Sleep deprivation used to diagnose sleepwalking

March 19 2008

Somnambulism (sleepwalking), which usually involves misperception and unresponsiveness to the environment, mental confusion and amnesia about sleepwalking episodes, affects up to 4 percent of adults. There has been a sharp rise in the number of studies relating sleepwalking to aggressive and injurious behaviors, including homicides, but unlike most sleep disorders, sleepwalking is diagnosed on the basis of the patient's clinical history, since there is no proven method of confirming the diagnosis.

Although clinical reports have suggested that sleep deprivation can lead to sleepwalking in predisposed patients, small studies using this method in the laboratory have yielded mixed results. A new, larger study found that sleep deprivation can precipitate sleepwalking in predisposed individuals and can therefore serve as a valuable tool in diagnosing this disorder. The study will be published in the *Annals of Neurology*, the official journal of the American Neurological Association.

Led by Antonio Zadra of the Université de Montréal, in Quebec, Canada, the study included 40 patients referred to a sleep disorder clinic for suspected sleepwalking between August 2003 and March 2007. All patients were examined and underwent one night of baseline sleep recording in the lab. The next day they went about their regular daytime activities, after which they returned to the lab in the evening, where they were constantly supervised to ensure they did not fall asleep. Recovery sleep took place the next morning, following 25 hours of wakefulness calculated from when they had awakened the previous morning. All

patients were videotaped during each sleep period and the authors evaluated behavioral movements which ranged from playing with the bed sheets to getting up from the bed, to determine if they were sleepwalking episodes. They also scored the complexity of each episode on a 3-point scale.

The results showed that while 32 behavioral episodes were recorded from 20 sleepwalkers (50%) during baseline sleep, 92 episodes were recorded from 36 patients (90%) during recovery sleep. Sleep deprivation also significantly increased the proportion of sleepwalkers experiencing at least one complex episode. “By yielding a greater number of episodes with a wider range of complexity, sleep deprivation can facilitate the video-polysomnographically-based diagnosis of somnambulism and its differentiation from other disorders,” the authors state.

Sleepwalkers are thought to suffer from an inability to sustain stable slow-wave sleep (stage 3 and 4 sleep) and the study found that these patients had increased difficulty passing from slow-wave sleep to another sleep stage or arousal following sleep deprivation, which supports this view. It is also consistent with observations that other factors that deepen sleep, such as young age or fever, may help trigger sleepwalking in predisposed individuals.

The authors caution that observing behavioral events in the sleep lab following sleep deprivation is not always sufficient to confirm a diagnosis of sleepwalking in a medical-legal context. However, they note that: “Used as a diagnostic tool, sleep deprivation shows a high sensitivity for somnambulism and may be clinically useful with a wider range of somnambulistic patients than previously reported.” They conclude that the study supports recommending that sleepwalkers maintain a regular sleep schedule and avoid sleep deprivation.

Source: Wiley