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Letter to the Editor

Whether Fremanezumab Actually Improves Sleep Performance in Migraineurs Requires Consideration of all Factors Influencing Sleep

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Letter to the Editor

We read with interest the article by Stojanov *et al*. on sleep quality in migraine patients treated with fremanezumab for at least six months [1]. In 82 migraine patients treated with fremanezumab, the Pittsburgh Sleep Quality Index (PSQI) was higher in the migraine patients than in the control group and improved between baseline and the final follow-up [1]. The PSQI was also high in patients with high scores on the Headache Impact Test (HIT-6) and the Hamilton Anxiety and Depression Scales (HAM-A, HAM-D) [1]. It was concluded that fremanezumab improves sleep quality in migraine patients [1]. The study is interesting, but some points warrant discussion.

The first point is that sleep quality in migraine patients depends not only on their neurological condition and its treatment, but also on numerous other factors that influence sleep. These factors include endogenous and exogenous factors that determine sleep quality. Endogenous factors that influence sleep include genetic predisposition, personality type, ability to cope with stressors, comorbidities (restless legs, pain, dyspnea), sleep habits (bedtime, sleep aids (reading, television, music, airing the bedroom)), and removing and turning off all devices that generate electromagnetic pollution. Exogenous factors include acute and chronic stress (type of work, noise, light, vibrations, drafts, insects, pets, earthquakes, type of bed, children, partner, electrosmog, cell phone towers, relationships with neighbors, socioeconomic status, local, regional, national, and geopolitical circumstances), diet, time of last meal or fluid intake, concomitant medications, consumption of alcohol, adrenergic stimulants, or illegal drugs, as well as dietary supplements [2].

Second, sleep quality was assessed using the PSQI, a self-report questionnaire that evaluates sleep quality based on seven components: subjective sleep quality, sleep onset latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep aids, and daytime dysfunction [3]. However, the PSQI has some limitations in assessing sleep quality [4]. The PSQI is based on subjective assessments, has a weak correlation with objective sleep measurements, provides inconsistent results across different populations, has limited validity for people with comprehension or writing difficulties, has low test-retest reliability, and lacks guidelines regarding test-retest intervals [4]. Sleep quality and sleep patterns can be analysed most reliably using polysomnography [5].

Thirdly, fremanezumab is not free of side effects. In some cases, it can cause dyspnea, dysphagia, arterial hypotension, blurred vision, chest tightness, coughing, dizziness, rapid heartbeat, headaches, nervousness, Raynaud's phenomenon, unusual tiredness or weakness, and allergic reactions (rapid onset of swelling of the throat, face, lips, tongue, or throat, or itchy skin) [6]. It should be specified how many patients had their sleep quality impaired by side effects.

Finally, it was not specified when the questionnaires were distributed. How many months elapsed between time point 1 and time point 3, and was the interval the same for all patients included?

In summary, the conclusion that fremanezumab improves sleep quality in migraine patients remains questionable as long as not all factors affecting sleep and all side effects of fremanezumab have been taken into account.

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