MULTIPLE SLEEP LATENCY TEST (MSLT)

What it does and doesn't tell a sleep physician

The multiple sleep latency test (MSLT) tests for excessive daytime sleepiness by measuring how quickly you fall asleep in a quiet environment during the day. The MSLT is the standard tool that is currently used to help diagnose narcolepsy and idiopathic hypersomnia. A MSLT immediately follows an overnight polysomnogram (PSG). An overnight sleep study (PSG) is performed to rule out other sleep disorders such as obstructive sleep apnea and periodic limb movement disorder etc as the cause of a patient's excessive daytime sleepiness.

The MSLT is a full-day test that consists of four or five scheduled naps separated by two-hour breaks. During each nap you will lie quietly in bed and try to go to sleep. Once the lights go off, the test will measure how long it takes for you to fall asleep. You will be awakened after sleeping 15 minutes. A series of sensors will measure whether you are asleep. The sensors also determine your sleep stage.

When average sleep latency (the time it takes you to fall asleep) is below 8 minutes and there is the presence of sleep-onset REM periods (SOREMPs) in two or more of the MSLT naps (a SOREMP within 15 minutes of sleep onset on the preceding nocturnal polysomnogram may replace one of the SOREMPs on the MSLT) your doctor may consider a diagnosis of narcolepsy. When the average sleep latency is below 8 minutes and there is less than two sleep onset REM periods your doctor may consider a diagnosis of idiopathic hypersomnia. However, this differentiation of 2 or less SOREMPs and other aspects of the MSLT has been called into question and suggests more appropriate testing methods need to be applied.

The main purpose of a MSLT is to see how quickly someone falls asleep. The problem with this is consistent research has shown that people with IH do not necessarily fall asleep quickly. The primary symptom of IH is excessive sleep. Spontaneous sleep periods of up to 19 hours are common in idiopathic hypersomnia, despite a normal MSL (> 10 min). Researchers have said that the MSLT can no longer be considered the “gold standard” for diagnosing idiopathic hypersomnia (or narcolepsy type 2). The MSLT has low sensitivity and specificity for diagnostic purposes. Moreover, the consistency of the MSLT results over time suggest it is unreliable for several diagnoses, particularly idiopathic hypersomnia.

The main reason the MSLT is questionable in subjects with idiopathic hypersomnia is because awakening the patient early in the morning (as per MSLT procedure) prevents the documentation of the prolonged night-time sleep typical in IH and prevents the documentation of prolonged, unrefreshing, daytime sleep episode(s).

"*The MSLT prevents the documentation of the prolonged night-time sleep and the MSLT procedure itself prevents the documentation of prolonged, unrefreshing, daytime sleep episodes*" (Billiard 1998).

It has been suggested that a better way to accurately test for idiopathic hypersomnia is to test the patient in an overall environment, ie: what happens during the nocturnal sleep episode, how the patient responds in a MSLT and how much and for how long a patient will sleep on an “ad lib” basis – totally unrestricted over a 24-32hr period.

It is also important to note that multiple SOREMPs are not exclusive to narcolepsy. They can be present in other sleep disorders including sleep apnea and also in other neurological disorders such as Parkinson disease. Interestingly more than 13% of the normal population can also have multiple SOREMPs. This is usually as a result of shift work and/or sleep deprivation. A sleep latency of less than 8 minutes is also not exclusive to narcolepsy or idiopathic hypersomnia. Up to 30% of the general population has a mean sleep latency of less than 8 minutes.

Therefore, great caution should be taken by doctors when using the MSLT to diagnose Narcolepsy Type 2 (without Cataplexy) and Idiopathic Hypersomnia. It is imperative that all other causes of the symptoms are properly ruled out and proper consideration given to the patient’s clinical history.

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