



RECENT TRENDS IN THE MANAGEMENT OF SLEEP DISORDERS

Pharmacology

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ABSTRACT

Sleep disorders encompass a wide spectrum of diseases with significant individual health consequences and high economic costs to society. To facilitate the diagnosis and treatment of sleep disorders, this review provides a framework using the International Classification of Sleep Disorders, Primary and secondary insomnia are differentiated, and pharmacological and non pharmacological treatments are discussed. Common circadian rhythm disorders are described in conjunction with interventions, including chronotherapy and light therapy. This study elaborately explains the recent trends in the management of sleep disorders.

KEYWORDS

Insomnia, Melatonin, Sleep Cycle, Stress, Hypnotics

BACKGROUND

“Know your body and know yourself”

Eat-Work-Sleep. This is a sequence of life for a human being. As it may vary from person to person according to their individual livelihood. Every person wants a successful life rather than a peaceful one. Success in the sense with very well packed salary to fulfill their needs. Here is where each and every one of us concepts and ideology of life goes wrong. Sleep is the most important part of our life which plays in our physical and mental health. Taking a break from a busy day is necessary. Sleep soothes our mind and get back to our work refreshed. People might not see the damages caused by sleeplessness. But slowly they are changing their sleep cycle. Their daily interaction with gadgets also affects the cycle. Many people suffer from depression as it leads to over thinking and insomnia⁽¹⁾. From teenagers to old aged people they commonly suffer from Insomnia. Except humans all the other organisms exist in the world follow biological rhythm and sleep cycle.

Daily sleep recommendations:

Guidelines from the National sleep foundation (NSF) advice that infants (4-11 months old) should get between 12 and 16 hours of sleep per day. Healthy children need between 9 and 10 hours of sleep per night and adult need between 8 and 9 hours of sleep. People over 65 should also get 7 to 8 hours per night⁽²⁾.

Biological rhythm:

The rhythm in plants, animals and humans is endogenous. The capacity of rhythmic changes is an inherent characteristic of living organisms. Such endogenous control is due to the presence of a self sustaining oscillator within the body. This is called biological clock. This clock is capable of controlling the rhythms. All organisms follow a rhythmic pattern in their activities. Therefore such rhythmic are compared to manmade clock systems that are highly specialized for time keeping⁽³⁾. Therefore it has been rightly termed as biological clock. Many plants show sleep movement rhythms of their leaves. The leaves of tamarind trees, gooseberry and rain trees close or drop during night time and open up and remain horizontal during day time to trap more sun light.

Insomnia:

The word “insomnia” comes from Latin words “in” (no) and “Somnus”(sleep). Insomnia disorder is defined as a subjective

perception of difficulty with sleep initiation, duration, consolidation, or quality, which occurs despite adequate opportunity for sleep, and which results in some form of daytime impairment, and is considered a major important public health problem.

Types of Insomnia

Insomnia is most often classified by duration: Transient insomnia: Lasts for less than one week caused by any disorder, changes in the sleep environment, stress or depression. Acute insomnia: Lasts up to one month commonly referred as short term insomnia. Occurs due to acute situational stress such as a new job, deadline, or exams. It typically resolves when the stressor is no longer present or the individual adapts to the stressor. Chronic insomnia: Lasts more than one month associated with chronic medical and psychiatric conditions. Usually occurs in patients with an underlying risk of insomnia⁽⁴⁾.

Prevalence of insomnia:

Insomnia is among the most prevalent health complaints, with approximately 20 to 25% of the general population suffering regularly from it and about 35 to 45% presenting transient or occasional insomnia⁽⁵⁾. The elderly in particular are affected by insomnia, and it has been shown that women are more likely to have sleep difficulties than men. Given all the information available, the prevalence of insomnia symptoms may be estimated at 30% and specific insomnia disorders at 10-15%.

Risk factors:

Factors most commonly associated to insomnia are: Low socio economic status Family Problems (divorcee, widower and those who lack care, love, attention) gender (women are more affected than men⁽⁶⁾). Evidences suggest that insomnia may occur in association to hormone changes that are unique to women, such as those accompanying them during menopause, age (mostly elderly), marital status, income, stress, chronic alcohol and other substances abuse, Medical conditions, low social activity, lack of exercise, educational level, and race/ethnicity.

Management of Insomnia:

Since every one of us is suffering from having irregular sleep. We need to find ways to sleep better. Getting enough sleep can make your brain function much better. Poor sleep has immediate negative effects on your hormones and brain function.

Cognitive behavioral therapy:

Cognitive behavioral therapy is the most widely-used therapy for sleep disorders. It may be conducted individually, in a group of people with similar sleeping problems. CBT addresses negative thoughts and behavior patterns that contribute to insomnia or other sleeping problems. Cognitive behavioral therapy involves two main components:

(I) **Cognitive therapy** teach you to recognize and change negative beliefs and thoughts that contribute to your sleep problems.

(ii) **Behavioral therapy** teaches you how to avoid behaviors that keep you awake at night and replace them with better sleep habits.

Sleep restriction therapy (SRT): reduces the time you spend lying in bed awake by eliminating naps and forcing you to stay up beyond your normal bedtime. This method of sleep deprivation can be especially effective for insomnia. It not only makes you more tired the next night but builds a stronger association between bed and sleep rather than bed and lying awake.

Stimulus control therapy: helps to identify and change sleep habits that prevent you from sleeping well. This means training you to use your bedroom for just sleep and sex, rather than working or watching TV, and maintaining consistent sleep-wake times, even on weekends.

Sleep hygiene therapy: Your sleep environment should be dark, quiet, cool, and comfortable, so your therapist may recommend blackout shades, earplugs, or a sound machine to block out noise. Sleep hygiene involves improving your daytime habits to include exercising regularly and learning to unwind at night.

Relaxation training: When practiced regularly, relaxation techniques such as mindfulness meditation, progressive muscle relaxation, and breathing exercises can help you relax at night, relieving tension and anxiety and preparing you for sleep.

Biofeedback: uses sensors that measure specific physiological functions—such as heart rate, breathing, and muscle tension. Biofeedback teaches you to recognize and control your body's anxiety response that impacts sleep patterns.

Hypnosis: can also sometimes be used in CBT for sleep disorders. While you're in a state of deep relaxation, the hypnotherapist uses different therapeutic techniques to help you change negative thought patterns or unhelpful habits and promote restful sleep.

Exercise and Yoga: We would have generally noticed that when we get tired with or without knowing our body gets asleep. Exercising makes us to fall asleep fast quickly and improves sleep quality. Aerobic exercises increase the amount of slow wave sleep. Slow wave sleeps refers to deep sleep. As aerobic exercises causes the body to release the endorphins.

Food Therapy: Milk and many other dairy products contain amino acid called tryptophan induce sleep. Milk also contains melatonin. Foods like Almonds, Banana (contains magnesium as well as tryptophan), Fatty fish and tart cherries (melatonin, tryptophan, potassium and serotonin) etc induces sleep. Not only all foods produce sleep some affect too. Later, the stages of sleep will be affected as the caffeine consumption can cause rapid eye movement (REM) occurs more frequently. Cheese is considered as the worst foods to be eaten at night before food as it contains tyramine. Tyramine causes the adrenal gland to release the adrenaline hormone which creates alertness for 8 hours straight. Avoid late meals within two hours of bedtime. Stop drinking caffeinated beverages at least eight hours before bed. Like caffeine, nicotine and sugary foods are stimulants, and while alcohol can make you sleepy, it interferes with the quality of your sleep and can make sleep disorder symptoms worse.

Pharmacotherapy of Insomnia:

Hypnotics: Hypnotics are medications used to induce, extend or improve the quality of sleep and to reduce wakefulness during sleep. The most commonly used drugs are diazepam, lorazepam, flurazepam, nitrazepam, zolpidem and zaleplon.

Orexin antagonist: Orexin (suvorexant) receptor antagonists are used to treat insomnia. They inhibit the effect of orexin, a neurotransmitter, in the brain. This works because orexin is involved in keeping you awake, and blocking it can help you fall asleep more easily.

Melatonin:

Melatonin supplements are popular among people with insomnia and jet lag. Melatonin is also a powerful antioxidant. It is a hormone released by the pineal gland in the brain. It is also known as Sleep hormone. Melatonin secretion helps in calming the body before bed. Melatonin also helps regulate your body temperature, your blood pressure, and the levels of some hormones. It works together with the body's circadian rhythm. Stop using the gadgets like computer, mobile phones and etc which produces blue and green light that can affect the melatonin secretion.

The most important is that leading a life without stress. Seems cheesy but nobody really accepts it as they don't spend much time knowing their own body. Stress is something which keeps haunting the person where they loss the interest in sleeping. Starting from school to work everyone go through stress and depression. It is useful for educating people all over the world about the importance of sleep, as well as changing the way people view and experience sleep by giving them valuable resources to help them in their daily lives. "Join the sleep world preserve your rhythm to enjoy life".

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