps coordinate essential functions such as sleep-wake patterns, body temperature, hormone secretion, and metabolism. The suprachiasmatic nucleus in the brain's hypothalamus serves as the central pacemaker, synchronizing the body's internal rhythms with external environmental cues like light and temperature. Disruptions to the circadian rhythm, such as shift work or jet lag, can have adverse effects on health, including sleep disturbances, mood disorders, and increased risk of chronic diseases, emphasizing the crucial role of maintaining a synchronized internal clock for overall well-being. ⁰²

A. Need of Study

The study of the effect of *Nidranash* (sleep disorders) on circadian rhythm and its management through Ayurveda is crucial for several reasons. Sleep disorders are increasingly prevalent due to modern lifestyles, leading to numerous health issues. Understanding their impact on circadian rhythms, which regulate essential bodily functions, is vital for overall health and well-being. Ayurveda offers holistic and time-tested approaches for managing sleep disorders and restoring circadian balance, which can complement conventional medicine. Investigating this intersection provides valuable insights into potential natural remedies and promotes a holistic approach to healthcare, aligning with the growing interest in alternative and integrative medicine practices. This Article contribute help to many students and researcher.

II. MATERIALS AND METHODS

A. What is *Nidra* according to Ayurveda? ⁰³

In Ayurveda, "*nidra*" refers to sleep or the concept of proper and balanced sleep as an essential component of overall health and well-being. Ayurveda, the traditional system of medicine in India, places great emphasis on the importance of quality sleep in maintaining physical, mental, and emotional equilibrium.

According to Ayurveda, there are three pillars of health: diet (*ahara*), sleep (*nidra*), and moderation in lifestyle (*brahmacharya*). *Nidra* is considered one of these fundamental pillars, and it is believed that a lack of restorative and balanced sleep can lead to various health imbalances and disorders.

Ayurveda recommends specific guidelines for achieving healthy sleep, including maintaining a regular sleep schedule, creating a comfortable sleep environment, and practicing relaxation techniques like meditation or gentle yoga before bedtime. The duration and quality of sleep needed can vary from person to person based on their constitution (Prakriti) and imbalances (Vikriti).

In Ayurvedic philosophy, proper *nidra* is crucial for rejuvenating the body, reducing stress, and promoting physical and mental health. Disruptions in sleep patterns or inadequate sleep can contribute to imbalances in the doshas (Vata, Pitta, and Kapha), which are fundamental components of Ayurvedic diagnosis and treatment. Therefore, Ayurveda emphasizes the importance of nurturing healthy sleep habits to maintain overall well-being.

निद्रां विवादयामि, तां निद्रां प्रबोधयामि च।
निद्रया विहिना यस्य, तस्य विद्या न वर्धते॥

This verse underscores the idea that sleep plays a vital role in promoting knowledge, health, and well-being, emphasizing its importance in Ayurveda and traditional Indian wisdom.

B. What is *Nidranash* according to Ayurveda?

"*Nidranash*" in Ayurveda refers to the disturbance or loss of sleep. It is a condition characterized by difficulties falling asleep, staying asleep, or experiencing restorative sleep. *Nidranash* can manifest in various ways, including insomnia, disrupted sleep patterns, or inadequate sleep duration.

In Ayurveda, maintaining a healthy sleep cycle is considered crucial for overall well-being. Sleep is seen as a time for the body to rest, repair, and rejuvenate itself. When sleep is disrupted or inadequate, it can lead to various imbalances in the body and mind, which can, in turn, contribute to a range of health issues.

Nidranash can have various causes, including stress, anxiety, poor sleep hygiene, dietary imbalances, and underlying health conditions. Ayurvedic approaches to addressing *nidranash* often involve lifestyle modifications, dietary changes, relaxation techniques, and herbal remedies tailored to the individual's constitution and imbalances. The goal is to restore balance and promote restful, rejuvenating sleep for improved overall health and vitality.

C. Types of *Nidra*

Acharya Charak has classified *nidra* into 6 types⁰⁴

- *Tamobhava*-due to increase in *Tamo guna*.
- *Shleshma samudbhava*-caused by increase in *Kapha*.
- *Mana sharirshrama samudbhava*-by exhausted mind and body.
- *Aagantuki*-due to bad prognostic indication.
- *Vyadhi anuvartini*-which occurs subsequent to disease.

- *Ratri swabhav prabhav* – natural sleep which occurs during night.

Acharya Vagbhat has mentioned 7 types by separating the *mana sharir shram samudbhava*^{05,06}

While Sushruta has classified into 3 types⁰⁷

- *Vaishnavi*-
- *Tamasi*-caused to *tamas*.
- *Vaikariki*-occurs due to diseases.

Nidranash i.e primary insomnia is loss of sleep or its deranged quality and quantity. It is caused due to aggravated *vata* and *pitta dosh* in body, aggravated mind, loss of fluids or trauma. It affects the quality of sleep and thereby affecting the overall day to day physical and mental performance of an individual. A person with insomnia experiences fatigue, irritability, cognitive impairment and mood swings

Vagbhat has considered *nidra* as one of the 13 *adharniya vega* that means the urge which should not be suppressed and if suppressed it causes yawning, myalgia, drowsiness, headache, ENT disorders, heaviness of eyes

D. The factors responsible for *nidranash* are

- *Karya*- work done at night and work heavy in nature causes loss of sleep.
- *Kaal*- in old age due to predominance of *vata dosha* there is reduced sleep.
- *Vikara*-Diseases mostly of *vata* origin leads to loss of sleep.
- *Prakruti*- *Vata prakruti* tends to have less duration of sleep.

Further sushruta has mentioned following causative factors for *nidranash*

- *Aaharaja* –*ruksha aahara sevan*
- *Viharaja*- *vyayam, upavas*
- *Mansik*- *bhaya, krodha, chinta*

E. *Nidranash Samprapti*⁰⁸

- **Dosha Imbalance (Dosha Vaishmya):** It often begins with an imbalance in the doshas (Vata, Pitta, and Kapha) or the subdoshas related to sleep (Tarpaka Kapha and Prana Vata). For instance, an increase in Vata dosha can lead to restlessness and difficulty falling asleep, while an imbalance in Tarpaka Kapha can result in excessive sleep or oversleeping.
- **Agni (Digestive Fire) Imbalance:** The second stage involves disturbances in the digestive fire (agni). Poor digestion can lead to the accumulation of ama (toxins) in the body, which can affect the balance of the doshas and interfere with sleep.
- **Manasika (Mental) Factors:** Mental factors, such as stress, anxiety, or depression, can contribute to *Nidranash*. These emotional imbalances can disturb the mind and prevent relaxation necessary for sleep.

- **Rasa-Rakta-Mamsa-Meda Dushti:** In this stage, there may be disturbances in the dhatus (tissues) of the body, including the plasma (rasa), blood (rakta), muscle (mamsa), and fat (meda). These disturbances can further exacerbate sleep problems.
- **Sroto Dushti:** The channels of circulation and elimination (srotas) may also become imbalanced, hindering the proper flow of nutrients and waste products in the body, which can contribute to sleep disturbances.
- **Vyadhi (Disease) Manifestation:** If the above imbalances persist or worsen, they can lead to the manifestation of Nidranash as a recognized health issue.

F. How Nidranash can affect the circadian rhythm

"Nidranash," or the disturbance of sleep, can have a significant impact on the circadian rhythm. The circadian rhythm is the body's internal biological clock that regulates various physiological and behavioral processes over a 24-hour cycle, primarily in response to light and darkness. Here's how Nidranash can affect the circadian rhythm:

- **Disrupted Sleep-Wake Cycle:** Nidranash often leads to irregular sleep patterns, including difficulty falling asleep, frequent awakenings during the night, or early morning awakenings. This disruption can lead to a misalignment of the sleep-wake cycle with the natural circadian rhythm.
- **Alteration in Melatonin Production:** Melatonin is a hormone that plays a crucial role in regulating the sleep-wake cycle. It is typically released in response to darkness and helps promote sleep. Nidranash can disrupt the body's ability to produce melatonin at the right times, leading to difficulty falling asleep or staying asleep.
- **Impact on Body Temperature:** The circadian rhythm also affects body temperature, with a natural drop in temperature occurring in the evening to promote sleep. Nidranash can interfere with this temperature regulation, making it more challenging to achieve restful sleep.
- **Hormonal Imbalances:** Sleep disturbances caused by Nidranash can lead to imbalances in various hormones, including cortisol (associated with stress) and growth hormone. These hormonal fluctuations can further disrupt the circadian rhythm.
- **Impact on Mood and Cognitive Function:** Chronic sleep disturbances resulting from Nidranash can affect mood, cognitive function, and overall alertness. This can impact a person's ability to function optimally during the day when their circadian rhythm is ideally promoting wakefulness.
- **Increased Risk of Circadian Rhythm Disorders:** Prolonged Nidranash can contribute to the development of circadian rhythm disorders, such as delayed sleep phase disorder, advanced sleep phase disorder, or irregular sleep-wake rhythm. These conditions involve a persistent misalignment between the internal biological clock and the external environment.
- **Long-Term Health Consequences:** Chronic sleep disturbances, when they persist due to Nidranash, can lead to various health issues, including increased risk of cardiovascular disease, metabolic disorders, and mood

disorders, all of which are closely tied to circadian rhythm disruptions.

G. Management of Nidranash

Nidranash, or sleep disturbances, can indeed disrupt the circadian rhythm. Ayurveda offers a holistic approach to managing Nidranash and restoring harmony to the circadian rhythm. Here are some Ayurvedic strategies for managing Nidranash and supporting the circadian rhythm:

➤ **Dietary Adjustments (Ahara):**

- Follow a regular meal schedule and avoid heavy or stimulating foods close to bedtime.
- Incorporate calming foods like warm milk, herbal teas (such as chamomile or ashwagandha), and light, easily digestible dinners.
- Reduce caffeine and alcohol consumption, especially in the evening.

➤ **Lifestyle Modifications (Vihara):**

- Establish a consistent daily routine that includes fixed wake-up and bedtime hours.
- Engage in calming activities before sleep, such as gentle yoga, meditation, or deep breathing exercises (pranayama).
- Create a conducive sleep environment with proper lighting and ventilation.
- Minimize exposure to screens (phones, tablets, TVs) at least an hour before bedtime, as the blue light emitted can interfere with melatonin production.

➤ **Herbal Remedies (Aushadha):** Ayurvedic herbs like Ashwagandha, Brahmi, Jatamansi, and Shankhpushpi can help reduce stress, anxiety, and improve sleep quality. Consult an Ayurvedic practitioner for proper dosage and guidance.

➤ **Abhyanga (Self-Massage):** Regular abhyanga, or self-massage with warm oil, can help relax the body and mind, promoting better sleep.

➤ **Balancing the Doshas (Dosha Balance):** Ayurvedic treatments and recommendations will vary based on an individual's dosha constitution (Vata, Pitta, or Kapha) and their current imbalances. Restoring dosha balance is crucial for good sleep.

➤ **Panchakarma Therapies:** In some cases, Panchakarma therapies may be recommended to detoxify the body and mind, leading to better sleep.

➤ **Consultation with an Ayurvedic Practitioner:** For personalized guidance and treatment, it is advisable to consult with a qualified Ayurvedic practitioner who can assess your unique constitution and imbalances and provide tailored recommendations.

➤ **Stress Management (Manasika):** Practices like meditation, mindfulness, and stress reduction techniques can help calm the mind, reducing mental factors contributing to Nidranash.

➤ **Physical Activity (Vyayama):** Engage in regular physical activity, but avoid vigorous exercise close to bedtime. Gentle yoga or stretching can be beneficial.

➤ **Ayurvedic Medications (Rasayana):** Depending on the underlying causes of Nidranash, Ayurvedic medicines or formulations may be prescribed by an Ayurvedic practitioner to address specific imbalances.

It's important to note that Ayurvedic approaches are holistic and individualized, focusing on balancing the body and mind to restore natural rhythms.

III. DISCUSSION

Nidranash, or sleep disturbances, can disrupt the circadian rhythm by causing irregular sleep patterns, impacting melatonin production, disturbing temperature regulation, and leading to hormonal imbalances, mood fluctuations, cognitive impairment, and an elevated risk of circadian rhythm disorders. Ayurveda offers a holistic approach to manage Nidranash by suggesting dietary adjustments, lifestyle modifications, herbal remedies, dosha balancing, detoxification therapies, stress management techniques, and gentle physical activity, all personalized to the individual's unique constitution and imbalances. These Ayurvedic interventions aim to restore harmony to the circadian rhythm, promoting restful sleep and overall well-being, with guidance from experienced practitioners being crucial for effective Nidranash management and circadian rhythm support.

IV. CONCLUSION

In conclusion, sleep is undeniably crucial for our overall health and well-being. It serves as the body's natural reset button, playing a fundamental role in maintaining physical, mental, and emotional equilibrium. During sleep, the body undergoes essential processes such as tissue repair, memory consolidation, and hormonal regulation. Adequate sleep supports cognitive function, mood stability, and immune system strength while contributing to physical vitality and longevity. Conversely, chronic sleep deprivation or disturbances can lead to a myriad of health issues, including cognitive decline, mood disorders, weakened immunity, and an increased risk of chronic diseases. Recognizing the importance of quality sleep is essential, and prioritizing healthy sleep habits is an investment in our long-term health and overall quality of life.

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