Prevalence of epilepsy in migraine patients and their first-degree relatives

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ABSTRACT: Migraine and epilepsy are among the most common neurological diseases, share several characteristics, including specific clinical features, overlapping pathophysiological mechanisms, and treatment. It seems these two conditions have bidirectional relation and the presence of one disorder increases the probability of other. Current study was performed as a descriptive cross-sectional survey to evaluate the prevalence of epilepsy in migraine patients attending to Shariati Hospital of Tehran during 2010 and their first-degree relatives. Four-hundred patients with migraine were evaluated. Mean age of patients was 31.13±8.99 years. One-hundred subjects (25%) were male and 300 patients (75%) were female. Nine patients (2.3%) had personal history of epilepsy and 7 patients (1.8%) had familial history of epilepsy. Patients with self-history of epilepsy had significantly higher rate of aura (66.7% versus 20.2%, P=0.004). According to the obtained results, it may be concluded that the obtained frequency for epilepsy in migraine is low and also it is relatively similar to other reports.

Keywords: Frequency, Migraine, Seizure, Epilepsy

INTRODUCTION

Migraine is typically characterized by disabling episodes of severe headache associated with nausea, vomiting, and hypersensitivity to light, sound, and smell for up to 3 days (migraine without aura)[1]. Migraine is a common multifactorial neurovascular disorder affects roughly 15% of people and is more common in women than in men [2, 3]. Migraine without aura accounts for 80% of migraines, while 15-20% of cases have migraine with typical aura. Isolated migraine aura without headache (acephalic migraine) may be encountered in 5% of patients [4]. Seizures are defined as paroxysmal events of transitory alteration in consciousness or other signs or symptoms that can be due to brain dysfunction. Epilepsy is the condition of recurrent spontaneous seizures arising from aberrant electrical activity within the brain[5]. Age-adjusted prevalence of active epilepsy is in the range of 2.7-17.6/1000 in most locations, while it might be higher in some isolates; Epilepsy is more prevalent in developing countries versus developed countries [6].

Migraine and epilepsy are two of the most common and significant neurological conditions. Although still incompletely elucidated, the probable existence of a link between migraine and epilepsy has long been recognized and debated[7]. Both disorders are characterized by recurrent neurological attacks with a partial clinical and therapeutic overlap, and there is epidemiological association between these two conditions [8]. Previous studies have showed a bidirectional link between migraine and epilepsy, thus epilepsy increases the risk of migraine and migraine increases the risk of epilepsy[9]. These findings postulated that both conditions shared biological predisposition[10].

Migraine is generally not regarded as a life threatening disease, while mortality ratio in epilepsy patients is higher than general population [11]. So it is important to know whether migraine could be thought as a predisposing factor for epilepsy and migraineurs might have increased risk for developing subsequent epilepsy, and exhibit an increase in disease severity, daily disability and mortality. Therefore to seek co-prevalence of epilepsy and migraine we conducted this study to evaluate the frequency of epilepsy in migraine patients and their first-degree relatives.
MATERIALS AND METHODS

Study setting and patients
Current study was a descriptive cross-sectional survey with sample volume of 400 subjects with migraine who were attended to Shariati Hospital of Tehran during 2010. They and their first-degree relatives were assessed for seizure history. The variables included age, gender, positive history of seizure in patients and their first-degree relatives, presence of aura, and migraine frequency. We collected our data by a checklist which filled by researcher.

Statistical analyses
All data analyzed by SPSS-13 statistical software. Data is expressed as mean±standard deviation. The Mann-Whitney, Chi-Square, and Fisher's Exact were applied to evaluate associations. P values <0.05 were considered significant.

RESULTS
Mean age of patients was 31.13±8.99 years. One-hundred subjects (25%) were male and 300 patients (75%) were female. Nine patients (2.3%) had personal history of epilepsy and 7 patients (1.8%) had familial history of epilepsy (Figures 1 and 2). Patients with self-history of epilepsy had significantly higher rate of aura (66.7% versus 20.2%, P=0.004). There was no significant association between other factors (P > 0.05).
Migraine and epilepsy are among the most common neurological diseases and the comorbidity of these conditions is well known. Previous studies proposed several models for the comorbidity of migraine and epilepsy. First, linked to the dysfunction of ion channels, it has been presumed that channelopathies may be the connection between epilepsy and migraine. Second, a causal unidirectional or bidirectional relationship. Migraine can cause epileptic seizures and, on the other way, an epileptic seizure can causes migraine. Third, the shared environmental risk factors, can upsurge the risks of developing both migraine and epilepsy. Fourth, the shared genetic risk factors. It has seen the relatives of patients with both migraine and epilepsy would have an augmented incidence of developing epilepsy when compared with the relatives of patients with epilepsy only. To elucidate the prevalence of epilepsy in migraine patients and their first relatives we introduced four-hundred patients with migraine to this study [11, 12].

Two disorders are comorbid if they occur in the same person more frequently than by chance alone. Although the reports vary, individuals with either migraine or epilepsy are more than 2 as likely to have the other disorder [13]. Ottman and Lipton showed, the prevalence of epilepsy in people with migraine is the range of 1% to 17%, with a median of 5·9%, considerably higher than the population prevalence of epilepsy[14]. On the other hand, the frequency of migraine in epileptic populations ranges from 8.4% to 23.0% [15]. In this study, 2.3% of migraine patients had personal history of epilepsy and 1.8% had familial history of epilepsy. In spite of the fact that comorbidity of these conditions is well known, to date the casual role of headache/migraine in ictal epileptic manifestation of an epileptic seizure not exactly known[16, 17].

Previous studies has suggested a strong association between migraine with aura (MWA) and epilepsy. Seizures distribution across the various types of headache patients showed a strong prevalence in MWA with regard to the other forms of primary headaches[18]. Moreover, MWA was reported to have more tendencies to link unprovoked seizures[19, 20]. Consistent with other studies we have seen Patients with self-history of epilepsy had significantly higher rate of aura.

In conclusion, our data showed the prevalence of epilepsy is not higher than previous reports. Further research should endeavor to confirm the association between migraine and epilepsy and investigate the degree to which it may or may not be influenced by factors such as age and the existence of migrainous aura.

**REFERENCES**


