Experimentally induced arousals do not influence periodic limb movement during sleep activity in normal subjects

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Objective

The aim of this study was to evaluate whether eliciting repetitive cortical and autonomic arousals during sleep is able to induce the occurrence of periodic leg movements during sleep (PLMS).

Methods

Fifteen normal subjects underwent one night of uninterrupted and two sequential nights of experimental sleep fragmentation achieved by auditory and mechanical stimuli eliciting frequent EEG arousals. Sleep was polygraphically recorded and subsequently used to determine the frequency of arousals and occurrence of leg movement activity during the first (baseline) and the second fragmentation night.

Results

Sleep fragmentation was associated with an increase in the arousal index, percentage of sleep stage 1, and frequency of stage shifts. In addition, there was a decrease in sleep latency and in the percentage of slow-wave sleep. In contrast, leg movement activity parameters showed no significant change following experimental sleep fragmentation. The lack of an increase in leg movement activity was also observed in one subject who demonstrated PLMS at baseline.

Conclusion

Experimental sleep fragmentation is not associated with an increase in PLMS in normal young adults.