

SLEEP QUALITY EVALUATION IN PATIENTS WITH EPILEPSY

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Introduction: Epilepsy is a neurological disorder that highly affects the quality of life. [1] Sleep disturbances are common in people with epilepsy. Therefore, patients are more likely to experience daily fatigue and pathological sleepiness, what can trigger epileptic seizures. [2]

Materials and methods: This study was developed in a Lithuanian tertiary epilepsy center to assess the sleep quality and daytime sleepiness in epilepsy patients. We asked patients to complete several questionnaires and collected information from outpatient cards on epilepsy etiology, type of seizures, instrumental findings, and information about patients' antiepileptic drugs. Sleep quality was assessed by Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale and Insomnia Severity Index (ISI).

Data were processed with Microsoft Excel 2016, and analyzed by IBM SPSS® (version 23.0). Difference was considered statistically significant if $p < 0.05$.

Results: 167 cases (96 (57.5%) – women), mean age - 36.05 ± 15.75 years, mean epilepsy duration – 14.35 ± 11.82 years) were analyzed. Generalized epilepsy (GE) was diagnosed in 29 patients (25.66 %), 84 patients (74.34%) had focal epilepsy (FE) and we couldn't identify seizure type in 54 patients. Our results showed that 97 patients (58.1%) have poor sleep quality according to PSQI. According to Epworth Sleepiness Scale, 42 patients (25.1%) have pathological, 30 patients (18%) - average, and 95 patients (56.9%) - normal level of daytime sleepiness. According to Insomnia Severity Index, 36 patients (21.6%) have moderate severity or severe insomnia, 63 patients (37.7%) have subthreshold insomnia and 68 patients (40.7%) do not have clinically significant insomnia. 12 GE patients (41.4%) more often had an abnormal daytime sleepiness according to Epworth Sleepiness Scale ($p = 0.05$) in comparison with 17 FE patients (20.2%), but more FE patients (23 FE patients (24.7%) vs 5 GE patients (17.2%)) were evaluated as having moderate or severe insomnia according to ISI ($p > 0.05$). A poor sleep quality (according to PSQI) showed 16 GE patients (55.2%) vs 53 FE patients (63.1%) ($p > 0.05$). Those who experience seizures during the night time (76.1%) had significantly worse sleep quality according to PSQI scale when comparing to 50.0% of patients, who experience seizures only during the day ($p < 0.05$).

74.4% of patients with irregular sleep time and 52.8% of patients with regular sleep time had abnormal sleep quality according to PSQI ($p < 0.05$). The same results were obtained according to ISI: 41.9% of patients with irregular sleep time vs 14.6% of those with regular sleep time were found to have moderate or severe insomnia ($p < 0.05$). Abnormal sleep quality (according to PSQI) was found in 80.0% of patients, who felt sleepy and exhausted often, and in 88.2% of those, who experience sleepiness and fatigue always ($p < 0.05$). 70% of patients who reported in difficulty to get up early had an abnormal PSQI result. Similar results were obtained according to Epworth Sleepiness Scale and ISI. Patients, who have abnormal PSQI and ISI scores, feel the highest fatigue in the morning and during the day. In comparison, those with tiredness in the evening, showed normal PSQI and ISI results. Patients with prolonged seizures (longer than 5 min) had clinically significant insomnia to compare with those with shorter seizures (duration up to 1 min), 90% vs 51.1% ($p < 0.05$).

Conclusions: Many patients with epilepsy have poor sleep quality and experience daytime sleepiness. Every fifth patient with epilepsy suffers from moderate or severe insomnia. Worse sleep quality is related to irregular sleep time habits, nighttime and longer seizures. We didn't find significant sleep quality difference in patients with focal vs generalized epilepsy according to Epworth Sleepiness Scale, Insomnia Severity Index and Pittsburgh Sleep Quality Index.

[1] Ryan, Jamie L et al. "Quality of Life Changes and Health Care Charges Among Youth With Epilepsy" *Journal of pediatric psychology* vol. 41,8 (2015): 888-97.

[2] Wang, Yi-Qun et al. "The Mutual Interaction Between Sleep and Epilepsy on the Neurobiological Basis and Therapy" *Current neuropharmacology* vol. 16,1 (2018): 5-16.