SLEEPLESSNESS (NIDRANASH): CAUSE AND MANAGEMENT IN AYURVEDA PERSPECTIVE

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ABSTRACT
In Ayurveda Ahara (food), Nidra (sleep) and Brahmacharya (celibacy) are supposed to be the central factors for healthy and long life. Among them Nidra or sleep is necessary for maintaining proper psychosomatic health as it rejuvenates both mentally and physically. In Ayurveda classics many causes like Chinta (tension), Bhaya (fear), Vyayam (excessive exercise), Upvasa (fasting) can cause Nidranam (sleeplessness). Most of the causes which lead to Nidranash are Vata Dosha Prakopak. In Ayurveda classics as well as modern medical sciences many consequences of sleeplessness are described such as lack of concentration, lassitude, irritability, drowsiness. In long term if not properly treated it can lead to altered mental, emotional and social behaviour. Various Aacharya have mentioned many modalities for prevention and management of Nidranash like Dincharya Palan (obedience of day regimen), Abhyanga, Utsadan, Shirodhara etc. here an emphasis is made to understand the causes, consequences and treatment of Nidranash.

KEYWORDS: psychosomatic health, Bhaya, Vyayam, Upvasa, Nidranasa, Dincharya.

INTRODUCTION
Ayurveda is the ancient science of life which not only focuses on the management of diseases but it also bestows a great concern on maintenance of healthy life.\(^1\) Ayurveda is based on three main pillars Vata, Pittaand Kapha.\(^2\) and to keep these pillars in normal state Aacharya have described Tryopsthambha or sub-pillars. These Tryopsthambha of life are Ahara, Nidra and Brahmcarya.\(^3\) The proper obedience of these three is must for the maintenance of healthy and long life. Among these three Ahara is mainly related with physical factors,
Brahmcharya with mental factors while Nidra deals with both psychic and somatic factors. In today's era, the mechanization of world, advancement of science and technology, fast track lifestyle has led to many life style related problems.

Among these problems disturbances in normal sleep patterns is very much prevalent. The international classification of sleep disorders distinguishes more than 80 different disorders. Among these problems with falling asleep or daytime sleepiness affect approx. 35-40% of the U.S. adult population annually and this account a significant cause for morbidity and mortality. Sleep disorders and their management are often ignored by the society and this negligence of consequences and treatments of sleep disorders have made this group a serious health concern.

In Ayurveda various Aacharya have described Nidra, its types, its abnormalities and various modalities to improve sleep quality and quantity in detail. Modalities like Dincharya, Ratrichrya, Yogasana, Aushdha Vichara, Shirodhara etc. have a great toll in maintenance of normal sleep patterns. Hereby an effort is made to understand normal and abnormal sleep, causes for sleep deprivation, and various treatment modalities according to Ayurveda.

AIMS AND OBJECTIVE

- To study Nidranash, its causes and management.
- To study physiological effects of Nidra

MATERIAL AND METHODS

Hereby various information regarding Nidra, Nidranash, Hetu (causes) and management of Nidranash has been collected from various classical texts, Journals and internet sources. Discussion and conclusion are drawn on the basis of the compiled information.

DISCUSSION

Nidra

In Ayurveda Nidra or sleep is defined as the state of a person when its mind and all the Indriya (both Karmendriya and Gyanendriya) get exhausted and then dissociate themselves from their objects, then the individual is said to be slept. That is Nidra is the state of mind when it is unconnected with the sensory and motor organs. Modern medical sciences define sleep as an unconsciousness from which the person can be aroused by sensory or other stimuli. It is a period of rest for the body and mind, during which violation and
consciousness are in partial or complete abeyance and the bodily functions partially suspended. Thus proper sleep helps a person to relax and renovate both mentally and physically. Appropriately observed sleep bestows one with Sukha(happiness), Pushti(nourishment), Bala (strength), Vrishata (sexual vigour/virility), Gyana (knowledge/intellect), and Jeevitam (life) whereas inappropriately observed sleep renounce one from all these and is cause for Dukha(misery), Karsha(impotence), Abala (weakness), Klivta(impotence), Agyan(ignorance) and Mrityu (death). According to Ayurveda cause for sleep is said to be the predominance of Kapha and Tama Dosha. Sleep which ensues by the very nature of night (Ratriswabhavprabhava) is the normal (Prakrita) sleep.

NORMAL SLEEP REQUIREMENT
Sleep requirements vary slightly from person to person, most healthy adults need between seven and a half to nine hours of sleep per night to function at their best. Children and teens need even more. And despite the notion that our sleep needs decrease with age, older people still need at least seven and a half to eight hours of sleep. With the quantity, quality sleep is of much greater importance. Normal sleep consists of two types of sleep: NREM and REM sleep.

REM or rapid eye movement sleep includes rapid eye movement and dreaming, breathing shallows, and heart rate and blood pressure heart rate rises. It occurs after 70 to 90 minutes after falling asleep. While NREM or non-rapid eye movement sleep includes 3 or 4 stages ranging from light to deep sleep.

- **Stage 1** sleep lasts for about 5 minutes. In this stage of transition to sleep eyes move slowly under the eyelids, muscle activity slows down, and one can easily awakened.
- **Stage 2** lasts for 10 to 25 minutes. It is the stage of light sleep in which eye movement stops, heart rate slows, and body temperature decreases.
- **Stage 3** is the deep sleep stage. From this stage it is difficult to awaken, and if awakened one feel disoriented and groggy for few minutes. In this stage brain waves are extremely slow, blood flows away from the brain and towards the muscles, restoring physical activity.

For normal restoration of body’s function and mental relaxation 4-6 cycles of REM and non REM are required.

**NIDRANASHA OR ANIDRA**
Nidranasha or Anidrais the condition characterised by difficulty in initiating or maintaining proper sleep or feeling of tiredness or exhaustion in the morning or non-restorative sleep that is agitated light or poor quality sleep. Diagnostic and Statistical Manual of Mental Disorders has categorised four categories of sleep disorders, primary sleep disorders including dyssomnias and parasomnias; sleep disorders related to another mental disorder including insomnia and hypersomnia related to another mental disorder; and other sleep disorders including sleep disorders due to a general medical condition or a substance induced sleep disorder.\textsuperscript{[13]}

**CAUSES OF NIDRANASHA**

Vata Vridh\textsuperscript{i} and Kapha Kshya are responsible for Nidranasha. Various causative factors for Nidranash are categorised in Table no. 1.

<table>
<thead>
<tr>
<th>Table no. 1 CAUSATIVE FACTORS FOR NIDRANASHA</th>
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</thead>
<tbody>
<tr>
<td>1. AharajHetu</td>
</tr>
<tr>
<td>2. ViharajHetu</td>
</tr>
<tr>
<td>3. MansikaHetu</td>
</tr>
<tr>
<td>4. Therapeutic procedures</td>
</tr>
<tr>
<td>5. DoshajHetu</td>
</tr>
<tr>
<td>6. KalajHetu</td>
</tr>
<tr>
<td>7. Prakriti</td>
</tr>
<tr>
<td>8. VikarajHetu</td>
</tr>
<tr>
<td>9. Aghataj\textsuperscript{[17]}, Injury</td>
</tr>
</tbody>
</table>

Various causative factors described by Aacharya for Nidranasha are mainly Vata proliferating factors. Ruksha Anna like Yava is having Vata Prakopaka properties likewise fasting, hunger and thirst also increase Vata Dosha and cause Nidranasha. Karya (indulgence in work) causes one’s Karmendriya and Gyanendriya occupied in their objects and until the Indriya detach from their objects one can’t sleep. Also the people who work at night and shift workers usually face conditions like insomnia, poor sleep quality and day time sleepiness.\textsuperscript{[17]}

Various Mansika Hetu like Chinta, Bhaya, Utkantha etc also cause active state of mind by increasing Rajoguna and hence cause difficulty in getting proper sleep or sleeplessness. All these Mansika Hetu can lead to conditions like stress and anxiety. In response to exposure to stress and anxiety body releases various hormones like serotonin which is responsible for feeling of well-being. Research at Salisbury University suggests that the repeated release of
stress hormones produces hyperactivity in the hypothalamic-pituitary-adrenal (HPA) system and disrupts normal levels of the brain chemical serotonin.\cite{18} Serotonin is a precursor for the hormone melatonin which is responsible for normal circadian rhythm. Hence conditions of stress and anxiety disturb the normal sleep cycle influencing quality and quantity of sleep.

*Kala* is also an important factor for sleep. *Balavastha* (infantile age) is the *Kapha* dominating stage hence infants or children sleep for long duration. And as one get aged duration of sleep decreases. In *Vriddavastha* (old age) sleep quantity further decreases because *Vridhavastha* (old age) is a stage of *Vata* dominance and diminished *Kapha*. And also with age growth hormone and melatonin secretion decrease which result in decrease in slow wave sleep or deep sleep.\cite{19} In most cases, such sleep changes are normal and don't indicate a sleep problem.

*Vyadhi* (diseased condition) and *Aaghata* (trauma or accident) also affects sleep and can cause *Nidranasha*. *Vatavyadhi* like *Sandhivata* (osteoarthritis), *Kampavata* (parkinson’s disease), etc are associated with *Nidranasha*. Traumatic conditions are usually painful and pain or *Shula* is always due to *Vata*. Hence these conditions are associated with *Nidranasha*.

**SIGNS AND SYMPTOMS OF NIDRANASHA**

*Nidranasha* is described in various contexts as a symptom of disease, as a disease and sometimes as a complication of disease. Various signs and symptoms of *Nidranasha* are *Angmarda* (bodyache), *Shirogaurav* (heavy headedness), *Jrimba* (yawning), *Jadya* (stiffness), *Bhrama* (vertigo or dizziness), *Apakti* (indigestion), *Tandra*, *Moha* (confusion), *Nayan Srava* (watering eye) and various diseases due to *Vata Dosha*.\cite{20} as per Aachrya Charaka improper sleep is a cause for *Dukha*, *Karshya*, *Abala*, *Klivta*, *Agyana* and *Mrityu*.

**TREATMENT FOR NIDRANASHA**

In Ayurveda classics treatment of *Nidranasha* is described in detail. Diet modification, various therapeutic procedures and medicines are described for the treatment of *Nidranasha*.

1) **Diet modification**

Dietary regimen prescribed for the treatment of *Nidranasha* includes consumption of milk (specially buffalo), *Ikshu Rasa* (sugarcane juice), *Mamsa Rasa* (flesh and soup) of aquatic and domestic animals, *Madya* (alcohol), *Shali Anna*, *Dadhi* (curd), *Sneha Dravya*,*Urad*
(black gram), *Kilata* (cheese), *Madhu* (honey), *Guda* (jaggery) etc. Their properties are represented in table no. 2.

**TABLE NO. 2 PROPERTIES OF VARIOUS AHAR DRAVYA**

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Ahardravya</th>
<th>Rasa</th>
<th>Guna</th>
<th>Virya</th>
<th>Vipaka</th>
<th>Dosha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Milk (buffalo)</td>
<td>Madhur</td>
<td>Guru, Snigdha</td>
<td>Sheet</td>
<td>Madhur</td>
<td>Kapha Vriddhi, Vatapitta Kshya</td>
</tr>
<tr>
<td>2.</td>
<td>Ikshu Rasa</td>
<td>Madhur</td>
<td>Guru, Snigdha</td>
<td>Sheet</td>
<td>Madhur</td>
<td>Kapha Vriddhi</td>
</tr>
<tr>
<td>3.</td>
<td>Madya</td>
<td>Lavana Rahit Panchrasa</td>
<td>Sar, Tikshan, Ushna</td>
<td>Ushna</td>
<td>Amla</td>
<td>Vata Kapha Kshya</td>
</tr>
<tr>
<td>4.</td>
<td>Shali Anna</td>
<td>Madhur</td>
<td>Laghu, Snigdha</td>
<td>Sheet</td>
<td>Madhur</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Dadhi (curd)</td>
<td>Amla</td>
<td>Guru, Snigdha</td>
<td>Ushna</td>
<td>Madhur</td>
<td>Kapha Vriddhi</td>
</tr>
<tr>
<td>6.</td>
<td>Urad (black gram)</td>
<td>Madhur</td>
<td>Snigdha, Sar</td>
<td>Ushna</td>
<td>Madhur</td>
<td>Kapha Vriddhi</td>
</tr>
<tr>
<td>7.</td>
<td>Kilata</td>
<td>Madhur</td>
<td></td>
<td></td>
<td>Vata Kshya</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Guda</td>
<td>Madhur</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Madhu</td>
<td>Kasaya, Madhur</td>
<td>Ruksha, Yogahi</td>
<td>Ushna</td>
<td>Madhur</td>
<td>Vata Vriddhi</td>
</tr>
</tbody>
</table>

These *Dravya* have mainly *Vatashamak* properties as per their *Rasa*, *Guna*, *Virya* and *Vipaka*. Among these *Dravya* described specially buffalo milk, *Madya*, and *Kilata* are said to have property of *Nidrajanan*. *Dravya* like black gram, curd (especially buffalo), jaggery, *Anupa Mamsa* have Madhur Rasa, Madhur Vipaka, Snigdha and Guru Guna; and by virtue of these *Guna* these *Dravya* are *Kapha Vriddhikar* and *Vata Shamak*. Hence by alleviating *Vata Dosha* these *Dravya* help in treatment of *Nidranasha*.

2) Therapeutic procedures

Various procedures like *Snana* (bathing), *Abhyanga* (massage), *Utsadana*, *Tarpana*, *Lepa* for face and head, *Samvahan*, and *Murdhni Taila*, *Shiro Dhara* are also described for the management of *Nidranasha*. Properties of various procedures are described in Table no. 3.

**TABLE NO. 3 PROPERTIES OF VARIOUS PROCEDURES**

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Procedure</th>
<th>Karma (Actions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Abhyanga[33]</td>
<td><em>Vata Nashak</em>, <em>Shramhar</em>, <em>NidraKar</em> (sleep inducing)</td>
</tr>
<tr>
<td>3.</td>
<td>Samvahan[34]</td>
<td><em>Sukhakar</em>, <em>Unmardan Har</em> (alleviates wrenches)</td>
</tr>
</tbody>
</table>

All these procedures cause relaxation of body by relieving physical stress, easing wrenches or pains, comforting various motor senses and by making body well founded and stable. These
procedures are also helpful for calmness of mind and senses. These procedures also moderate *Vata Dosha*. Due to all these properties these are helpful for improving *Nidranasha*.

3) Shirodhara

*Shirodhara* is described as a type of *Murdhni Taila* by Aacharya Sharandhar. Shirodhara acts in many ways to improve *Nidranasha*. It stimulates pineal gland and crown chakra and relieves stress, anxiety and hence insomnia through natural serotonin, dopamine and melatonin release. It helps in maintaining *Vata Dosha*. Hence by pacifying *Vata Dosha*, and decreasing stress and anxiety *Shirodhara* not only helps in relieving insomnia but also improves sleep patterns.\(^{[38]}\)

4) Yoga and meditation

Yoga and meditation are ancient culture of Indian heritage which are claimed to bestow the practitioner with ideal physical, mental, intellectual, and spiritual health. Regular yogic practices have been shown to cause profound improvement in cardiorespiratory, thermoregulatory body flexibility, and psychological functions such as mental performance, improvement of memory, and creation of a sense of well-being. Yogic practices have been also found to be most useful in alleviating stress-induced disorders such as insomnia, anxiety, depression, hypertension, bronchial asthma etc. Yoga practices reduce the impact of exaggerated stress response and hence helpful in both anxiety and depression and acts mainly via down-regulating the HPA axis.\(^{[39]}\) Transient episodes of sleeplessness disrupt one’s circadian rhythm. Melatonin secreted by pineal gland is said to be responsible for maintenance of normal circadian rhythm and levels of melatonin are significantly low in depressed and insomniac patients.\(^{[40]}\) *Yogasana* and *Pranayama* practice increase the melatonin levels in blood either by increasing production of melatonin and its precursor serotonin or by decreasing its clearance.\(^{[41]}\)

Thus regular practice of yoga and meditation help in improving *Nidranasha*.

With all these dietary modification, therapeutic procedures, *Shirodhara* and *Yoga* practices; maintenance of proper bed, good music and pleasant smell are also said helpful for inducing sleep.\(^{[23]}\) Various researches suggest that lavender scent help for calmness of mind and body instantly and is helpful in treatment of insomnia. And pine scent is helpful in reducing stress and anxiety.\(^{[42]}\) Internal administration of various herbs like *Sarpagandha*, *Pippalimula* and *Vacha* etc. is also helpful for inducing sleep.
BENEFITS OF NIDRA/SLEEP
Proper sleep is very important for the well-being and appropriate functioning of various physiological processes. Aachrya Charaka has said that happiness, misery, nourishment, emaciation, strength, weakness, virility, sterility, knowledge, ignorance, life and death – all these occur depending on proper or improper sleep. Importance of sleep is such that even mild sleep restriction over a few days can degrade cognitive and physical performance, overall productivity and health of a person. Prolonged sleeplessness can even cause a person to collapse and death. Also Aacharya have described that sleeplessness for more than 3 and half days become incurable. According to Sushruta Samhita, a good sleep enjoyed at proper time and for proper period, tends to improve the growth, strength, vigour and complexion of the body. It increases the sense of well-being by freshening the body and mind and also restores the natural equilibrium among different body tissues. So much so that the scope and importance of good sleep has been equated with the soundness of health enjoyed by a person. There is no physiological system in the body which doesn’t get the salutary effect of sound and soothing sleep. Untimely and excessive sleep takes away both happiness and longevity. The same sleep, if properly enjoyed brings happiness and longevity in human beings as real knowledge brings about spiritual power in a Yogi.

CONCLUSION
Properly observed Sleep or Nidra along with Ahara and Brahmcharya is of utmost importance for maintaining health and longevity. Due to change in life style, working in shifts, long term stress and anxiety the prevalence of sleep related disorders especially sleeplessness or Nidranasha has increased. Altered sleep results in compromised physical, mental, emotional and social health. Hence a proper concern should be given for management of sleep related disorders. Main cause for Nidranasha is Vata Dosha Vridhi. Various measures described in Ayurveda like diet modification, Dincharya and Ratricharya, various therapeutic procedures like Abhyanga, Shirodhara, Yogasana improve sleep quality and quantity and regulate sleep cycle.

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