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Review Article

ABC OF SLEEPING DISORDER

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ABSTRACT

Sleep is said to be the overall barometer of our health. Alterations in the quality, quantity and pattern of sleep can result in sleep disorders. Persistent and repeated interruption of sleep affects the health of an individual. The lack of quality sleep can have a negative impact on an individual's energy and emotional balance.

Key words: Sleep disorder, rapid eye movement, insomnia.

INTRODUCTION

Sleep is a naturally recurring state characterized by reduced or absence of consciousness, relatively suspended sensory activity and inactivity of nearly all voluntary muscles. It is a natural periodic state for mind and body in which the eyes are normally closed and consciousness is completely or partially lost. Hence there is a decrease in body movement and responsiveness to external stimuli. During sleep the brain in humans undergo a characteristics cycle of brain wave activity that includes interval of dreaming.

Sleep can be REM (Rapid Eye Movement) or Non REM type. There are several stages for NREM sleep¹.

NREM Stage 1: This is a stage between sleep and wakefulness. Here the muscles are active and the eyes roll slowly, opening and closing moderately.

NREM Stage 2: In this stage it gradually becomes harder to awaken the sleeper.

NREM Stage 3: It is also called slow wave sleep. The sleeper is less responsive to the environment. Many environmental stimuli no longer produce any reactions.

REM

The sleeper enters Rapid Eye Movement (REM) where most muscles are paralyzed. REM sleep is turned on by acetylcholine secretion and is inhibited by neurons that secrete serotonin.

Sleep is a behavior that follows a circadian rhythm. Sleep is not uniform, but organized into cycles. It is defined behaviourally into four criteria:

- Reduced motor activity
- Decreased response to activity,
- Stereotypic postures
- Reversibility.

Sleep can be a barometer of overall health. In many cases, people in good health tend to sleep well, whereas repeated sleeping problems may indicate an underlying mental health problem, either serious or minor. Sleeping well is essential to physical health and emotional well-being. But even minimal sleep loss can take a toll on mood, energy efficiency, and ability to handle stress. Ignoring sleep problems and disorders can lead to poor health, accidents, impaired job performance and relationship stress. Hence sleep is a necessity not a luxury.

Different Types of Sleep Disorder

There are several types of sleep disorders which include insomnia, sleep apnea, snoring, narcolepsy, sleep walking, sleep talking, sleep terror, nightmares, teeth grinding, circadian rhythm sleep disorder, shift work type sleep disorder, jetlag disorder, cataplexy, restless legs syndrome (RLS), periodic limb movement disorder (PLMD), sleep paralysis, nocturia, hypersomnia and parasomnia.

Insomnia

Insomnia is the most common type of sleep disorder. It refers to a condition of inability to get the required amount of sleep so as to get a refreshed feeling. It is often a symptom of another problem like stress, anxiety or depression. It can also be caused by lifestyle choices like administration of medications, lack of exercise, jet lag or even drinking coffee.

Some common symptoms include

- Difficulty in falling asleep at night
- Difficulty getting back sleep after waking during night
- Waking up frequently during night

Hence the sleep pattern becomes light, fragmented and nonrefreshing, sleepiness or low energy levels during the day time². Most cases of insomnia can be cured with lifestyle changes like relaxation technique without depending on the counter sleeping pills³.

Sleep apnea

Sleep apnea is one of the common sleep disorder in which breathing temporarily stops during sleep due to blockage of the upper airways. These pauses in breathing disturb the sleep pattern, leading to many awakenings every hour. Most people with sleep apnea experience irritability, depression, fatigue and decreased productivity⁴.

Symptoms of sleep apnea include:

- Loud and chronic snoring
- Frequent pauses in breathing during sleep
- Waking up with shortness of breath
- Headache
- Nasal congestion
- Dry throat

Sleep apnea is usually treated with Continuous Positive Airway Pressure (CPAP), a mask-like device that delivers a stream of air while a person is asleep⁵.

Snoring

Snoring is the loud noise which people make while they are breathing during sleep. It shows vibrations in tissues as the person is trying to suck air in.

Narcolepsy

It is a sleep disorder that involves excessive, uncontrollable sleepiness at day time. It is mainly caused by dysfunction of the brain mechanism that controls sleep and wake process⁶. In narcolepsy, sleep attacks can happen while in the middle of talking, working or even driving. Since it is a chronic neurological disorder, symptoms may include one or more of the following:

- Severe sleepiness
- Waking up paralyzed
- Sudden onset temporary muscle weakness

Sleep walking

While sleep walking (less common), the person gets up and starts to walk and may develop robot-like behavior. Sleep walking occurs when parts of the brain are asleep and other parts of the brain that control walking are in some way awake. The part of the brain which deals with thinking and alertness is asleep. Sleep walkers have no recollection of their sleep walking.

Every night people go through several cycles of non REM and REM sleep. Sleep walking (somnambulism) most often occurs during sleep, non REM sleep (stage 3 sleep), early in the night⁷. If it occurs during REM sleep, it is part of REM behavior disorder and tends to happen early morning. Children spend most of the night in deep sleep than adults do. Hence it follows that they sleep walk more often than adults.

The cause of sleep walking is usually unknown but it is believed that fatigue, lack of sleep and anxiety are all associated with sleep walking. In adults, sleep walking may occur with alcohol, sedatives, medical conditions like partial complex seizures and mental disorders.

Sleep Talking

In sleep talking, most of the noises that come out are actually glubberish. This is an embarrassing condition which does not need treatment. This usually occurs during transitory arousals from NREM sleep, when

the body does not move smoothly from one stage in NREM sleep to another. It can also occur during REM sleep at which time it represents a motor breakthrough of dream speech, words spoken in a dream are spoken out loud.

Sleep Terrors

Sleep terrors, also called night terrors, can occur in children and in adults. Sufferers get out of bed abruptly, sometimes screaming with their eyes wide open, and sometimes sweating. They appear to be terrified, sometimes they seem as though they are about to commit a violent act. The person may let out a blood curdling scream and display bizarre behavior. But it would seem that the person might be reacting to a dream, usually he or she is not⁸. There is no need to awaken people who are having these episodes, it is best to walk them calmly back to bed.

Nightmares

Nightmares are dreams that are frightening and vivid. Women report having nightmares more often than men. It is surprising that people do not have this symptom more often, because many people dream three to five times at night⁹.

Teeth Grinding

Is an increase in the activity of the jaw muscles while sleeping. This condition occurs in children and is equally common

in females and males¹⁰ who are under stress. It is a habit rather than a reflex chewing activity¹¹.

Circadian Rhythm Sleep Disorder

This disorder affects the timing of sleep. People with this disorder are unable to sleep and wake at the time required for normal work. They are generally able to get enough sleep if allowed to sleep and awake at the time dictated by their body clock¹². Persistent or recurrent pattern of sleep disruption leads to excessive sleepiness or insomnia due to mismatch between sleep-wake schedules. This is clinically significant with regard to distress or impairment in social or occupational area. Shift work disorder and jet lag sleep disorder belong to circadian rhythm sleep disorder.

Shift Work Type Sleep Disorder

Symptoms of shift work sleep disorder include excessive sleepiness during working hours and insomnia during the sleep working hours and insomnia during the sleep period. Sleep back to normal is within two weeks after shift change. Sleepiness during the work shift is common, and trying to sleep during the time of the day can be a struggle. Depending on the type of shift diurnal or circadian preferences may influence the ability to adjust to shift work.

Jet Lag Disorder

Jet Lag is a temporary disorder that results from travel across two or more time zones.

Upon arrival at the destination, the body's internal clock is no longer synchronized with 24 hour light dark cycle. The severity of the problem increases with the number of time zones that are crossed. It is a temporary condition with symptoms that begin one to two days after air travel across at least two time zones¹³. Melatonin regulates sleep-wake cycle by causing drowsiness and lowering the body temperature. It also reduces sleep onset latency to a greater extent in people with delayed sleep phase syndrome (DSPS) than in people with insomnia.

Cataplexy

Cataplexy is a sudden and transient episode of loss of muscle tone. It is often triggered by emotions such as laughing, crying, and terror. It is a rare disease and occurs without the co-occurrence of narcolepsy¹⁴. The exact cause of cataplexy is unknown, but the condition is strongly linked with intense emotions and reduced levels of neurochemical hypocretin.

Restless Legs Syndrome (RLS)

Restless Legs Syndrome is a sleep disorder that causes an almost irresistible urge to move legs. Common symptom of this syndrome includes uncomfortable sensations deep within the legs, which temporarily gets better when you move, stretch or massage your legs. Repetitive cramping or jerking of the legs occurs during sleep¹⁵.

Periodic Limb Movement Disorder (PLMD)

Periodic Limb Movement Disorder also known as nocturnal myoclonus, refers to involuntary movement of the limbs during sleep.

Sleep Paralysis

Sleep Paralysis is a phenomenon in which people either when falling asleep or awakening, temporarily experience a sense of inability to move arm or leg (but not associated with numbness). It is a transition state between wakefulness and rest characterized by muscle atonia. It is believed to occur due to disrupted REM sleep and also complete muscle atonia¹⁷. It has been linked to other disorders like narcolepsy, migraine, anxiety disorders and obstructive sleep apnea.

Nocturia

Nocturia means passing urine at night, thus disturbing sleep. Its occurrence is more frequent in the pregnant women and in the elderly. It can occur due to urological disorders like urinary tract infections, sphincter control problems and prolapse of the bladder¹⁸.

Hypersomnia

Hypersomnia refers to excessive sleepiness that occurs almost daily for one month. Excessive sleepiness causes clinically significant distress or impairment in social

occupational or other important areas¹⁹.

Parasomnia

It is a category of sleep disorder that involves abnormal and unusual movements, behavior, emotions, perceptions and dreams that occur while falling asleep, sleeping, between sleep stages or during arousal from sleep. Most parasomnias are dissociated sleep states which are partial during transitions between wakefulness and NREM sleep or wakefulness and REM sleep²⁰.

Self help for sleep disorders

The first step to overcome a sleep related problem is to identify and carefully track the symptoms and sleep patterns²¹.

A regular sleep schedule, going to sleep and getting up almost at the same time every day, including weekends will be helpful. Most people need at least 7-8 hours of sleep every night in order to feel good and for the day to be productive. Since nicotine is a stimulant, it should be avoided particularly near bed time and upon night awakenings. Caffeine is also a stimulant and is present in coffee (100-200 mg), soda (50-75 mg) and tea (50-75 mg). Caffeine should be discontinued at least four to six hours before bed time. Since alcohol is a depressant, it may induce to fall asleep. Metabolism of alcohol causes withdrawal syndrome due to which nightmares and sweating may occur.

Sleep disorder and sleeping pills

Sleeping pills may help overcome sleep related problems like insomnia for a short time. In fact, they often make insomnia worse in the long run. They are most effective, when used sparingly for short term situations like travelling across many time zones or recovering from a medical treatment. They are best used “as needed” instead on a routine basis to avoid dependence and tolerance²².

CONCLUSION

The high prevalence of sleep disorders and their effect on quality of life have brought increased attention for treatment of this condition. Since sleep is affected by many factors like medical, psychological, pharmacological, environmental and circadian sleep disorder can be more or less related to psychiatric disorder. The treatment of sleep disorder is however, at an early stage in comparison to treatment of other psychiatric disorders. Additional research is the need of the hour for comparative and combined efficacy and its applications of behavioural and pharmacological therapies for sleep disorders.

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