

# Prevalence of Migraine Headache in Epileptic Patients

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**Abstract-** Epilepsy is one of the most common neurological disorders which a physician might come across in his career life. On the other hand, migraine is common disorders in society chronic headache such as migraine in epileptic patients give ride to difficulties in seizure treatment due to altering the sleeping pattern and calmness disarrangement. Therefore, early diagnosis and suitable treatment in epileptic patients is definitely inevitable, and it will help in a more desirable patients' treatment. So we aimed to evaluate the prevalence of migraine in epileptic patients and relation between these two disorders. Number of 150 epileptic patients attended to neurology clinic of Shohadaye Tajrish Hospital and Iranian Epilepsy Association between June 2010 to May 2011 were fulfilled the questionnaire, and the data has been assessed by SPSS software. In this study, we used MS-Q (migraine screening –questionnaire) designed for early diagnosis of migraine in the general population. From all patients filling the questionnaire, the prevalence of migraine (with or without aura) was as follows: 23 persons had criteria compatible with migraine with aura; 26 patients had migraine without aura. Migraine was more common in these patients: persons with academic degrees, women, patients who were used 2 antiepileptic drugs, and patients with high BMI. In this study, we showed that migraine in epileptic patients is more prevalent than the general population. Thus, early diagnosis and efficient treatment of migraine headache in these patients is mandatory. More studies are needed for evaluation of this issue.

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**Keywords:** Epilepsy; Migraine; Headache; Antiepileptic drugs

## Introduction

A seizure is one of the most common neurologic disorders. 1% of people in Iran have it, and 45 million people have this disorder in the whole world. Approximately 10% of all the people have one or more seizures during their lifetime (1).

The high incidence of epilepsy is at the onset of childhood and end of adolescence (2). Epilepsy and migraine are episodic disorders that have similar clinical findings and underlying pathophysiological mechanisms (3) such as cortical spreading depression (CSD). The origin of this association is unclear, but some probable explanations introduce underlying etiology (4,5).

The relation between migraine and epilepsy has been recognized. Some studies demonstrated the common molecular and genetic causes of epilepsy and migraine, including phenotypic-genotypic association with mutations in the CACNA1A, ATP1A2, and SCN1A genes, also in syndromes with mutations in the SLC1A3,

POLG, and C10orf2 genes (6,7). Migraine and epilepsy are linked to their signs and symptoms, comorbidities, and treatments. The presence of one of them increases the probability that the other is also present (8).

The aim of this study was to evaluate the prevalence of migraine headache in epileptic patients referring to Shohadaye Tajrish Hospital, Tehran, Iran and identifying any possible relation between these disorders.

## Materials and Methods

In this cross-sectional study 150 epileptic patients with epilepsy that referred to Iranian Epilepsy Organization and neurology clinic in Shohadaye Tajrish Hospital in Tehran-Iran (referral centers) were enrolled and interviewed between June 2010 to May 2011. They were asked to fill the MSQ questionnaire (migraine screening questionnaire) that included demographic characteristics, history of migraine and pattern of headache, history of opium addiction or alcohol

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addiction, and drug history. Pre ictal, ictal and post-ictal headache were ignored from our study, and interictal headaches were added to our study. Exclusion criteria were the acute onset of seizure such as metabolic disorders, poisoning, acute CNS disease, and patient disability to mention headache or seizure pattern, and progressive neurological disorders.

Personal information was saved as confidential, and only the final results were reported. Researchers were loyal to Helsinki ethical guidelines in all steps of this study. If any patient were taken out from a study, he/she would replace with another patient. These data were analyzed by SPSS 17.0. For analyzing the quantitative variables T-test were used, and chi-square and Fisher's exact tests were used for analyze qualitative variables. The statistical meaningful level in this study was supposed  $P < 0.05$ .

## Results

The present study was done for migraine headache probability assessment in epileptic patients who referred to Iranian epilepsy organization and neurology clinic in Shohadaye Tajrish Hospital in Tehran-Iran by MSQ questionnaire. Number of 150 epileptic patients with the average age of 37(9 to 53 years old) were enrolled. 70 patients were males (47%) and 80 were females (53%). Number of 129 patients were unemployed, 21 patients were employed that 11 patients of employed patients were males and 10 patients of employed patients were females (Figure 1). Number of 21 patients had BMI more than 30 that 13 patients of them were females and 8 patients of them were males and 5 patients of them had history of migraine in 6 months ago and 129 patients had BMI lower than 30. All of the patients had no history of addiction to alcohol or opium. Number of 39 patients (26%) had migraine in 6 months ago that 26 females and 13 were males.

Number of 91 patients (61%) had partial seizure that 49 individuals were females and 41 persons of them were males (17 females of them had history of migraine headache and 8 males of them had history of migraine headache in 6 months ago), and 59 persons (39%) had generalized seizure that 31 ones of them were females and 28 were males (9 females and 5 males had history of migraine headache in last 6 months, figure 2).

Number of 23 patients had criteria compatible with migraine with aura, 26 persons fulfilled the questionnaire compatible with migraine without aura (Figure 3).

Regarding the history of drug using, 33 patients used one form of antiepileptic drugs, 69 patients used

two forms of antiepileptic drugs and 48 patients used three forms of antiepileptic drugs. Regarding MSQ 8 patients with using one drug, 16 patients with using two drugs and 15 patients with using three drugs had migraine headache in last 6 months.

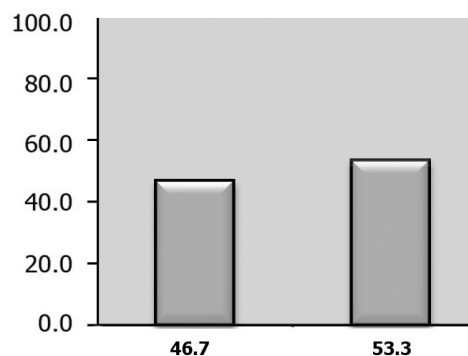


Figure 1. 46.7% enrolled patients were male, and 53.3% were female

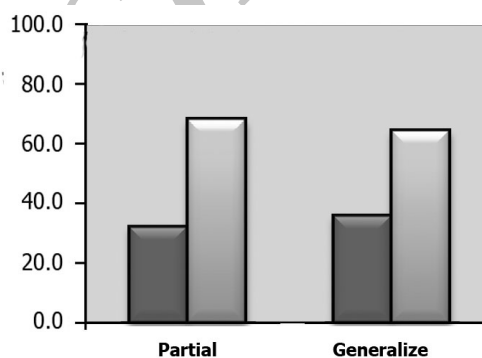


Figure 2. This chart shows the history of migraine in patients with epilepsy. Epileptic females had more history of both partial (68% vs. 32%) or generalized migraine (64.3% vs. 35.7%) than males

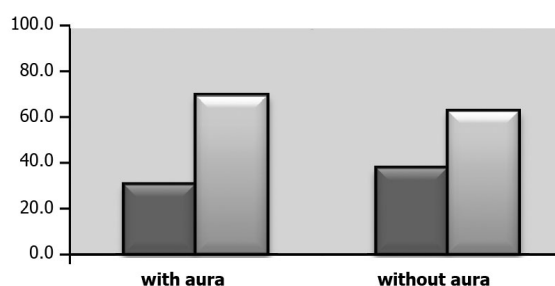


Figure 3. Incidence of aura in epileptic patients with history of migraine headache

## Discussion

Epilepsy is a chronic neurologic disorder with 1% prevalence in the general population. This disorder is a recurrent attack which includes excess and sudden uncontrolled discharge of electricity in the brain

neurons. Seizures are episodes of disturbed brain activity that cause changes in impression, behavior, perception and level of consciousness.

There are some cross-sectional reports about the high prevalence of headache in patients with refractory epilepsy based on retrospective evaluations. Kwan and colleagues show the incidence of headache over a 3-month observation period in a cohort study on 227 adult patients with less refractory epilepsy. The incidence of headache in patients with epilepsy was low (9). In a review of the association between epilepsy and migraine were shown the diagnosis of migraine using the International Headache Society criteria and the significant relation between migraine and epilepsy (8)

Bianchin discussed the relationship between migraine and epilepsy, focusing on clinical manifestations and some pathophysiological and molecular studies which showed the significant relation between migraine and epilepsy (6). In De Simone studies the comorbidity of migraine and epilepsy was assessed and showed the same and logical pathophysiological mechanisms for antiepileptic drug use as prophylaxis in migraine (10).

Our study was done by using MSQ questionnaire. This study demonstrates the high prevalence of migraine among epileptic patients with academic degrees, women and high body mass index. Similar to our study the recent evaluation of Wang *et al.*, using international classification of headache disorders, on the comorbidity of migraine and epilepsy showed that 60.14% patients with epilepsy reported headache. Females (63.75%) have more headache than men (57.17%) in epileptic patients (11).

The high prevalence of migraine in patients with epilepsy motives the accuracy in migraine diagnosis and treatment because of the effects of migraine on the sleeping pattern, social activities which can change the patient's lifestyle.

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