Latency Test Costly, but Best in Daytime Sleepiness

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RANCHO MIRAGE, CALIF. — In diagnosing a child with an extreme case of daytime sleepiness, there's no good substitute for the multiple sleep latency test, Dr. Timothy F. Hoban said at a conference on sleep disorders in infancy and childhood sponsored by the Annenberg Center for Health Sciences.

Although a simple clinical evaluation can provide a fairly good indication as to whether the child has daytime sleepiness, it's often difficult to estimate how severe the problem is. "The multiple sleep latency test (MSLT) can help answer that question in an objective way that's been standardized and well validated," said Dr. Hoban of the sleep disorders center at the University of Michigan, Ann Arbor.

Unlike certain questionnaire-based assessments, the MSLT has been validated in children, and provides reliable results as long as the child is at least 6 or 7 years old. However, the test is expensive and time consuming to perform and must be conducted in a sleep lab. The MSLT may be useful when a child has excessive daytime sleepiness but the clinical history, examination, and polysomnography reveal no specific cause. Dr. Hoban recommended judicious use of the MSLT in evaluations of sleep-disordered breathing, circadian rhythm disorders, narcolepsy, and other disorders of excessive sleepiness.

Developed initially at Stanford (Calif.) University in the 1970s, the MSLT has a simple premise: People who are sleepy will fall asleep faster than those who are not.

After a night of polysomnography to screen for some sleep disrupters and to ensure that the patient has had a good night's sleep, the child is given four or five chances to nap in a dark, quiet environment, with each nap separated by about 2 hours. If the child fails to fall asleep (as measured by EEG tracings) within 20 minutes, the nap opportunity ends. Otherwise the child is allowed to sleep for 15 minutes following the first epoch of sleep.

In addition to the latency of sleep, the MSLT records the presence of sleep-onset REM periods (SOREMPs). The presence of SOREMPs correlates strongly with the presence of narcolepsy. Narcoleptic patients also typically have a sleep latency of 5 minutes or less.

Normal adults have a sleep latency of about 15 minutes, but normal latencies in children can be much longer. Detailed studies have correlated mean sleep latencies with Tanner stage. Children in Tanner stage 1 take an average of 19 minutes to fall asleep, whereas those in stage 5 take about 16.6 minutes; older adolescents take a mean 15.7 minutes to fall asleep.

The MSLT has the advantage of being easily administered to school-age children; it also can be used to assess the response to treatment.

"The net result of this is that in preadolescent children you can have a sleep latency of 14 or 15 minutes that would be considered solidly normal by adult standards but substantially abnormal for a child," Dr. Hoban said.

In addition to being objective, standardized, and well validated, the MSLT has the advantage of being easily administered to school-age children and also can be used to assess the response to treatment. On the other hand, it's an expensive and time-consuming test, doubly so because it must be preceded by full-night polysomnography. It's sensitive to extraneous influences, such as certain sleep-disrupting medications like Ritalin or even excessive physical activity during the intervals between naps.

Dr. Hoban described a case that illustrated the value of the MSLT. The patient was a 16-year-old with a history of disabling sleepiness for several years. He had first been tested for what were thought to be seizures (that is, episodes characterized by staring or unresponsiveness followed by brief losses of posture from which he quickly recovered).

The patient's MSLT results were striking. "MSLTs this dramatic are very easy to score and recognize," Dr. Hoban said. His strong suspicion that the patient had narcolepsy was confirmed by further analysis of the young man's polysomnograph, which demonstrated frequent nighttime awakenings, another characteristic sign of narcolepsy. ■