

Physiology of Nidra (Sleep) W.S.R. to Physical, Mental and Behavioural Change

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Abstract: Ayurveda describes sleep as a basic instinct of life, essential to all living beings. We need it to rejuvenate and reenergize our body, mind, spirit. In Ayurveda, sleep is one of the three pillars of good health, known as Nidra. The main goal of Ayurveda is to keep a healthy person healthy, while also healing ailments in diseased people. To keep healthy life style under the Trayoupastambha “the sub pillars of life”.then theres food (Ahara), and control over sexual energy (Brahmacharya). The classical Ayurvedic text, Ashtanga Hridayam, claims that happiness and unhappiness, nourishment (proper physique)and abnormality, strength and debility, sexual prowess and impotence, knowledge and ignorance, life and death- all depend on sleep. The ancient Ayurvedic classics describes the main three milestones of life is Aahara, Nidra and Brahmacharya & Nidra is one of them; it is very significant for human beings. Nidra is very crucial factor for day to day life. If Nidra is not taken routinely can cause serious diseased condition, which will affect the physical and mental health as well. Lack of Nidra cause various pathological conditions called Anidra (Insomnia). According to Ayurveda, balance of three Doshas leads to healthy state and inbalance between these Doshas in body leads to disease. In present era, lifestyle of a person completely changes they not following Dincharya and Ritucharya which leads to severe diseases. Nidra is most important factor in all of them and vital rhythm plays an important role in Nidra.

Keywords :- Nidra, Sleep, Ayurveda,Vata, Pitta, Kapha, Prakriti

INTRODUCTION

Nidra or sleep is that state of the body and mind where in the sense organs are divorced of the sense objects from their respective senses. The phenomenon is mainly due to klama or fatigue of the body and mind. Vagbhata in his Astang sangraha states that the Nidra is Tamo moola and Tamo mayee (caused by and full of Tamo guna). Since it is mainly an exhausted state

of mind and body it is generally seen in nights. As Vata, Pitta and Kapha are considered three main pillar of the body because they also bears body, as in the same manner Aahara, Nidra and brahmacharya these three are considered as sub pillar of the body. More than half of the life is invariably spent in sleep hence it is not enjoyed properly it may lead to several disturbances and at the same time if it is not properly enjoyed it proves most beneficial to the life. Thus sukha, dukha, pushti, kaarsya, bala, dourbalya, purushatava, klaibyata, gyanana, agnaana, jeeevitha and mrityu are all dependent upon the properly enjoyed sleep. Any anomaly in the sleep whether it has Heenayoga (Insufficient) Atiyoga (Excessive) or Midhya yoga (Irregular), is likely to lead to disease and death. Sleep if properly enjoyed keeps the body healthy and mind sharp and sound. Sleep is a basic human need, important for maintaining healthy status and therefore considered as one of the Trividha Upstambhas. Acharya Charaka says that sleep is dehasithikarini, means just like food, sleep is the factor responsible for existence of living body. According to Acharya Sushruta, Nidra is a state of human body when the sense organs (Indriyas) disconnects themselves from their objects of grasping (Vishaya), and enters a state of trans. Acharya Vagbhata says that Nidra is caused by Tamoguna due to Aavarana of kapha Doshas and is composed of Tamo gunaas well and generally occurs at night. Sleep is also mentioned as adharniyavega, means an urge which should not be controlled. If controlled, may lead to delusion, excessive yawning, malaise, squeezing pain all over the body, drowsiness, lassitude, and heaviness in head and eyes etc. all of these can be resolved with good sleep and mild massage.

MECHANISM OF NIDRA

It is explained under some theories.

TANOGUNA:- Tamas has been held responsible for ignorance, less of consciousness, inattention, and sleep. At night since the Tamasa guna being powerful, it covers the higher psychic centers and manifests the sleep. According to Acharya Sushruta, Chetanasthanam (place of sense) i.e. Hridya get covered by Tamo guna, mind becomes Tamodhika and Indriya becomes inactive and sleep occurs.

KAPHA DOSHA THEORY

Kapha Dosha is supposed to be composed of mostly Tamas guna. Whenever Chetanasthanam get covered

by the accumulation of Tamasa guna, the sensory channels get blocked by the kapha Dosha. When this kapha is over saturated by Tamasa guna, then the sleep occurs.

DEPRESSION

Acharya Charaka propagated this theory, when mind along with the soul get exhausted, or becomes stationary, and the sensory and motor organs also become inactive, then the person goes to sleep.

TYPES OF NIDRA

Types of Nidra in Ayurveda	Acharya Charaka	Acharya Sushruta	Acharya Vagbhata
Swabhavika (natural)	Tamobhava	Vaishnavi	Tamobhava
Aswabhavika (abnormal)	Shleshma samudbhava	Tamasi	Shleshma samudbhava
	Manah sharirshrama sambhava	vaikariki	Manah shrama sambhava
	Aagantuki		Sharira shrama sambhava
	Vyadhyanuvartini		Aagantuki
	Ratri swabhava prabhava		Vyadhyanuvaritini
			Ratri swabhava prabhava

Sr. No.	Types of Nidra	Cause of Nidra
1	Tanobhava nidra	Excess of tamas guna
2	Shleshma samudbhava nidra	Excess of kapha guna
3	Manah sharira shrama sambhava nidra	Physical and mental fatigue
4	Aagantuki nidra	Adventitious
5	Vyadhyanu vartini nidra	Sequelae of diseases
6	Ratri swabhava prabhava nidra	Occurring during night physiological sleep

CONCEPT OF NIDRA

Acharya Charaka stated that individuals sleep when the mind comprising with sensory and motor organs and they dis-associate themselves from their objects. Acharya Sushruta said that fundamental seat of awareness in the body is thought to be the heart. When a men’s heart is engulfed in the deceptive impact of tama, he falls sleep. Sleep is caused by tama, while awakening is brought about by the quality of Satva. The fundamental cause of sleep is swabhava (nature). By some Authours, the habitual time (night), the influence of diseases, mental and physical exhaustion, an increase in kapha, external stimuli., and Tamo guna dominance all contribute to sleep. Acharya remarked

that delight and sorrow, development and wasting, strength and frailty are all aspects of Nidra. The survival and termination of life, as well as virility and impotence, wisdom and ignorance. Are all dependent on sleep. According to Charaka, Nidra is dehasithikarini, which implies that like food, sleep is an element that allows a living organism to exit. In Asthanga , the Manovaha Srotas become accumulated with kapha and mind is devoid of sense organs because of fatigue, when individual falls sleep. According to Yog- Raatanaakar, because of the Agni, which is responsible for appropriate digestion, is located on the left side of the body above Nabhi, it is always recommended to sleep in the left lateral position.

FACTORS AFFECTING THE NIDRA

Quality of sleep varies according to the Deha Prakriti. Persons of kapha Prakriti gets more sleep which is sound also. Apart from Deha Prakriti also influences

the sleep pattern. Persons of Tamasika type of Prakriti can sleep at any hour of the day. Those with Rajasika type of person sleep either daytime or the night time and their sleep is light and disturbed.

NIDRA AND SHAYYA

SR. NO.	TYPE OF SHAYYA	EFFECT OF BODY
1	Comfortable bed	Increase happiness, sexual desire and helps in getting rid of excess of Vata and exhaustion
2	Plank of wood	Increase Vata
3	Ground	Increase Vata, neutralizes Rakta and Pitta, Obesity
4	Bed or ground	Neutralizes Vata and kapha
5	Cot	Neutralizes all three Doshas

SLEEPING POSTURE

SR. NO.	SLEEPING POSITION (HEAD)	EFFECT ON BODY
1	East (Purva)	Improves intellect (Medhavi)
2	West (Paschima)	Mental distress (Manasantapa)
3	North (Uttar)	Death (Mrityu)
4	South (Dakshina)	Long life (Dirghayu)

According to Yog Ratnakara, it is always advised to sleep in left lateral position because Agni lies in the left side of the body above the Nabhi (Umbilicus), which is responsible for the proper digestion.

sleep also depends on Vayo awastha (age) in Balya awastha kapha is predominant so sleep is comparatively more than Yuva awastha. In Vruddhavastha Vata is predominant so they get very less sleep.

NIDRA AND VAYO AVASTHA

SR. NO.	AGE	AMOUNT OF SLEEP
1	NEW BORN	16 TO 18 HOURS/DAY
2	PRE SCHOOL-AGED CHILDREN	11 TO 12 HOURS/DAY
3	SCHOOL AGED CHILDREN	10 HOURS /DAY
4	TEENS	9 TO 10 HOURS/ DAY
5	ADULTS	7 HOURS/ DAY

NIDRA AND DISEASE

Sr. No.	Sleep Pattern	Disease
1	Day sleep	Sthoulya (obesity), Kaphaj Jawar (type of fever due to Kapha), Kaphaj aarsha (type of haemorrhoid due to kapha), Visarpa (Skin disease), Vatarakta (Gout)
2	Sleep in excess	Antahvidradhi (Internal Abcess)
3	Sleeping in day time and keeping awake in night	Shirogas (disease of head), Nijasotha (Oedema)
4	Sleeping with face down	Mukharoga (disease of Mouth)

5	Untimely sleep pattern	Ajirna (Indigestion)
6	Sleeping on uncomfortable bed	Vatavyadhi (DDisease due to Vata Dosha)
7	Comfortable sleep for long time	Prameha (Group of urinary disease), Madhumeha (Diabetes)
8	Staying awake at night	Karshya (Emaciation), Pratishtay (catarrh)

KARMA OF NIDRA AT DIFFERENT DHATU LEVEL

Sr. No.	DHATUS	EFFECT ON BODY
1	Rasa Dhatu	Pushti, Varnaprasadana
2	Rakta Dhatu	Varnaprasadana, Agni Deepti
3	Mamsa Dhatu	Pusti, Bala
4	Meda Dhatu	Attractiveness
5	Asthi Dhatu	Bala
6	Majja Dhatu	Utsaha
7	Sukra Dhatu	Ojasa, Manasasukha

PHYSIOLOGY OF SLEEP ACCORDING TO MODERN

sleep is the natural periodic state of rest for mind and body with closed eyes characterized by partial or complete loss of consciousness. Loss of consciousness leads to decreased response to external stimuli and decreased body movements. Depth of sleep is not constant throughout the sleeping period. It varies in different stages of sleep.

PHYSIOLOGICAL CHANGES DURING SLEEP

during sleep, most of the body functions are reduced to basal level. Following are important changes in the body during sleep:-

PLASMA VOLUME :- plasma volume decreased by about 10% during sleep.

CARDIOVASCULAR SYSTEM :- during sleep, the heart rate reduces. It varies between 45 and 60 beats per minute. Systolic pressure falls to about 90 to 110 mmHg. Lowest level is reached about 4th hour of sleep and remains at this level till a short time before waking up. Then, the pressure commences to rise. If sleep is disturbed by exciting dreams, the pressure is elevated above 130 mm Hg.

RESPIRATORY SYSTEM :- rate and force of respiration are decreased. Respiration becomes irregular and CHEYNE- STROKES type of periodic breathing may develop.

GASTROINTESTINAL TRACT :- salivary secretion decreases during sleep. Gastric secretion is not altered or may be increased slightly. Contraction of empty stomach is more vigorous.

EXCRETORY SYSTEM :- formation of urine decreases and specific gravity of urine increases.

MUSCLE TONE :- tone in all the muscles of body except ocular muscle decreases very much during sleep. It is called sleep paralysis.

BRAIN :- brain is not inactive during sleep. There is a characteristic cycle of brain wave activity during sleep with irregular intervals of dreams.

TYPES OF SLEEP

sleep is of 2 types

RAPID EYE MOVEMENT SLEEP :- IT IS THE TYPE OF SLEEP associated with rapid conjugate movements of the eyeballs, which occurs frequently. Though the eyeballs move, the sleep is deep. So, it is also called para doxical sleep. It occupies about 20% to 30% of sleeping period. Functionally, REM sleep is very important because it plays role in consolidation of memory. Dreams occur during this period.

NON RAPID EYE MOVEMENT SLEEP :- it is the type of sleep-without the movement of eyeballs. It is also called slow wave sleep. Dreams do not occur in

this type of sleep and it occupies about 70% to 80% of total sleeping period. Non rapid eye movement sleep is followed by rapid eye movement sleep.

CHARACTERISTICS	REM SLEEP	NON- REM SLEEP
Rapid eye movement	Present	Absent
Dreams	Present	Absent
Muscle twitching	Present	Absent
Heart rate	fluctuating	Stable
Blood pressure	Fluctuating	Stable
Respiration	Fluctuating	Stable
Body temperature	Fluctuating	Stable
neurotransmitter	Noradrenaline	Serotonin

MECHANISM OF SLEEP

sleep occur due to the activity of some sleep- inducing centers in brain. Stimulation of these centers induces sleep. Damage of sleep centers results in sleeplessness or persistent wakefulness called insomnia. Complex pathways between the reticular formation of brain stem, diencephalon and cerebral cortex are involved in the onset and maintenance of sleep, however two center which induce sleep are located in brain stem are raphe nucleus is located in the lower pons and medulla. Activation of this nucleus results in non rapid eye movement. It is due to release of serotonin by the nerves fibers arising from this nucleus. Role of locus ceruleus of pons is the activation of this centre and produces rapid eye movement sleep. Noradrenaline released by the nerve fibers arising from locus ceruleus induces REM sleep.

DISCUSSION

Sleep is one of the most important factor of life. our physical, mental and spiritual attributes of life depends on sleep. Sleep is not only a daily routine process but instead it occupies a major area for the maintenance of happy and healthy life. Now a days people do not get enough sleep because of their busy life style and work load. Which interfere with their sleep. A person becomes unhealthy if they don't get normal sleep. In Ayurveda texts Vatavidhi is associated with Nidranasha, loss of strength, loss of sensory functions and proper Nidra is the proportion of Vata and Kapha. Sleep has a positive impact over digestion, metabolism and nourishment and health.

CONCLUSION

the main aim of this article is to overview the physiology of Nidra w.s.r. to physical, mental and behavioral changes. The condition of sleep is one in which the body and mind are both at rest. We can encourage the sleep state, timing, proper sleep benefits, types of sleep, in turn , enhance health buy emphasizing a suitable routine and timings for the natural cycle of the day. Mental, health, quality of life and safety can all be enhanced by getting adequate , good sleep at the appropriate times. Sleep is one of the basic instinct of life. Health and longevity are conquered by proper sleep. According to Ayurveda , happiness and unhappiness, nourishment and abnormalities, strength and debility, sexual process and impotence, knowledge and ignorance life and death-all depends on sleep. Good quantity and quality of sleep is necessary in disconnecting the tired mind from senses and also regarded as one of the most powerful tool to combat minor disease and imbalance. The most important function of sleep is enhancement of ojas- the master co-coordinator between mind, body, soul. Thus by means of proper sleep Dhatusamya, nourishment of body, increase of strength and the stability of life are achieved.

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