INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACY AND CHEMISTRY

Available online at www.ijrpc.com

Review Article

SLEEP PARALYSIS

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ABSTRACT

Sleep paralysis is disease condition in which someone lying supine position, about drop off to sleep or just upon awaking from sleep realize that she/he unable to speak or walk or cry out this may lost a few seconds or moments, occupationally longer. People always feel that they have been threatening by someone or evil, occasionally patients report this type of problems. And they feel that evil is following, sitting behind them going to be attack is the condition they feel, in this article reviewed about the causes of sleep paralysis and what is sleep, few sleep disorders are discussed here.

Keywords: sleep paralysis. Narcolepsy, Hypnopompic sleeps paralysis, Hallucination.

INTRODUCTION

Sleep paralysis[1] is now being studied as an explanation for terrors in the night, which have been experienced by people across all cultures and for thousands of years. If one is looking for a purely physical and scientific explanation for these terrible nightmares, this one works quite well. For some it will offer relief but for others, doubt. The word night "mare"[2] has been derived from the word incubus. In Greek it was ephialtes, in Latin incubus, in German mar/mare, in Old English maître, Old Norse mare, Old Irish mar/mor, and all mean "one who leaps on, oppresses or crushes". The Old Hag attack[3] is most closely associated with extreme pressure on the chest while sleeping on your back. People may also feel like they are being choked or even bitten. as shown in

Fig. 1: Problem sleepiness has many problems

Definition

Sleep paralysis is paralysis associated with sleep that may occur in healthy persons or may be associated with narcolepsy, cataplexy, and hypnologic hallucinations. The pathophysiology of this condition is closely related to the normal hypotonia that occurs during REM sleep[3]. When considered to be a disease, isolated sleep paralysis is classified as MeSH D020188[4]. Some evidence suggests that it can also, in some cases, be a symptom of migraine[5,6].

1. General introduction about sleep

a) Lifestyle factors

Include not getting enough sleep, having an irregular sleep schedule, and using alcohol or certain medications[6]. Of the more than 70 known sleep disorders, the most common are obstructive sleep apnea[7], insomnia[8], narcolepsy, and restless legs syndrome[9].

b) Misconceptions about sleep

Many students have doubts that what causes to sleep. What occurs during sleep? How are body will respond if lack of sleep. What functions sleep fulfills. Sleep, sleep disorders, biological rhythms, should correct the following misconceptions.

1) About sleep

a. Sleep is the rest to the body and shutdown the Brain.

b. Getting one hour late sleep will not effect the morning.
c. The body will adjust the different time schedule.
d. People need less sleep as they grow older.
e. A good time sleep avoids the morning sleepiness.

2) Major concepts related to biology of sleep

Research provides providing scientific foundations for understanding sleep Physiological, rhythms & implications for our health. Research clarifying a number of issues.

2.1. sleep is dynamic process. Sleep is not passive events, but rather an active process involving characteristic physiological changes in the organs of the body. Scientific study sleeps by measuring the electrical changes in the brain using Electro Encephalo Grams (EEGs).typically; electrodes are placed on the scalp in a symmetrical pattern. The electrodes measures very small voltage that scientists think are caused by synchronized activity in very large number of synapses(nerve connections) in the brain's outer layer(cerebral cortex). EEG data are responsible by cure that is classified according to their frequencies. The wavy lines of the EEG are called brain waves. An Electro Occulo Gram (EOG)[10] uses electrodes on the skin near the eye to measure changes in voltage as the rotates in its socket. Scientists also measure the electrical activity associated with active measures the electrical activity associated with active muscle by using Electro Myocardial Grams (EMGs). In this technique, electrodes are placed on the skin overlaying dramatic changes during the various stages of sleep. In practice, EEGs, EOGs, EMGs are recorded simultaneously.

Studying these events has led to the identifications of two basics stages, or states, of sleep: non-rapid eye moments (NREM) and rapid eye movements (REM). Sleep is a highly organized sequence of events that follows a regular, cyclic program each night. Thus, the EEG, EMG, and EOG patterns changes in predictable ways several times during a single sleep period. NREM sleep is divided into four stages according to the amplitude and frequency of brain wave activity. The general, the EEG pattern of NERM sleep is slower, often more regular, and usually of higher voltage than that of wakefulness. as sleep gets deeper, the brain waves get slower and have greater amplitude. NREM stage 1 is very light sleep gets stages 2 has special brain waves called sleep spindle and K complex; NREM stages 3 and 4 show increasing more high voltage slower wave. In NERM stage 4, it is extremely hard to be awakening by external stimuli. The muscle activity of NERM sleep is low, but muscle retains their ability to function. Eye movements normally do not occur during NREM sleep, except for very slow eye movements, usually at the beginning. The body's general physiology during these stages in fairly similar to the wake state. In this module, in Fig 2 shows the characteristics of EEG,EOG,EMG,we will emphasize NREM sleep in general and not its individual sub stages.

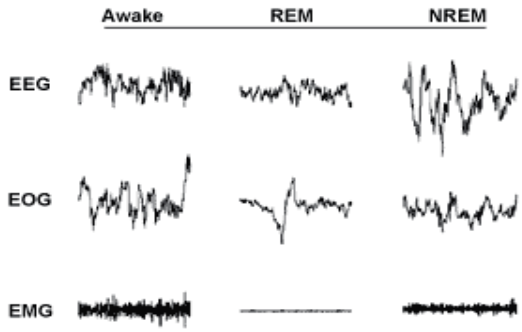


Fig. 2: Characteristic of EEG, EOG, EMG

2.2. Sleep and brain

Sleep is activity generated in specific brain regions. These sites have been identified through studies involving electrical stimulation, damage to specific brain regions, or other techniques that identify sleep-including sites. The basal forebrain, including the hypothalamus, is an important region for controlling NREM sleep and may be the region keeping track of how long we have been awake and how large our sleep debt is. The brainstem region known as the Pons is critical for initiating REM sleep[11] as depicted in figure 3.

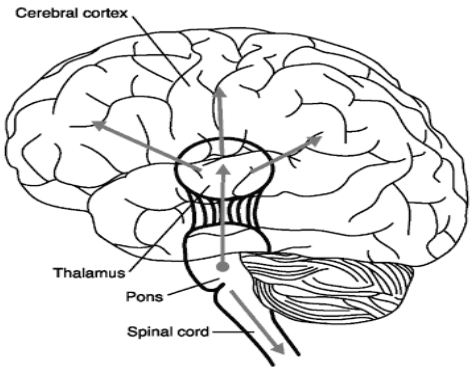


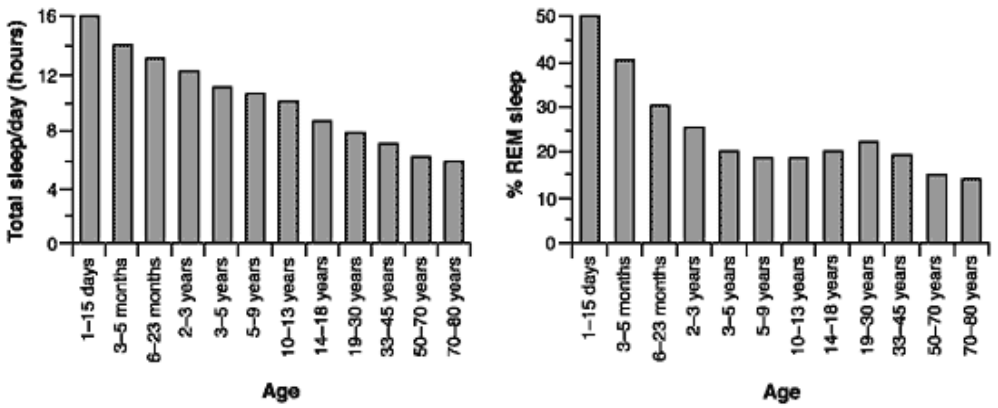
Fig. 3: Signals shows inducing sleep

During REM sleep, the Pons sends signals to the visual nuclei of the thalamus and to the cerebral cortex (this region is responsible for most of our thoughts processes). The Pons also sends signals to the spinal cord, causing the temporary paralysis that is characteristic of REM sleep. Other brain sites are also important in the sleep process. For example, the thalamus generates many of the brain rhythms[12] in NREM sleep that we see as EEG patterns[13].

2.3. Sleep patterns

Sleep patterns changes an individual's life. IN fact, age affects sleep more than any other natural factors. Newborns sleep an average of 16 to 18 hours per day. By the time a child is three to five years old, total sleep time average 10 to 12 hours, and then it further decrease to 7 to 8 hours per night by adulthood. One of the most prominent age-related changes in sleep is the time spent in the deepest stages of NREM (stages3 and 4) from childhood through adulthood. In fact, this change is during adolescence, when about 40% of this activity is lost and replaced by stage 2 NREM sleep.

In addition to these changes, the percentage of time spent in REM sleep also changes during development. Newborns may spend about 50 percent of their time in REM sleep. Infect, unlike older children's and adults, infants fall asleep directly into REM sleep. An infant cycle generates last only 50-60 minutes. By two of years of age, this remains relatively constant throughout the remainder of life. 15 young children have a high arousal threshold, which means they can sleep through loud noises, especially in the early part of the night. For example, one study showed that 10-year olds were undisturbed by a noise as loud as sound of a jet airplane taking off nearby. Although most human maintain REM sleep throughout life, brain disorders like Alzheimer's[14] and Parkinson's[15] are characterized by decreasing amount of REM sleep as the diseases progress. Also, elderly individuals exhibit more variations in the duration and quality of sleep than do younger adults. Elderly people may also exhibits increased sleep fragmentation (arousals from sleep that occur as either short or more extend awakening).



Data from Roffwarg, H.P., J.N. Muzio, and W.C. Dement. 1966. Ontogenetic development of the human sleep-dream cycle. *Science*, 152: 604–619.

Fig. 4: Average sleep need (left graph) and percentage of REM sleep (right graph) at different ages

Figure 4 depicts these developmental changes in sleep patterns. Teenagers, on average, requires about nine hours of sleep per night to be alert as possible when awake. Several issues are important to consider. First, individual sleep needs vary. For instance, eight hours of sleep per night appears to be most adults, although some may need more or less. Teenagers, on average, require about nine or more hours of sleep per night to be as alerts as possible when awake. If sleep needs are not met, a progressive sleep debt be paid.

It does not appear that we able to adapt to getting sleep than our body require. Not getting enough sleep, while still allowing us to function in a seemingly normal manner, does impair motor and cognitive functions. Caffeine and other stimulants cannot substitute for

sleep, but they do help to counteract some of the effects of sleep deprivations.

2.4. Biological clock

An internal biological clock[16] regulates the timing for sleep in humans; the activity of this clock makes us sleepy at night and awake during the day. Our clock with an approximately 24-hour period and is called a circadian clock (from the Latin root circa=about and Diem=day). In humans, this is located in the supra chiasmatic nucleus[17] (SCN) of the hypothalamus in the brain (see in fig). The SCN is actually a very small structure consisting of pairs of pinhead-size regions, each consisting only about 10,000 neurons out of the billions of the brain's estimated 100 billion neurons.

In figure it is seen that the biological clock is located in the suprachiasmatic nucleus in the brain. Biological clocks as shown in fig 5,are generally programmed physiological system that allows organisms to live in harmony with natural rhythms, such as day/night cycles of seasons. The most important functions of a biological clock is to regulate over biological rhythms like the sleep/wake cycle. The biological clock is also involved in controlling seasonal reproductive cycle. The biological clock is also involved in controlling seasonal reproductive cycles in some animals through its ability to track information about the changing lengths of daylight and darkens during a year. Biological rhythms are of two general type. Exogenous rhythms are directly produced by an external influence, such as an environmental cue. They are not generated internally by the organism itself, and if the environmental cues are removed, the rhythm

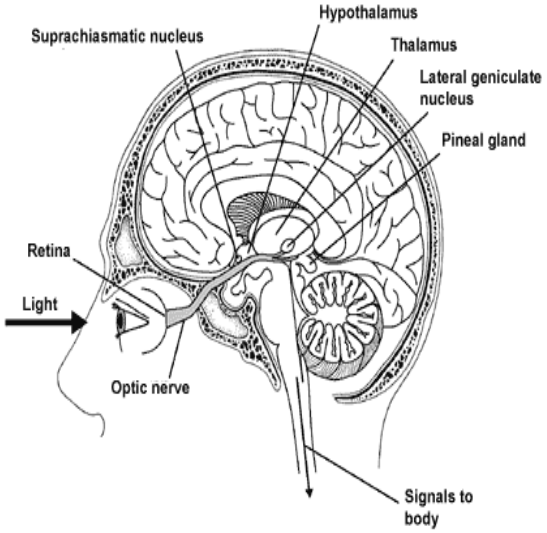


Fig. 5: the biological clock is located within the suprachiasmatic nucleus in the brain

Ceases. Endogenous rhythms[17], by contrast, are driven by internal, self-sustaining biological clock rather than by anything external to the organism. Biological rhythms, such as oscillations in core body temperature, are endogenous. They are maintained even if environmental cues are removed. Because the circadian clock in most humans has a natural day length of just over 24 hours, the clock must be entrained, or reset, to match the day length of the environmental photoperiod (that is, the light/dark, or day/night, cycle).

2.5. Dream

An intriguing occurrence during sleep is dreaming. Although reports of dreaming are most frequent and vivid[18] when an individual is around from REM sleep, dreams do occur at sleep onset and during NREM sleep as well. Although some dreams are memorable because of their extraordinary or bizarre nature, other dreams reflect realistic experiences. Despite this realism, REM dreams are usually novel experiences, like a work of fiction. Instead of a reply of actual events. Pre-sleep stimuli do not seem to affect dream contest. In fact, the source of the contest of any given dream is unknown.REM sleep and dreams are associated with each other, but they are not synonymous. While REM sleep is turned on and off by the Pons and two areas in the cerebral hemisphere (area far from the Pons that control higher mental functions) regulates dreaming.

3. Sleep disorders

Insomnia, obstructivesleepapnea[19] (OSN) narcolepsy is chronic sleep disorder that usually becomes evident during adolescence or young adulthood and affects both men and women. In the United States, it affects as many as 250,000 people, although fewer than half are diagnosed[20]. The main characteristic of narcolepsy is excessive and overwhelming daytime sleepiness (even after adequate nighttime sleep). A person with narcolepsy is likely to become drowsy or to fall asleep at inappropriate times and places. Daytime asleep attacks may occur with or without warming and may be irresistible. In addition, night sleep may also be fragmented. Three classic symptoms, which may not occur in all people with narcolepsy, are cataplexy[21](sudden muscle weakness often triggered by emotions such as anger, surprise, laughter, and exhilaration),sleep paralysis(temporary inability to talk or move when falling asleep). And hypnologic hallucination (dream like experiences that

occur while dozing or falling asleep). People with narcolepsy have difficulty staying awake, and in extreme condition, narcolepsy episodes can occur during periods of activity.

What Is Sleep Paralysis?

Fig. 6: Feeling of attacking some one

As depicted in fig 6. Sleep paralysis is a feeling of beings conscious but unable to move. It occurs when a person passes between stage of wakefulness and sleep. During these transitions, you may be unable to move or speak for a seconds up to a minutes. Some people may also feel pressure or a sense of choking. Sleep paralysis may accompany other sleep paralysis may accompany other sleep disorders such as narcolepsy. Narcolepsy is an overpowering need to sleep caused by a problem with the brain's ability to regulate sleep[22]. When does sleep paralysis usually occur? Sleep paralysis usually occurs at one of two times. If it occurs while you are falling asleep, it's hypnagogic or predormital sleep paralysis. If it happens as you are waking up, it's called hypnopompic or postorbital sleep paralysis[23].

What happens with hypnagonic sleep paralysis? As you fall asleep, your body slowly relaxes. Usually you become less aware, so you do not notice the change. However, if you remain or become aware while falling asleep you may notice that you cannot move or speak.

What happens with hypnopompic sleep paralysis?

During sleep, your body alternates between REM (rapid eye movements) and NREM (non-rapid eye movement) sleep. One cycle of REM and NREM sleep lasts about 90 minutes. NREM sleep occurs first and takes up to 75% of your overall sleep time. During NREM sleep, your body relaxes and restores itself[24]. At the end of NREM, your sleep shifts to REM. Your eye moves quickly and dreams occur, but the rest of your remains very relaxed. Your muscles are "turned off" during REM sleep. If you become aware before the REM cycle has finished, you may notice that you cannot move or speak.

How to cope with sleep paralysis

Sleep paralysis is a condition where people are paralyzed at the onset of sleep or upon waking. It is a disorientating condition that may be also proffer vivid and terrifying hallucination[25]. Here are some steps to help you identify and cope with sleep paralysis.

Steps to recognize the symptoms

Learn to recognize the symptoms. Sleep paralysis can affect you in much different way. There are, however some commonalities that people experience, including an inability to move the trunk or limbs at the beginning of sleep or upon awakening. Brief episodes of partial or complete skeletal muscle paralysis. Visual and auditory hallucinations. People often sense an evil presence or feel a phantom touch, or hear an unidentifiable noise in the room. A sense of breathlessness (or chest pressure). Confusion[25], helplessness, fear.

What to do during sleep paralysis

Focus on body moments

You may find that you are able to move a part of your body (often times your feet or your fingers). Just can try breathing fast and heavy and you may find yourself awaking up rather quickly.

Focus on eye movement

Your ability to open your eyes and look around is generally not hindered by sleep paralysis. Being aware of your surroundings can be comforting. Treating the symptoms[26].

Sleep regularly

Sleep patterns can have drastic effects on sleep paralysis keeping a regularly healthy sleep patterns and getting enough sleep can significantly reduces the likelihood of sleep paralysis episodes[27].

Exercise regularly

You don't have to go to the gym. Simply introduce a low-impact exercise regimen to your day. Taking a walk in the morning, for example, is a good idea.

Eat healthy

Nothing is more important than what you put inside your body. cut out the things that will

affect your sleep, such as caffeine, alcohol, and sweets.

CONCLUSION

In everyday's busiest life stress and work burdens and tensions are very common, due to overtime work, change in circadian[28] rhythm will leads to sleepiness this causes to slap paralysis and dangerous disease like narcolepsy and Alzheimer's disease. To avoid sleep paralysis has to take proper sleep and healthy diet. Even though few CNS drugs are available in market, meditation and habit of walking at morning will reduce sleep paralysis. Have to avoid habits of taking caffeine and alcohol. Regular visit to doctor and discusses symptoms with your family members and friends will give maximum relief.

REFERENCES

1. www.Cheyne,html/1999.
2. Marquet, 1996, cited in Rock 2004,
3. Winkelman, 2004. Neurotheology moves far beyond this idea, and has sponsored some well-meaning but ultimately reductive quests, such as the search for the "God gene." Winkelman stays within his warrant, and does not comment on the ontological reality of spirits, only their phenomenal reality beyond the cultural source hypothesis which reduces SP visions to fairy tale replays.
4. Hobson Dreaming; an Introduction to the science of sleep, 2002. Hobson and other dream researchers still debate if REM = dreams, but we can safely say that most dreams we remember come from this physiological state.
5. The best introduction to Jung is his autobiography Memories, Dreams, and Reflections. Hillman book the Soul's Code, while not explicitly about dreams, showcases his theory of the personality and its inner workings.
6. Bly; A Little Book on the Human Shadow. 1998.
7. See Chalquist's Terrapsychology, 2007 for more about myth, landscape, and unconscious acting-out.
8. Sherwood; "Relationship between the hypnagogic/hynogogic states and reports of anomalous experiences." Journal of parapsychology, 2002, Stan Krippner and Montague's Ullman's work at the Dream Laboratory of the Maimonides Medical Center in the 1970s has proven to be the zenith of scientific work on psychic dreams; but the evidence is well known to lifelong dreamers.
9. Hunt; Multiplicity of Dreams 1989.
10. Takeuchi. Isolated sleep paralysis elicited by sleep interruption. Sleep, 1992. The authors of this study propose that two thirds of ghost tales, if taken seriously, may occur when the witness is in sleep paralysis, highway hypnosis, REM sleep disorder, or other clinically diagnosed diseases and syndromes.
11. Young and Goudet, Being Changed: The Anthropology of Extraordinary Experience. Ontario, Canada; Broadview Press.1994.
12. Sevilla. Geomagnetic, cross-cultural and occupational faces of sleep paralysis: and ecological perspective. Sleep and Hypnosis, 2, pp. 105-111. 2000.
13. Tedlock 2001 in Bulkeley's Dreams: a reader on the religious, cultural, and psychological dimensions of dreaming.
14. Devereux 2001, Haunted Land, Sherwood (2002) also discusses the correlation between hypnagogic hallucinations and anomalous experiences including telepathy, pyrokinesis, past life experiences, and near death experiences.
15. My apologies to Joseph Campbell, who, to the delight of readers and disdain of academic folklorists everywhere, integrated Jungian psychology with the expressions of folklore, myth, and ritual. See the Power of Myth.
16. I don't mean to reduce all uncanny phenomena to physical brain states such as SP/HH. Rather, I suggest that uncanny states, which sometimes include content that cannot be known by rational means or any psychological process we currently understand, have material correlates. See Proud (2009) for experiences about the paranormal elements of SP/HH. For a review of the scientific inquiry into psi, ESP and dream telepathy, I recommend Charles Tart's The End of Materialism
17. Hufford 1982,The Terror That Comes in the Night
18. Jones 1951, On the Nightmare, Jones was a student of Freud's, and interpreted many SP experiences as repressed sexual urges.

19. Briggs 1976, Encyclopedia of Fairies.
20. Froud 1998, Good fairies, bad fairies. A whimsical guide, mixed with authentic folklore research and captivating illustrations.
21. Stoker, Dracula, as quoted in Hufford 1982.
22. http://www.trionica.com/asp/conditions/index.htm.
23. http://dreamstudies.org/tag/sleep-paralysis.
24. http://serendip.brynmawr.edu/exchange/mode/1804
25. http://www.skepdic.com/sleepparalysis.html.
26. http://www.webmd.com/sleepdisorders/sleep-paralysis.
27. http://www.psycologytoday.com/blog/sleep-ot-horror-flic.
28. http://www.ncbi.nlm.nih.gov/sites/entrez?d…$=activity.