Iranian Journal of Neurology

Letter to Editor

Ir J neurol 2012; 11(4): 162-163

The effect of lamotrigine on epilepsy

Hossein Ali Ebrahimi[1], Faridadin Ebrahimi[2]

1 Professor, Neurology Research Center, Kerman University of Medical Sciences, Kerman, Iran

2 Resident of Surgery, Neurology Research center, Kerman University of Medical Sciences, Kerman, Iran

Keywords

Lamotrigine, Epilepsy, Adverse Events, Dosage

Epilepsy is a common neurologic disorder affecting about 1% of the population.[1] The prevalence of active epilepsy in Kerman is 7.87/1000.[2] In 23 countries of Asia the rate of epilepsy is the same as USA and Europe. Pharmacotherapy with antiepileptic drugs is the major treatment modality for epilepsy. This treatment could be a result of decreased excitation concurrent with increased inhibition.[3] The management of epilepsy differs from the treatment of other chronic diseases; a single breakthrough event has a major negative effect on the quality of life.

The past decade has brought many advances to the treatment of epilepsy, including many new pharmacological agents. Lamotrigine is one of the new antiepileptic drugs, which has been used for more than two decades. Lamotrigine is effective in partial-onset and secondarily generalized tonic-clonic seizures, primary generalized seizures (i.e., absence seizures, and primary generalized tonic-clonic seizures), atypical absence seizures, tonic/atonic seizures, and Lennox-Gastaut syndrome. It is sometimes effective for myoclonic seizures, but it can worsen myoclonic seizures in some patients with juvenile myoclonic epilepsy or myoclonic epilepsy of infants.

One of the main advantages of lamotrigine is that it causes less cognitive impairment or overt sedation compared with other treatments.[4] Its anti-aging effect on an animal model in a study has found that lamotrigine decreases mortality and increases lifespan.

Lamotrigine has many side effects; the most important of which is allergic reactions. Introducing lamotrigine gradually is one of the keys to reducing the frequency and severity of allergic reactions. Although the incidence of cutaneous reactions to lamotrigine is high, the incidence of serious eruptions such as erythema multiform, Stevens-Johnson syndrome, and toxic epidermal necrolysis is low.[5] In this study we evaluated the effects of lamotrigine on epileptic patients.

All epileptic patients who referred to our clinic were evaluated. We started with low dose (25-50 mg/day) lamotrigine and gradually increased dosage until the patients became seizure free or adverse events appeared. At first, we used lamotrigine once daily, but for patients who needed more than 150 mg/day we used twice a day. The patients had to be at least 6 months seizure free to be in the control group. For the patients experiencing side effects of the drug the treatment was discontinued. The patients who had other diseases rather than neurological disorders were omitted from the study. Before starting the drug, we did laboratory exams including white blood count, blood sugar, urea, and calcium. If any abnormality was seen, we omitted the patients from the study. We performed brain MRI and electroencephalogram for all the patients before starting the drug and repeated it every 3 or 6 months. The patients who had normal electroencephalograms were also omitted.

905 epileptic patients were treated by lamotrigine (male = 502, female = 403). 505 persons (male = 282, female = 223) completed the study (after at least 6 months, but most of them used it for more than 2 years). Seizure was controlled in 63.5% of patients with monotherapy (male = 61.6%, female = 64%); it is

Email: ijnl@tums.ac.ir

Corresponding Author: Hossein Ali Ebrahimi, MD

Email: hebrahimi@kmu.ac.ir

significant that in females seizure control was more successful than males. The number of patients who needed combined therapy by sodium valproate was 107, and the final ratio of controlling seizure was 60% (male = 45%, female = 77.5%).

Lamotrigine (in the form of monotherapy or combination therapy) could control primary generalized tonic-clonic epilepsy in higher than 88%, secondary generalized tonic-clonic epilepsy in 71%, complex partial epilepsy in 72%, and juvenile myoclonic epilepsy in 81.5% of the patients. Lamotrigine (monotherapy or combined therapy) was effective in 96.7% of familial epileptic patients, and in 94% of patients with known focal lesions.

The effective dosage of lamotrigine was 100-450 mg/day; however, in men, this dosage was higher than women ($P > 0.05$).

The major adverse events that caused us to discontinue lamotrigine in our study included: cutaneous reactions in 29 cases (3%); Stevens-Johnson syndrome in 2 patients, severe headache in 9 cases (1%), exaggerated or induced myoclonic jerk in 7 cases (0.8%), thrombocytopenia with leucopenia in 3 cases, and dopa-responsive dystonia in 2 cases. We did not have any mortality regarding these adverse events. The minor adverse events were dizziness, mild diplopia, dry mouth, and mild headache, but we did not discontinue the treatment in these cases.

Conclusion

We recommend prescribing lamotrigine as first choice on secondary and primary generalized epilepsy and even juvenile myoclonic epilepsy, because of its tolerability, fewer adverse events, and low frequency of prescription.

References

1. Ropper AH, Brown RJ. Adams and Victors principles of neurology. 8th ed. New York, NY: McGraw Hill Professional; 2005. p. 271.
2. Ebrahimi H, Shafa M, Hakimzadeh Asl S. Prevalence of active epilepsy in Kerman, Iran: a house based survey. Acta Neurol Taiwan. 2012; 21(3):115-24.
3. Greenhill SD, Jones RS. Diverse antiepileptic drugs increase the ratio of background synaptic inhibition to excitation and decrease neuronal excitability in neurones of the rat entorhinal cortex in vitro. Neuroscience. 2010; 167(2):456-74.
4. Mockenhaupt M, Messenheimer J, Tennis P, et al. Risk of Stevens-Johnson syndrome and toxic epidermal necrolysis in new users of antiepileptics. Neurology. 2005; 64(7):1134-8.
5. Dichter MA, Brodie MJ. New antiepileptic drugs. N Engl J Med. 1996; 334(24):1583-90.