

Journal search and commentary

Article reviewed: Reduction of rapid eye movement sleep by diurnal and nocturnal seizures in temporal lobe epilepsy[☆]

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Category

Sleepiness, epilepsy, nocturnal seizures, REM sleep

Objective(s)

Determine the effects on sleep and subsequent daytime sleepiness of seizures occurring during the day before the sleep or the night of the sleep.

Study design

Consecutive case series, within subject correlation of observed events with subsequent sleep and sleepiness.

Study population

Thirty-four patients (age range 26–64 years) with temporal lobe partial epilepsy whose recordings included at least 1 day and night without seizures and one day or night with a seizure.

Methods

Patients admitted for video-electroencephalogra-

phy monitoring were recorded with all night sleep EEG montages. The night sleep recordings were divided into those occurring: without seizures in the past 24 h (control), with seizures during the day before the study (day seizure) and with seizures during the night of the study (night seizure). A modified maintenance of wakefulness (MOW) test was done between 1:00 and 3:00 PM the day following the night recordings. This test measured a single latency to sleep onset while the subject lay supine in a quiet, dark room and was instructed to stay awake. This test was done only at one time and not repeated during the day. All data were analyzed for changes within subjects across conditions. Sleep EEG was scored for major sleep stages.

Results

Daytime seizures led to reduced stage REM sleep at night but no other significant change in sleep that night or in sleepiness the following day. Nocturnal seizures led to disturbed sleep at night and increased sleepiness on MOW the next day. The disturbed sleep included significantly reduced sleep efficiency, reduced stage 2, 4 and REM sleep, increased stage 1 sleep and increased latency to the first REM period. Except for the decreased stage 4 sleep these effects were also significant for those patients whose seizures occurred before the first REM period. Those patients who did not have a nocturnal seizure, but had a seizure in the morning between awakening and starting the MOW showed no increase in sleepiness on the MOW.

[☆] Bazil CW, Castro LHM, Walczak TS. Reduction of rapid eye movement sleep by diurnal and nocturnal seizures in temporal lobe epilepsy. *Arch Neurol* 2000;57:363–368.

Conclusion

The authors concluded that daytime seizures disrupt REM but otherwise do not significantly disturb sleep the following night nor produce sleepiness the day after the seizure or in the afternoon after a morning seizure. Nocturnal seizures, however, severely disrupt sleep, reducing REM and NREM sleep and sleep efficiency, and also produce sleepiness the next day.

Comment

These are fairly convincing data. The within subject comparison reduces problems of subject variables such as medication use or health status that could affect sleep. The reduced REM sleep after the daytime seizure is somewhat unexpected. The authors propose explanations including possible effects of seizures on circadian rhythms or even a direct effect on REM expression. Both of these deserve further consideration since this effect is occurring several hours after the seizure. The data are limited to temporal lobe

partial epilepsy and may not generalize to other seizure disorders. The one test time for the WOW also limits the sleepiness evaluation. A more complete evaluation with repeated naps and better testing conditions is needed.

The occurrence of disturbed nocturnal sleep during a night with a seizure is not surprising but the magnitude of the effect was fairly large and the degree of sleepiness the next day was similarly significant. It was particularly interesting that the seizures at night but not those in the morning caused increase sleepiness in the afternoon. Significant adverse effect on daytime sleepiness is not as well recognized for a nocturnal seizure as it is for the medications used to control the seizure. In sleep medicine we need to be aware of both effects in our differential evaluation of any patient presenting with daytime sleepiness. A patient with poorly controlled or previously unrecognized nocturnal seizures may complain more of the daytime sleepiness than the nocturnal seizures. Since the sleepiness may at least in part result from the seizures, consideration should certainly include a review of the seizure treatment.