

2nd Sem

Sleep Disorders (Mod-IV)

Narcolepsy is characterized by abnormal activation of sleep mechanism. It occurs in approximately 0.04% of the population in the US. It is characterized by a breakdown in the transition between waking and sleep.

Sleep and sleep mechanism invade daytime periods and the sleep at night is fragmented and disrupted by multiple awakenings. Narcolepsy is characteristically manifested in 5 symptoms —

The most prevalent symptom is excessive daytime sleepiness and irresistible "sleep attacks" during the waking hours. These sleep attacks those are less than 20 mins come at any moment. Sleep attacks are precipitated by any behaviour that is relatively passive like watching TV or driving a car.

The second symptom occurs in approximately 70% of the narcoleptic symptoms, which is cataplexy. It is a sudden bilateral loss of muscle tone typically in the knees face and neck. The sufferer is typically awake but feels either unable or barely able to move. The onset of a cataplexic episode occurs over a couple of seconds and can last several mins. Emotion, most typically laughter can provoke an attack perhaps owing to the fact that during laughter there is a general decrease in muscle tone. Cataplexy is thought to result from abnormal activation of the motor inhibition that normally occurs during REM sleep.

Thirdly, vivid dreamlike experience may occur during the transition between sleep and waking. These events are known as hypnagogic (sleep onset) or hypnopompic (sleep offset) hallucination. These dreamlike experiences are frightening and unpleasant and predominantly ~~visual~~ visual through auditory and tactile experiences may be frequent.

The fourth symptom is called sleep paralysis, and it typically occurs between sleep and waking. Unlike cataplexy it is not triggered by emotion and lasts for 10 mins. Sleep paralysis results from inappropriate activation of inhibitory descending motor pathways and are normally responsible for inhibiting pathways during REM sleep. Sleep paralysis also occurs in non-narcoleptic people.

The final symptom of narcolepsy is disturbed nocturnal sleep. Although narcoleptics may fall asleep quickly and often immediately fall into REM sleep. This sleep is interrupted by frequent arousals. A diagnosis of narcolepsy requires a minimum of two criteria —

- i) Daytime lapses into sleep and cataplexy.
- ii) A pattern of excessive daytime sleepiness, sleep paralysis and a polysomnogram demonstrating a short latency to sleep.

□ The excessive sleep and attacks are often treated with amphetamine. This agent enhances the release of catecholamine and inhibits their reuptake.

- Cataplexy is treated with tricyclic antidepressants which inhibit the reuptake of norepinephrine or serotonin.

- Orexin A and B are neuropeptides produced in a small cluster of neurons within the hypothalamus that project widely throughout the brain. Through an unknown mechanism a loss of function of their action results in abnormal differentiation of sleep and ~~results~~ waking, typically of narcolepsy. The knocked out genes for both orexin A and B in mice are found to display symptoms of narcolepsy.

● Advanced phase sleep disorder (APSD) is one form of circadian rhythm sleep disorder in which the patient feels very sleepy and goes to bed early in the evening (6.00-8.00pm) and wakes up very early in the morning (~3am). Conversely in delayed phase sleep disorder (DPSD), patient cannot sleep when sleep is desired, needed and expected.

APSD can be treated with bright light therapy and DPSD can be treated by chromo-therapy and sleep medicines.

● Sleep disorder characterized by pauses in breathing (~several minutes) during sleep is known as Sleep apnea. In the most common form this follows loud snoring.