A rare disease: Sleep paralysis

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Abstract

A confusing phenomenon that arises in the transitional state between waking and sleep is sleep paralysis. It causes a transient paralysis in which people are fully cognizant but confined to their bodies, unable to move or communicate. Numerous vivid hallucinations, from visual disruptions to unsettling audio and tactile experiences, frequently accompany this emotion. Though its exact causes are still unknown, sleep paralysis is known to be strongly connected to disturbances in the regular sleep cycle, especially during REM sleep, which is the stage of sleep connected to vivid dreams. Numerous factors contribute to the onset of sleep paralysis, including irregular sleep patterns, sleep deprivation, stress, and certain sleep disorders like narcolepsy.

Keywords: Sleep paralysis, REM sleep, Psychological impact, Anxiety, Hallucinations.

1. Introduction

Sleep paralysis is the temporary immobility or inability to speak or move during the process of falling or staying asleep. People may also hallucinate during sleep paralysis (1). It usually happens when the phases of alertness and sleep are changing, especially during rapid eye movement (REM) sleep. Although the precise origin of sleep paralysis is unknown, disturbed REM sleep patterns are thought to be a contributing factor (2). To prevent acting out dreams, the body's muscles are effectively immobilized while the brain is intensely engaged during REM sleep. When someone has sleep paralysis, they experience a brief period of paralysis following awakening, which makes them feel immobile (3). Sleep paralysis-related hallucinations are believed to result from the brain's attempt to interpret the strange event. Due to its short duration (a few minutes to several minutes), intense hallucinations, and sensations of chest pressure or suffocation, previous researchers have compared SP to nightmares., a few things can make it more likely to happen, such as (2, 4):

- Inadequate sleep or irregular sleep patterns
- Lack of sleep
- Anxiety and stress
- Mental health issues including anxiety attacks or depression

1.1 Ancient background

Traditionally, SP was described as "not a bad dream," but rather as the nighttime visitation of a malevolent entity that threatened to rip the life from its scared victim, hundreds of years ago. Those who had Sleep Paralysis reported feeling immobilized, speechless, helpless, and overcome by overwhelming anxiety and terror (2). Between 1.7% and 40% of the general population are believed to be impacted by sleep paralysis, with students making up the ultimate of those affected (4,5). It usually peaks at thirty years of age and seems to be linked to panic episodes, narcolepsy, and posttraumatic stress disorder (PTSD) (6). Similarly, there is evidence to suggest that sleep paralysis, bipolar disorder, and schizophrenia are related (7). The phrase "sleep paralysis" has been used for many different purposes since it was first used more than hundreds of years ago (8,9).

1.2 Epidemiology

Though lifetime incidence of sleep paralysis in the overall population has been estimated by metanalytic evaluations to be around 8%, it is an uncommon condition. It's noteworthy to observe, though, the fact that the prevalence varies greatly amongst individual research, with values ranging from 2% to 60% (10,11). It is critical to remember that several factors contribute to the diversity in prevalence, the two most significant of which are the disparities in the terminology and the various scales used for assessment (12). Globally, there are no appreciable differences between the genders within the documented experiences of sleep paralysis (Studies have found a few minor variations, with some reporting that sleep paralysis is more common in men and others in women) (13).

2. Types of sleep paralysis

Most instances of paralysis during sleep are divided into two categories by medical professionals.

2.1 Isolated sleep paralysis (ISP)

These isolated episodes of paralysis are not associated with an underlying diagnosis of narcolepsy, a neurological disorder that usually causes sleep paralysis and affects the brain's capacity to control attentiveness. Narcolepsy and recurrent sleep paralysis are linked (14,15).

2.2 Recurrent isolated sleep paralysis (RISP)

This is a condition that involves recurring episodes of sleep paralysis in an individual who does not have narcolepsy (16)

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3. Contributing factors to sleep paralysis

The following are the determinants impacting sleep paralysis:

3.1 Factors related to the population

Even though anyone regardless of age can get sleep paralysis, it often affects teenagers and young adults more frequently (17). According to certain research, women may be marginally more prone than men to get sleep paralysis (18).

3.2 Correlation with sleep disorders

Narcolepsy, obstructive sleep apnea, insomnia, and sleep paralysis are frequently accompanied by different sleep disorders (19).

3.3 Anxiety and depression

It has been determined that stress and mental health disorders like these may be risk factors for sleep paralysis (10,15).

3.4 Consequence on life quality

Fear, anxiety, and trouble sleeping can all be brought on by sleep paralysis, which could significantly impair someone's quality of life (1,4).

3.5 Hereditary factors

A potential hereditary component has been suggested by family studies that have shown an increased incidence of sleep paralysis among afflicted persons' relatives (20).

4. Neurophysiology

The regular sleep-wake cycle and the transition between distinct stages of sleep are thought to be disrupted in cases of sleep paralysis, according to neurophysiology (21). To keep people from acting out their dreams, the body typically experiences muscular atonia, or momentary paralysis, during REM sleep, which is the period of sleep linked to vivid dreams (22). The sense of being immobile occurs when this muscular atrophy in sleep paralysis continues into consciousness. Studies on the brainstem and neurotransmitters, especially those involving serotonin and gamma-aminobutyric acid (GABA), indicate that anomalies in these processes may have a role in the development of sleep paralysis (23,24).

5. Clinical manifestation of sleep paralysis

Atonia is the characteristic indication of sleep paralysis, characterized by a failure to move or speak. (25). People also report breathing problems, Pressure on the chest, Rapid Heart Beat, and uncomfortable emotions like fear or helplessness during periods of sleep paralysis (26). These can manifest as hypnopompic hallucinations upon waking up or as hypnagogic hallucinations throughout sleep (27). Figure 1 illustrates the symptoms of sleep paralysis.

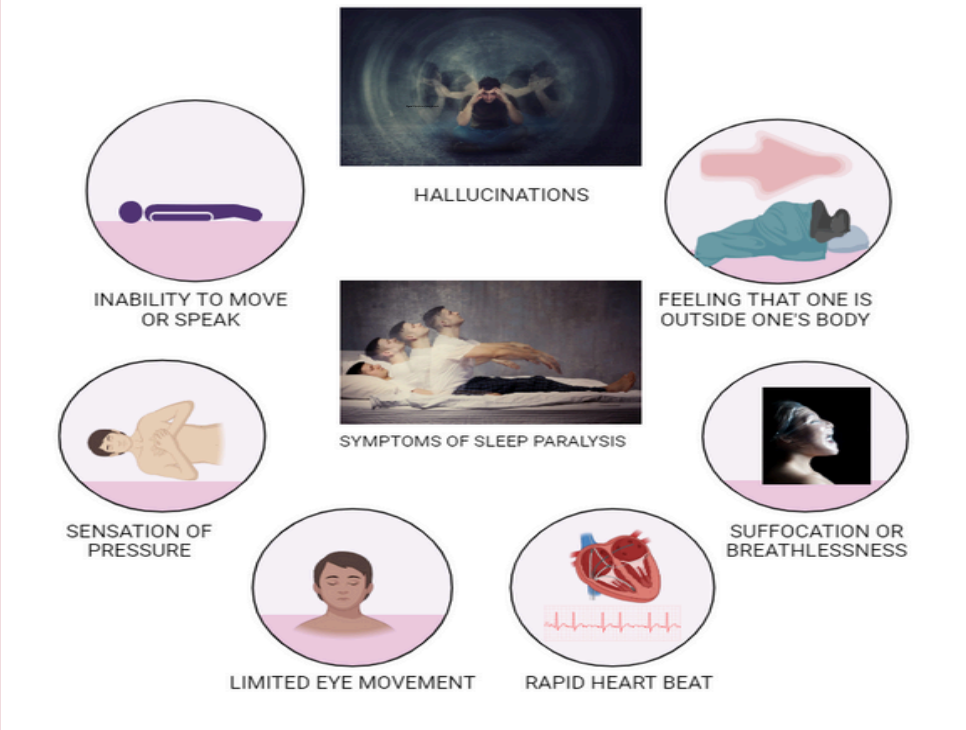

Figure 1. Symptoms of sleep paralysis

When sleep paralyzed, hallucinations usually fall into one of three categories:

5.1 Hallucinations of intruders

These entail sensing that there is a dangerous or evil person or thing present in the space (28).

5.2 Incubus hallucinations

Victim experiences breathing difficulties or a sensation of something pushing down on their chest (29).

5.3. Vestibular-motor hallucinations

Movement or floating sensations, as if one were being lifted off the bed or dragged around the room, are characteristic of vestibular-motor hallucinations (30).

6. Management of sleep paralysis (31)

Since sleep paralysis frequently happens only once,, medical or mental health specialists may not be necessary in many circumstances. But the following conditions need to get expert assistance:

- In cases where sleep paralysis occurs frequently.
- When it is hard to fall asleep every day.
- Excessive worry about going to sleep.
- Narcolepsy symptoms.

It can be managed in following ways:

- **By maintaining sleep hygiene**: Creating a comfortable, adhering to regular sleep patterns, obtaining 6 to 8 hours of sleep, and using appropriate sleep hygiene. By altering the sleeping environment, Sleep paralysis may be avoided by abstaining from large meals, smoking, and consuming coffee or alcohol soon before bed (32).

- **Psychotherapy**: Patients with sleep paralysis may benefit from psychotherapy, particularly if they are suffering anxiety, fear, or distress because of their experiences. Cognitive-behavioural therapy (CBT) is one therapeutic strategy that can do this (33).

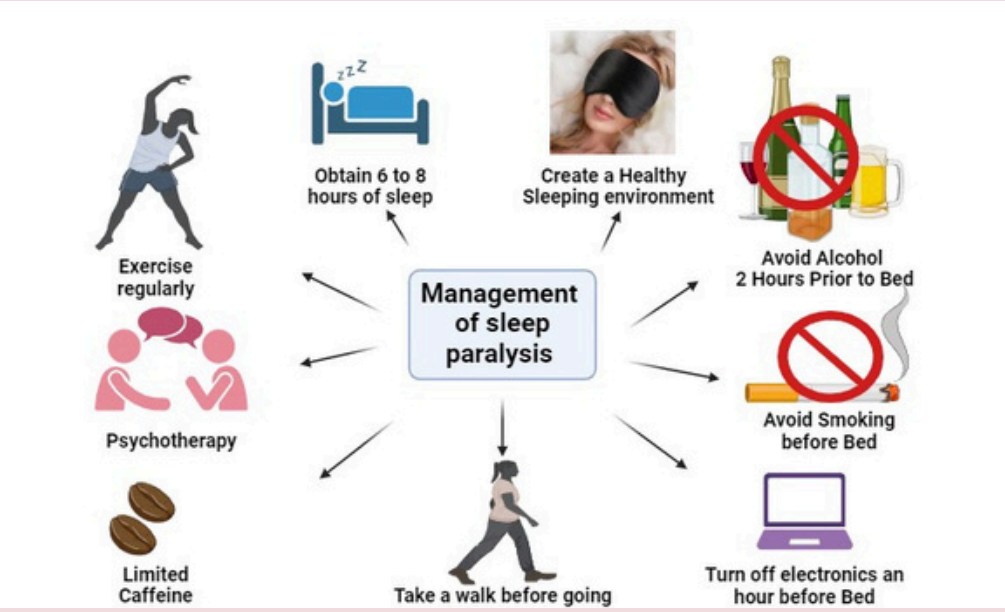

Figure 2. Management of sleep paralysis

7. Conclusion

The scientific understanding of sleep paralysis and its validation as a rather normal sleep condition remain unchanged. Research into the history, risk factors, and effects of sleep paralysis on people's well-being is being conducted in the fields of sleep medicine, psychology, and neuroscience. Treatment attempts usually emphasize on reducing the anxiety associated with this experience by teaching people about the nature of sleep paralysis, controlling stress, and the underlying sleep illnesses. The basic features and prevalence of sleep paralysis have not changed over time, even though some of our pioneers in its study and treatment may still be considered pioneers.

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