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Nidranasha (Insomnia) Causes, Consequences & Management an *Ayurvedic* Perspective

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ABSTRACT

Nidranasha is a term of *Ayurveda* used for loss of Sleep. *Ayurveda* mentioned three important facts to keep a person in healthy status as *Aahara* (diet), *Nidra* (Sleep) & *Bramhacharya* (Celibacy). Out of which *Nidra* (Sleep) is a state which refills our power of activity which we lose in daily routine. Due to loss of sleep person suffers too many problems related with health. *Ayurveda* explained many reasons for loss of sleep as like work, age, diseased conditions, constitution and some *Dosha* like *Vata* & *Pitta*. These factors directly affect on the sleep and causes loss of sleep (*Nidranasha*). According to modern scientific view, loss of sleep has many reasons as like illness, stress, elder age, pain, mental illness etc. *Ayurveda* prescribes several herbs in single or compound form to overcome the situation. Article provides through review of causes, consequences and management of insomnia with the perspective of *Ayurveda*.

Keywords: *Ayurveda*, *Nidranash*, *Anidra*, *Insomnia*, Sleep disorders

1. Introduction

Humans have to suffer many problems related with health in day to day life. To overcome these problems he has to keep his body and mind strong and healthy. *Ayurveda*, the science of life, suggested many *Siddhantas* (principles), which, one has to obey to maintain healthy life. One of the most important principles is the three factors i.e. *Aahar* (diet), *Nidra* (sleep) and *Bramhacharya* (celibacy), are mentioned as three *Upastambha* (sub-supporting pillars) executing an important role in maintaining the health^[1]. *Aahara* (Diet) is the first which directly affects the life by causing various problems with health & mind. Changes in diet habit, changes in the timing of diet etc. may cause problems related with digestive tract^[2]. *Bramhachary* (Celibacy) is a pillar which also affects on the healthy status of the body. It means controlled sex, if done at proper age and at proper time it preserves the body or it is harmful if done in a wrong or non-scientific way^[3]. *Nidra* (Sleep) also has its important role in healthy life. By getting a good & sufficient sleep one can get ready for new work. A sound sleep in the night regenerates the power of the mind and body to accept new challenges, maintains health, proficiency and emotional well-being^[4]. In daily routine a person can't concentrate on sufficient and in time sleep, so he is suffering from many problems related with mind & body.

Researches show that improper sleep can increase risk of developing obesity, diabetes, high blood pressure or heart disease^[5]. A survey conducted by WHO in India reveals that about 35 percent of respondents have reported mild to extreme difficulty associated with sleep^[6]. *Ayurveda* has enlightened about this fact centuries ago and mentioned various causes, symptoms and remedies for *Nidranaasha* (insomnia). By observing this one can get rid of the problems arising from the loss of sleep. On the other hand conventional medical science is still lacking definite treatment for insomnia. It frequently prescribes sedative and hypnotic like benzodiazepines drugs as a therapy of insomnia.

Sleep is naturally recurring state characterized by reduced or absent consciousness. According to Ayurveda, *Nidra* (sleep) arises when person gets rid of his duties & his mind get tired due to heavy work [7].

1.1 Importance of *Nidra* (Sleep) [8]

While describing the importance of *Nidra* Ayurveda mentioned that,

- It creates Happiness in life.
- It maintains the consistency of the body.
- It increases the strength.
- It increases the power of brain & mind.
- Lastly it prevents the life.

In spite of these benefits some persons can't achieve their normal pattern of sleep as mentioned by Ayurveda, due to some reasons. These symptoms may lead to *Nidranasha* (Insomnia). Handful bunch of population in the society is suffering from this ailment. Numerous factors such as mental stress, illness, type of work, age, changing life style and changes in diet etc are responsible for insomnia. Persons suffering from *Nidranasha* or Insomnia may also suffer other medical problems related with mind & body.

2. Definition:

Nidranasha or *Anidra* [9,10,11] (insomnia) is the difficulty in initiating or maintaining sound sleep or waking up early without complete sleep and unable to sleep again, or waking up with a feeling of tiredness and exhaustion. In conventional medical science various are the concepts used to define insomnia. The concept of "unsatisfactory sleep" was developed by the American Medicine Institute in 1979 [12]. According to which insomnia corresponds to the complaint of insufficient sleep almost every night or by being tired after the usual sleep time [13].

3. Prevalence Rate:

Primary insomnia is estimated to occur in 25% of all chronic insomnia patients [14].

Although there is variations in the population studied to determine the estimated prevalence [15,16]

Hence estimates of insomnia prevalence have varied widely, from 10–40% [17-21].

4. Etiology of *Nidranasa* (Insomnia)

The etiological factors of insomnia provided in Ayurveda includes dietary consumption of food which is predominant in dry property [22] barley [23] excessive exercise and fasting [24], intercourse, hunger and uncomfortable bed [25]. Therapeutic causes such as excessive induced *Vamana* (emesis), *Virechana* (purgation), *Nasya* (nasal medications), *Raktamokshana* (bloodletting), *Dhooma* (medicated smoke), [22] *Swedana* (sudation), *Anjana* (collyrium), can also cause *Nidranasha*. Psychological causes- fear, anxiety, anger, [24] Apart from these excessive joy, sorrow, [23] greed, [26] agitation [27], are also responsible for insomnia.

According to *Charakacharya*, following factors are responsible for the disturbance in the sleep [28].

4.1 *Karya* - Work

Work done at night time or the work which is heavy in nature, can cause disturbances in the sleep. The people who work in night become more prone to the symptoms of loss of sleep. Hence Ayurveda prescribes not to work in the night and not to sleep in the daytime.

4.2 *Kaal* – Time/Age

The second factor *Kaal* is also important for the disturbance in the sleep. It is related with our life and affects directly on our sleep.

In the infantile age, child sleeps most of the time of the day and in night, but as age increases the actual duration of sleep decreases. It happens because of influence of *Kapha* Dosha, which causes more sleep in the children. In middle age the duration of sleep remains average ranging from 6 to 8 hours. Where as in old age, because of predominance of *Vata Dosa* and diminished *Kapha*, the duration of sleep further decreases. Old age usually causes sleeplessness.

4.3 *Vikara* – Diseases

Some diseases may cause the disturbances in the sleep. According to Ayurveda particularly the diseases of *Vataja* origin can cause insomnia. Increased *Vata Dosa* is ultimately responsible for the decrease in *Kapha*, resulting in loss of sleep.

4.4 *Prakruti* – Constitution

According to Ayurveda there are three basic elements, which build up the life of human being. These three factors decide the constitution of the man while birth. These three elements form 7 types of constitution. Out of these seven, the person having only *Vataja Prakruti* (constitution) shows shorter duration of sleep than persons with any other constitution. Apart from this *Vata Dosha* causes loss of sleep by virtue of its Anti-*Kapha* properties.

Acharya Susruta mentioned reasons for loss of sleep as follows [29]

- Due to increased condition of *Vayu*
- Due to increased condition of *Pitta*
- Due to the mental harassment or increased stage of mind
- Due the weakness
- Due to accidents, hurt or any injury

Mind also plays an important role in the loss of sleep. *Tamo Guna* of mind helps in creating sleep. It is associated with *Kapha Dosha* and helps in generation of sleep. When our mind gets disturbed due to any thought, it increases *Rajo Guna* which closely resembles with the *Vata Dosha*. Hence increase in *Rajo Guna* ultimately increases *Vata Dosha* & diminishes the effect of *Tamo Guna* ultimately landing the person in insomnia.

Weakness may also cause the loss of sleep. According to Ayurveda weakness generally occurs due to the dominated *Vata Dosha*. Apart from this *Ruksha Guna* (dry property) of *Vata Dosha* causes weakness in the body.

Accident, hurt or injury may also cause loss of sleep or disturbance in the sleep. In Ayurveda this term is referred as "*Abhighataja Vyadhi*". Traumatic injury can cause pain in the body and this discomfort causes disturbance in the sleep. Pain is termed, as *Shula* in Ayurveda and it is a primary symptom of the *Vata Dosha*. Hence increase in *Shula* ultimately causes increase in *Vata Dosha*, which directly affects sleep.

Acharya Vagbhata (Bruhad & Laghu) mentioned these five factors for disturbance in sleep or causing loss of sleep [30] *Acharya Indu* also commented on these causes on *Anidra* [31].

5. Signs and Symptoms

Ayurveda describes *Nidranasha* as a symptom, as a disorder and even sometimes as a complication of certain diseases. Peculiar symptoms arising during *Nidranasha* are yawning, body ache, lethargy, head-ache, giddiness in the head and eyes, apathy, fatigue, indigestion and diseases produced by *Vata Dosha* [32].

Troubled sleep can lead to unpleasantness, emaciation, weakness, impotency, terminating in death^[33].

6. Treatment of Nidranasha in Ayurveda: -

Ayurveda has described treatment protocol of *Nidranasha* in meticulous fashion. It is more or less similar in all classics, considering the involvement of *Doshas*. It directs the rectification of diet, certain procedures in routine with or without single or compound medicine.

Ayurveda indicates consumption of flesh of domestic and aquatic animals, meat of buffalo and buffalo milk^[24] Wheat, black gram,

milk products like curd, ghee are also responsible to alleviate insomnia^[34]. Fruits like grapes, preparations of jaggery and sugar and wine^[35] are also indicated in *Nidranasha*.

Certain procedures like Bath, oil massage especially on the head, perfumes made from flowers and pleasant music is also helpful to induce sleep^[33]. One should keep his/her mind calm and happy, without worry, painful thoughts and greed^[35]. *Abhyanga* (whole body massage) and *Padabhyanga* (foot massage) should also be practiced^[22].

6.1 Herbs and Sleep:

Table1: shows the herbs with proven sedative activity in various researches conducted earlier.

Table 1: Herbs with proven sedative activity

| Sr. No. | Latin Name | Part / Chemical constituent |
|---------|---|---|
| 1 | <i>Acorus calamus</i> Linn ^[36,37] | Asarone and β -asarone, Acorus oil, |
| 2 | <i>Aglaia diepenhorstii</i> Miq ^[37] | Essential oil from the root bark |
| 3 | <i>Alstonia scholaris</i> Linn ^[38] | Pricrinine, the major alkaloid of the flowers |
| 4 | <i>Anacardium occidentale</i> Linn ^[38] | Essential oil of the plant |
| 5 | <i>Areca catechu</i> Linn ^[39, 40] | Arecoline |
| 6 | <i>Artabotrys hexapetalus</i> ^[39] | Essential oil from the laves |
| 7 | <i>Artemisia capillaries</i> ^[39] | Scoparone |
| 8 | <i>Azadirachta indica</i> ^[38,36] | Dried material and filter paper material |
| 9 | <i>Bacopa monnieri</i> Linn ^[41] | Alcoholic extract Plant extract |
| 10 | <i>Boswellia serrata</i> Roxb ^[36, 41] | Non phenolic fraction of gum resin |
| 11 | <i>Calophyllum inophyllum</i> Linn ^[42] | Xanthenes |
| 12 | <i>Cannabis sativa</i> Linn ^[43] | Crude ethanolic and petroleum ether fractions |
| 13 | <i>Canscora decussata</i> Roxb ^[42] | Mangiferin |
| 14 | <i>Catharanthus roseus</i> Linn ^[42] | Alkaloids & chloroform fraction of root & bark |
| 15 | <i>Carvia callosa</i> (Nees) Bremek ^[42] | Ethanolic extract of the plant |
| 16 | <i>Cassia fistula</i> Linn ^[42] | Methanol extract of the seeds |
| 17 | <i>Cedrus deodara</i> Roxb ^[42] | Wood essential oil |
| 18 | <i>Celastrus paniculatus</i> Willd ^[37, 42] | Crude seed oil, brahmoside and brahminoside |
| 19 | <i>Centella asiatica</i> Linn ^[44] | Alcoholic extract |
| 20 | <i>Cissus repens</i> Lamk ^[45] | Ethanolic extract of the plan |
| 21 | <i>Clerodendrum phlomidis</i> Linn ^[46] | Methanolic extract of leaves |
| 22 | <i>Convolvulus prostrates</i> Forssk ^[41,46] | Alcoholic extracts of the whole plant |
| 23 | <i>Clitoria ternatea</i> Linn ^[46] | Alcoholic extract stem, flowers, leaves & fruit |
| 23 | <i>Cymbopogon citratus</i> Stapf ^[47] | Essential oil from the leaves |
| 24 | <i>Cyperus rotundus</i> Linn ^[38,47] | Alcoholic extract of tubers |
| 25 | <i>Derris indica</i> Lamk ^[48] | Pongamol |
| 26 | <i>Delphinium denudatum</i> Wall ^[48] | Aqueous extract of root |
| 27 | <i>Diploknema butyracea</i> Roxb ^[48] | Ethanolic extract of the seeds |
| 28 | <i>Erithrina indica</i> Lam ^[49] | Methanolic extract of the leaves |
| 29 | <i>Nardostachys jatamansi</i> DC ^[41,50,51] | Jatamansone, sesquiterpene, valeranone |
| 30 | <i>Nelumbo nucifera</i> Gaertn ^[51] | Methanolic extract of rhizomes |
| 31 | <i>Valeriana Jatamansi</i> Jones ^[51,52] | Linarin, 6-methylapigenin, and hesperidin |
| 32 | <i>Withania somnifera</i> Linn ^[38,50] | Ethanolic extract of roots |
| 33 | <i>Papaver somniferum</i> Linn ^[53,54] | Morphine |
| 34 | <i>Piper nigrum</i> Linn ^[55, 56] | Ethanolic extract |
| 35 | <i>Myristica fragrans</i> Houtt ^[39,57] | Acetone soluble part of n-hexane extract |
| 36 | <i>Nyctanthes arbortristis</i> Linn ^[39,58] | Hot flower infusion |
| 37 | <i>Rauwolfia serpentine</i> ^[41,59,60] | Reserpine, Rescinamine |

7. Discussion:

Anidra or *Nidranasha* is enumerated as one of the *Nanatmaja Vikara* of *Vata Dosha*. It is also included as one of the symptoms in *Vata & Pitta Dosha Vriddhi Lakshanas* and certain diseases.

Kaphadosha, *Tamas*, *Hridaya* and *Samjnavaha Srotas* are responsible for the induction of sleep.

There is relation between the age and duration of sleep. Along with this the influence of the *Tridosha* can also disturb the sleep pattern. Increased condition of *Vata Dosa* can cause loss of sleep. We have discussed earlier about the loss of sleep due to the *Vata Dosa*.

Increased condition of *Pitta Dosa* in relation to its *Ushna & Tikshna guna* (properties) is also responsible for decrease in the sleep.

Kshaya (weakness or loss of power) can also cause loss of sleep as it is responsible for the deprivation of *Dhatu*s from their normal function. This condition may bring the loss of sleep.

7.1 Benefits of Sleep –

Sleep restores energy to the body and provides relaxation particularly to the nervous system. It helps in building and restoring the control of the brain and nervous system over the muscles glands and other body systems.

If person remains awake for 60 to 114 hours one can observe objective changes such as disturbed equilibrium, neuromuscular fatigue etc. and subjective changes like mental concentration difficulty and inaccurate judgments. Threshold of pain is also lowered. If sleeplessness is very much prolonged, it can also cause collapse & death^[61].

People deprived of sleep lose energy and become quick tempered. After two days without sleep, a person finds that, lengthy concentration becomes difficult. Through pure determination person may perform tasks well for short periods but is easily distracted. Many mistakes are made especially in routine tasks. Every sleepless person experiences a period of dozing off for a few seconds or more. The person falls completely asleep unless kept active continuously. According to Ayurveda one can consume half the sleep in the morning before meal; to one they missed in the night to nullify the effect of *Nidranasha* (Insomnia)^[62].

Hormonal changes also affect sleep^[63]. Menopausal women often experiences sleeping problem overstressed^[64]. A study of relationship between amount of sleep and long term mortality risk published by Prof. Danniell Kripke of the university of California suggested that people who slept fewer than 6 hours a night are more than 10 hours had significantly increased risk of death in a five year. Follow up period contributory factors were not discounted^[65]. Hence it indicates average 7 to 8 hours sleep was the healthy option. Constantly changing sleep patterns were also shown to be a health risk. According to Hume the effect of unscheduled sleep in the afternoon of feel miserable afterwards and the effect can last several hours and be self-perpetuating on a longer-term basis^[66].

People, who go without sleep for more days, have great difficulty in thinking, singing and hearing clearly. Some have periods of hallucinations during which they see the thing that do not really exist. They also confuse daydreams with real life and often lose track of their thoughts in the middle of a sentence while speaking to someone.

Ayurveda indicates psychological respite as key along with *Vataghna* treatment in managing insomnia. Entire management is prescribed in the form of specific procedures, psychiatric treatment, drugs and Diet.

8. Conclusion:

Sleep is one of the basic instincts of life. Health and longevity is conquered by proper sleep. Insomnia is gradually threatening health of an individual, personal and social behavior including occupational life. Hence it has been considered as psychosomatic disorder aggravated by vitiated *Vata-Dosha*. Various measures provided in Ayurveda can certainly help to overcome this situation. Avoiding causative factors is a must to tackle the condition more precisely with administration of herbs in single or compound form, having sedative activity.

9. Author Disclosure Statement

The authors declare that they have no competing interests

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