LETTERS

Effects of epilepsy treatment on sleep architecture and daytime sleepiness: An evidence-based review of objective sleep metrics

Dear Editor

We read with great interest the review from Jain and Glauser[1] regarding the effects of antiepileptic drugs (AEDs) on nocturnal sleep and sleepiness in epilepsy. Sleep and AEDs represent puzzling variables added to sleep comorbidities, seizures, and interictal electroencephalography (EEG) abnormalities (IEAs). AEDs are a key factor in the mutual interactions between sleep and epilepsy, given their potential influences on the sleep–wake cycle. These effects may be mediated by mechanism of action or may be indirectly due to treatment effects on seizure frequency and/or IEA.[2] We agree with the authors that diverging results and heterogeneous methodologies do not allow any generalizations regarding a single AED. Small samples, polytherapy, seizure frequency, IEA, sleep comorbidities, and open and uncontrolled study design represent critical confounding factors and the main reason for diverging results.[1,2] However, we would clarify few inaccuracies regarding our findings as reported in the review. Very recently we published data about the effects of zonisamide on nocturnal sleep and sleepiness by means of an ambulatory polysomnography (PSG), followed by multiple sleep latency test (MSLT) and subjective evaluation of nocturnal sleep and daytime sleepiness.[3] The authors stated that we used *actigraphy* followed by MSLT. In addition, they reported in Table 3 that sleep staging was not available. We would highlight that we utilized a 32-channel portable device (American Academy of Sleep Medicine criteria PSG type 2).[4] This PSG device allowed the standard sleep staging,[5] the evaluation of sleep-disordered breathing and periodic limb movements of sleep (PLMS), and also the detection of ictal and/or interictal EEG patterns. Seizures occurring during the 24 h before sleep study were considered exclusion criteria to minimize the negative influence of seizures on sleep architecture.[6] Although full laboratory PSG is considered the "ideal" standard technique for sleep studies, home sleep PSG is less expensive and closer to the real life. Therefore, there is a growing evidence that unattended portable devices are useful in different clinical settings.[7–9] An experienced sleep technologist/technician must apply the sensors. Manual scoring review of the raw data should be performed by board certified sleep specialists.[4,10] Under these circumstances, a complete PSG recording may be performed unattended at home. Unfortunately the gold standard of methodologic design to evaluate effects of AEDs on sleep in epilepsy has not yet been defined. In home sleep studies the habitual sleep schedule is preserved and subjects are actually asked to maintain their habitual bedtime and wake time in their bedroom at home. In addition, the portable systems reduce significantly hospital costs. Furthermore, the "laboratory" environment influences sleep patterns ("first night effect," longer sleep latency, fragmented sleep, increased rapid eye movement [REM] latency, or inhibition of episodic behavioral sleep disturbances),[11,12] although an attended full video-PSG allows for detection of unreported clinical seizures lacking ictal abnormalities. Therefore PSG studies are useful tools for evaluating the real impact of AEDs on sleep and sleepiness, as correctly stated by the authors, and we need larger samples, monotherapy, randomized-controlled studies, and specific exclusion criteria such as sleep comorbidities (i.e., sleep apnea, restless legs syndrome, periodic limb movements disorder) to minimize confounding factors. We also believe that standardized sleep methodologies should be close to real life, safe, easy-to-use, not expensive, and, when correctly performed and interpreted, they should have adequate reliability and diagnostic accuracy.

DISCLOSURES

None of the authors has any conflict of interest to disclose. We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

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In response: Effects of epilepsy treatments on sleep architecture and daytime sleepiness: An evidence-based review of objective sleep metrics

To the Editors:

We thank the authors for clarifying their study. Table 1 listed the study method accurately as ambulatory polysomnography. Currently, standard polysomnography remains the best test for clinical diagnosis. Although portable devices are approved, the American Academy of Sleep Medicine (AASM) guidelines suggest their use for diagnosis and monitoring response to non–continuous positive airway pressure (CPAP) treatments for obstructive sleep apnea (OSA).[1] We agree with the authors that for research purposes, standard methodologies need to be established.

Disclosure

The authors have no conflict of interest to declare in relation to this letter. We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines

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ANNOUNCEMENTS

31st International Epilepsy Congress

6–10 September, 2015; Istanbul.

Upcoming Regional Congresses

2nd African Epilepsy Congress

22–24 May, 2014; Capetown. South Africa. www.epilepsycapetown2014.org.

11th European Congress on Epileptology

29 June–3 July, 2014. Stockholm, Sweden. http://www.epilepsystockholm2014.org/.

10th Asian & Oceanian Epilepsy Congress

7–10 August. Singapore. http://www.epilepsysingapore2014.org/.

8th Latin American Congress on Epilepsy (8th LACE)

17–20 September, 2014. Buenos Aires, Argentina. Website: http://www.epilepsycongress.org/8o-congreso-latinoamericano-de-epilepsia-8th-latin-american-epilepsy-congress/.

Upcoming Chapter Congresses

4th NARCCE (North American Regional Caribbean Conference on Epilepsy)

22–24 May, 2014. Bay Gardens Resorts, St. Lucia. Congress Website: www.epilepsycaribbean.org/narcce-2014.html.

Korean Epilepsy Congress

12–14 June 2014. Grand Hilton Hotel, Seoul, Korea.