

# Prevalence of Interictal Headache in Patients with Epilepsy

## Epilepsi Hastalarında İnteriktal Başağrısı Sıklığı

Dr. Gökhan ÖZER,<sup>1</sup> Dr. Yasemin ÜNAL,<sup>2</sup> Dr. Gülnihal KUTLU,<sup>2</sup>  
Dr. Yasemin GÖMCELİ,<sup>3</sup> Dr. Levent İNAN<sup>4</sup>



Dr. Gökhan ÖZER

<sup>1</sup>Department of Neurology, Sanko Universty Faculty of Medicine, Gaziantep, Turkey

<sup>2</sup>Department of Neurology, Muğla Sıtkı Koçman Universty Faculty of Medicine, Muğla, Turkey

<sup>3</sup>Department of Neurology, Antalya Training and Research Hospital, Antalya, Turkey

<sup>4</sup>Department of Neurology, Bozok Universty Faculty of Medicine, Yozgat, Turkey

### Summary

**Objectives:** Epilepsy and headache are common paroxysmal neurological disorders. Headache can occasionally be the sole symptom of a seizure. In addition, postictal headaches frequently occur after complex partial and generalized tonic-clonic seizures. The objective of this study was to determine the prevalence of interictal headache in patients with epilepsy presenting at an outpatient epilepsy clinic.

**Methods:** This prospective study included 86 adult patients who were diagnosed with epilepsy and followed up at a neurology clinic.

**Results:** A total of 86 patients with epilepsy (54 females, 32 males) were included. The type of headache in 41 (47.6%) patients was a tension-type headache (TTH) (n=14, 16.3%), migraine with aura (n=12, 13.9%), migraine without aura (n=11, 12.8%), TTH + stabbing headache (n=1, 1.2%), cluster headache (1.2%), and other primary headaches (n=2, 2.4%).

**Conclusion:** Patients with epilepsy often have headaches, particularly a migraine headache. Headache in patients with epilepsy may be overlooked during follow-up in the outpatient clinic setting, and this can adversely affect the quality of life of these patients.

Keywords: Epilepsy; headache; migraine.

### Özet

**Amaç:** Epilepsi ve başağrısı sık görülen paroksizmal nörolojik fenomenlerdir. Başağrısı bazen nöbetin tek belirtisi olabilir. Ayrıca postiktal başağrıları kompleks parsiyel ve jeneralize tonik-klonik nöbetlerden sonra sık görülmektedir. Biz epilepsi polikliniğine başvuran hastalarda interiktal başağrısı sıklığını bulmayı amaçladık.

**Gereç ve Yöntem:** Bu ileriye yönelik çalışma, nöroloji kliniğinde epilepsi tanısı ile takip edilen 86 erişkin hastayı kapsamaktadır.

**Bulgular:** Çalışmaya epilepsi tanısı ile izlenen 54 kadın, 32 erkek, toplam 86 hasta alındı. Başağrısı olan 41 (%47.6) hastanın ağrı tipleri sırasıyla; gerilim tipi başağrısı (GTBA) %16.3, auralı migren %13.9, aurasız migren %12.8, GTBA + stabbing 1 %1.2, küme başağrısı %1.2, diğer primer başağrıları %2.4 olarak saptandı.

**Sonuç:** Epileptik hastalar sık başağrısı, özellikle migrenöz özellikle başağrısı yaşamaktadır. Epilepsi hastalarında poliklinik takiplerinde başağrısı göz ardı edilebilir ve bu da bu grup hastaların yaşam kalitesini etkileyebilir.

Anahtar sözcükler: Epilepsi; başağrısı; migren.

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Correspondence (İletişim): Gökhan ÖZER, M.D.

e-mail (e-posta): primernordr@gmail.com



## Introduction

Epilepsy and headache are common paroxysmal neurological disorders. The coexistence of these two conditions is not a novel observation, and the overlap between headache and epilepsy in differential diagnosis is not a new argument. Although there are differences between the results of previous studies, the reported prevalence of headache in patients with epilepsy ranges from 22% to 83.2%.<sup>[1-5]</sup>

Benign occipital epilepsy, benign rolandic epilepsy, and temporal and occipital lobe epilepsy can cause seizures mimicking some features of migraine. Headache can occasionally be the sole symptom of a seizure. Additionally, postictal headaches frequently occur after complex partial and generalized tonic-clonic seizures.<sup>[6]</sup> In light of these data, we aimed to determine the prevalence of interictal headache in patients with epilepsy presenting to an outpatient epilepsy clinic.

## Materials and Methods

This prospective study included 86 adult patients who were diagnosed with epilepsy and followed up at the outpatient clinic of Department of Neurology, Faculty of Medicine, Ankara Research and Training Hospital. Ethical approval was obtained from the ethics committee of the same hospital. The types of seizures classified as per the International League Against Epilepsy (ILAE) Classification of Epileptic Seizures (1981).

## Results

Of the 86 patients, 54 (63%) were females and 32 (37%) were males. The mean age was 26.8 years in males and 24.5 years in females. Of the 86 patients were partial in 25 (29.1%) patients, secondary generalized in 38 (44.2%), generalized tonic-clonic in 11 (12.8%), and myoclonic in 12 (13.9%) (See Table 1). The types of headache in 41 (47.6%) patients presenting with headache were tension-type headache (TTH) (n=14, 16.3%), migraine with aura (n=12, 13.9%), migraine without aura (n=11, 12.8%), TTH + stabbing headache (n=1, 1.2%), cluster headache (n=1, 1.2%), and other primary headaches (n=2, 2.4%) (See Table 2). Data from study patients were analyzed using Statistical Package for Social Science. Data are presented as frequency tables and expressed as mean, standard deviation, and percentage.

**Table 1.** Type of seizure

Type of seizure	n	%
Partial type	25	29.1
Secondary generalized type	38	44.2
Generalized tonic-clonic	11	12.8
Myoclonic	12	13.9

**Table 2.** The types of headache (total and subgroup)

	n	%
Total headache group	41	47.6
Tension-type headache	14	16.3
Migraine with aura	12	13.9
Migraine without aura	11	12.8
Tension type headache + stabbing	1	1.2
Cluster headache	1	1.2
Other primary headaches	2	2.4

## Discussion

Headache is prevalent in the general population as well as in patients with epilepsy. The exact prevalence of headache in adult patients with epilepsy is unknown. The increased prevalence of migraine in patients with epilepsy and that of epilepsy in migraineurs as demonstrated in epidemiological studies lends support to the coexistence of epilepsy and migraine.

The overlap between epilepsy and migraine is striking with shared characteristics of history (e.g., trauma); chronic episodic nature; gastrointestinal and autonomic disturbances; changes in mood, behavior, and cognition; and focal motor and sensory symptoms. Both conditions may trigger each other (epileptic seizures triggered by migraine or migraine episodes following epileptic seizures). Genetic background is considered to be the common denominator of these two periodic disorders.<sup>[7-10]</sup>

The incidence of migraine is higher in the subgroups of patients with benign rolandic epilepsy, benign occipital epilepsy, and primary generalized epilepsy with absence seizures. Epidemiological challenges pose difficulties in conducting studies on migraine associated with epilepsy. The prevalence of migraine ranges between 5% and 18% in the general population and between 8% and 32.9% in patients with epilepsy. Similarly, the prevalence of epilepsy ranges between 0.5% and 1.5% in the gen-

eral population, and 5.9% of migraineurs are affected by epilepsy.<sup>[11,12]</sup>

A migraine prevalence of 18.3% was reported by Tonini et al. in 492 patients with epilepsy, 11% by Duchaczek et al. in 201 patients with epilepsy, and 32.9% by Gameleira et al. in 304 patients with epilepsy.<sup>[3,12,13]</sup> In our study, the overall prevalence of migraine was 26.7% including 13.9% for migraine with aura and 12.8% for migraine without aura, which was consistent with literature.

TTH is a type of primary headache disorder with the greatest socioeconomic impact and is the second most common headache after migraine among primary headaches. Previous studies have reported TTH rates ranging from 30% to 78% in the general population. However, inconsistent figures were reported by studies in patients with epilepsy for TTH prevalence; compared to that in the general population, some studies showed a higher TTH prevalence in patients with epilepsy, whereas others showed a lower TTH prevalence.<sup>[2,5,11,15]</sup> Cillier et al. found a TTH prevalence of 17.2% in 349 patients with epilepsy, which was lower than that in the general population. Similarly, Mainieri et al. reported that 19% of 388 patients with epilepsy had TTH.<sup>[16,17]</sup> In our study, the TTH prevalence was 16.3%, which was comparable to that reported by Cillier et al. and lower than that found in the general population.

Trigeminal autonomic cephalalgias and other types of headache rarely occur in the general population or in patients with epilepsy. In our study, the prevalence of cluster headaches and other primary headaches was 1.2% and 2.4%, respectively.

Epileptic headache has been described in several studies. These studies reported the occurrence of ictal, preictal, and postictal headaches as well as interictal headache in patients with epilepsy and suggested that epileptic headache may be the initial phase of a seizure. Hemicrania epileptica is a rare form of epileptic headache characterized by ipsilateral headache and Electroencephalography (EEG) paroxysms. In patients with headache and epilepsy, the type of pain should be identified because headache may present as an aura of a seizure.<sup>[18,19]</sup> Of the 388 subjects in a previous study, 48.5% had interictal headache, including migraine in 26.3%, TTH in 19.1%, and other primary headaches in 3.1%. In the current study, migraine was frequently experienced

by patients with epilepsy.<sup>[20]</sup> Our findings are consistent with those reported in the literature.

In conclusion, patients with epilepsy often have headaches, particularly migraine headache. Headache in patients with epilepsy may be overlooked during follow-up in the outpatient clinic setting, and this can adversely affect the quality of life of these patients. The observed increased prevalence of migraine in patients with epilepsy and that of epilepsy in migraineurs support the coexistence of epilepsy and migraine. However, further population-based studies are needed to establish comorbidity between epilepsy and migraine.

### Ethics Committee Approval

Ethics committee approved.

### Peer-review

Externally peer-reviewed.

### Conflict of interest

The authors declare that they have no conflict of interest.

### Authorship Contributions

Concept: G.K.; Design: G.Ö.; Supervision: G.K.; Materials: Y.Ü., G.Ö.; Data collection &/or processing: G.Ö.; Analysis and/or interpretation: Y.Ü., G.Ö.; Literature search: Y.B.G.; Writing: G.Ö.; Critical review: L.E.I.

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