

# NARCOLEPSY SLEEP DISORDER

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## ABSTRACT

**Narcolepsy** is NEUROLOGICAL DISORDER in which there is a loss of ability of brain to regulate the sleep and wake cycles in normal way. Narcoleptic people experience frequent daytime sleepiness in excess, compared to how non-narcoleptics feel that after 24 to 48 hours of sleep deprivation. Narcoleptic people normally experience the REM stage of sleep within about 5 minutes after sleep, as compared to non-narcoleptics who do not experience REM in the first hour or so of a sleep cycle until after a period of slow sleep cycle unless they are very much sleep deprived.

## I. INTRODUCTION

Sleep is essential and vital element of one's life, and it is a necessary factor for normal behaviour of one's living. Its disorder are among the most important health problems that go unreported, with consequences that involves growth. There are various health problems related to sleep disorders . One of them is Narcolepsy. These several problems are related with sleep stages .

There are two stages of sleep:

- 1) **NREM:** Breathing becomes faster and dreaming starts in this stage .
- 2) **REM :** Initial sleep stage without dreaming .

REM further classified into

- **Stage S0:** Body is getting ready for sleep.
- **Stage S1:** Body moves to light sleep and relaxed behaviour of body.
- **Stage S2:** Slow brain waves with no eye movement
- **Stage S3:** Very slow brain waves and relaxed sleep.
- **Stage S4:** Body goes to deep sleep

Daytime sleepiness in excess often resulting in falling asleep spontaneously but unwillingly at inappropriate locations and times. People with narcolepsy experience frequent daytime sleep in excess as comparable to how non-narcoleptics what they feel after that of 24 to 48 hours of sleep deprivation, as well as disturbed nocturnal sleep which often is confused with Narcolepsy.

## II. SIGNS AND SYMPTOMS

The main two reasons for narcolepsy are:

### 2.1 Excessive Daytime Sleepiness

Narcoleptic person is likely to become drowsy and feels asleep, at inappropriate times and places, or just be very tired throughout the day. Narcoleptics are not able to have the normal amount of deep sleep that healthy people have – they don't have "over-sleeping" but inspite they have their entire lives in a constant state of severe sleep deprivation. Daytime naps may occur with little time and they are often physically irresistible.

These naps can occur several times a day. Drowsiness may occur for prolonged periods of time or simply never cease.

## 2.2 Abnormal REM Sleep

Narcoleptics are unique in that they enter into the REM phase of sleep in the beginnings of sleep, even when sleeping during the day.

This has several consequences. Night time sleep do not include as much deep sleep, so the brain tries to cover it up during the day. People with narcolepsy have drowsiness and falls asleep at uncertain moments . People with narcolepsy fall quickly into what appears to be very deep sleep, and they wake up suddenly and can be disoriented when they do. They have very vivid dreams, which they often remember in great detail. People with narcolepsy may dream even when they only fall asleep for a few seconds. Along with vivid dreaming, people with narcolepsy are known to have audio or visual hallucinations prior to falling asleep.

## III. CAUSES OF NARCOLEPSY

**OREXIN-A** is a hormone associated with this disease. People with narcolepsy often have a reduced number of neurons that produce this protein.

But the cause of narcolepsy was not clear for many years after its diagnosis, then also scientists had discovered conditions that seemed to be linked with an increase in one's risk of having this disorder. Evidently, there appeared to be a strong link between narcoleptic individuals and some genetic conditions. One factor involved with an individual to narcolepsy is CHROMOSOME 6 known as the HLA complex. There seemed to be a similarity between narcoleptic individuals and certain variations in HLA genes, although it was not required for the condition to occur.

Certain variations in the HLA complex were shown to increase the risk of an auto –immune response to produce proteins in neurons inside the brain. The protein produced, is OREXIN, responsible for control of sleep patterns. Of the billions of cells in the human brain only about 10,000 to 20,000 cells produce orexin proteins. Low levels of this hormone is shown to be associated with disease .

## IV. DIAGNOSIS

Diagnosis is in a way easy when all the symptoms of narcolepsy are present, but if the sleep attacks are different and narcolepsy is mild or absent, diagnosis is rather more difficult. Three tests that are commonly used in diagnosing narcolepsy are the

- 1) Polysomnogram,
- 2) Multiple sleep latency test (MSLT),
- 3) Epworth sleepiness scale.

These tests are usually performed by sleep specialist.

The polysomnogram involves continuous recording of sleep brain waves and a number of nerve and muscle functions during nighttime sleep. When taken, narcoleptic people fall asleep rapidly, enter REM sleep early, and may often awoken during the night.

The Epworth Sleepiness Scale is a brief questionnaire that is administered to determine the likelihood of the presence of a sleep disorder, including narcolepsy.

For the multiple sleep latency test, a person is given a chance to sleep every 2 hours during normal wake times. The patient is taken in usually for an overnight sleep study. This test measures the degree of daytime sleepiness and also detects how soon REM sleep begins.

Recent research has also revealed the possibility of measuring hypocretin levels in a patient's with narcolepsy, with abnormally low levels serving as a strong indicator of the disorder. This test is useful when MSLT results are difficult to interpret.

### **Treatment**

Patients with narcolepsy can be substantially helped, but not cured. Treatment is given to the individual, based on symptoms. The time required to achieve optimal control of symptoms is highly variable, and may take several months or longer. Medication adjustments are frequently necessary, and complete control of symptoms is seldom possible. While oral medications are the mainstay of formal narcolepsy treatment, lifestyle changes are also important.

The main treatment of excessive daytime sleepiness in narcolepsy is central nervous system stimulants such as

- methylphenidate,
- amphetamine,
- methamphetamine,
- modafinil (Provigil), a new stimulant.

Other medications used are codeine and selegiline.

Another treatment option is sodium oxybate. It can be used for narcolepsy associated with narcolepsy and excessive daytime sleepiness associated with narcolepsy.

## **V. CONCLUSION**

Narcolepsy is a excessive sleepiness disorder which is generally caused due abnormal REM sleep stage in individual .It is found to be one of the reason why some people fall drowsy and fall asleep during day time also. There are several people who are having this problem but they don't take it seriously and thus this disease is not diagnosed and cured properly in many of the persons.

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