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## Introduction

Migraine is the most common form of primary headache in pediatrics, with a prevalence of 10%. Sleep disorders represent a frequently associated comorbidity, observing a complex relationship between these two pathologies. Sleep disorders are common in the pediatric age. Sleep interruption can affect neurobehavioral functioning and increase headache frequency. Literature shows a bidirectional relationship and altered sleep patterns that can trigger headaches, with interruption of nocturnal sleep. The objective is to evaluate the quality of sleep in pediatric patients with a headache disorder.

## Material and methods

A prospective, cross-sectional cohort study was conducted from February 2018 to November 2018 at the Headache and Chronic Pain Clinic of the Neurology Service, University Hospital "Dr. José E. González" of the UANL.

The clinical history addresses headache characteristics and sleep quality. All the data was included in PREMECEF (First Mexican Headache Registry).

## Results

52 patients were recruited, 34 (63.4%) were female and a mean age of  $10.8 \pm 3.2$  years old. 6 (11.5%) patients had a tension-type headache and 35 (67.3%) had a migraine. Among the latter, 19 (36.5%) had without aura, 5 (9.6%) with aura, and 11 (21.2%) probable migraine. The rest of the diagnoses are included in Table 1.

We found an average of  $8.3 \pm 1.2$  hours of sleep. Only 24 (46.2%) meet the hours recommended by the American Academy of Pediatrics. Among sleep disorders, non-restorative sleep was found in 21 (40.4%) patients, daytime sleepiness in 19 (36.5%), difficulty falling asleep in 15 (28.8%), 5 (9.6%) of which were taking medication *ad hoc*. In addition, 19 (36.5%) patients presented snoring, 15 (28.8%) reported movements during sleep, and 7 (13.5%) bruxism. In patients with migraines, snoring occurred in 31% and daytime sleepiness in 34%; in patients with tension-type headaches, 16% had at least one symptom related to sleep disorders [Table 2].

**Table 1. Other diagnoses**

Postictal headache	3 (5.8%)
Headache attributed to intracranial tumor	3 (5.8%)
Nummular headache	2 (3.8%)
Headache attributed to psychiatric disorder	1 (1.9%)
Cluster headache	1 (1.9%)
Cyclical vomiting syndrome	1 (1.9%)

**Table 2. Sleep disorders**

	Migraine (N=35)	Tension-type headache (N=6)
Non-restorative sleep	18 (51.4%)	3 (50%)
Daytime sleepiness	14 (40%)	2 (33.3%)
Difficulty falling sleep	11 (31.4%)	0
Snoring	13 (37.1%)	1 (16.7%)
Bruxism	3 (8.6%)	1 (16.7%)
Movements during sleep	11 (31.4%)	1 (16.7%)

## Discussion

The interaction between sleep and headache or migraine is powerful. There is a frequent comorbidity of both in adults and children. These groups of pathologies are linked to neurophysiological and neuroanatomical substrates which could explain their relationship.

Migraine is the headache whose relationship with sleep disorders has been most studied. In our study, 75% of the patients had at least one symptom of sleep disorder, in agreement with that reported internationally. Non-restorative sleep, daytime sleepiness, and snoring are the most associated sleep disorders. No patient used preventive treatment, emerging a bidirectional causal effect between headache and sleep disorder.

The rest of the headaches in our patients had a lower representation. However, it was observed a high prevalence of daytime sleepiness and non-restorative sleep tension-type headache, which requires further studies.

## Conclusion

Sleep disorders are described as comorbid, predisposing, predictive or even prognostic factors for headache development or chronification. For that reason, it is important that clinicians perform the clinical evaluation of childhood headaches with a careful analysis of sleep disturbances or *vice versa*.

## References

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