

LEVETIRACETAM INDUCED URTICARIA IN PATIENT OF FOCAL SEIZURES; A CASE REPORT

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ABSTRACT

Drug rash due to medications are common and can be serious leading to increase in morbidity and mortality. Drug rash can be caused by antiepileptic medications also. We are reporting a case of cutaneous reaction secondary to levetiracetam. A 22 years old female presented to the hospital with history of three episodes of seizures. She was diagnosed with focal seizures with secondary generalization and was prescribed tablet levetiracetam 500 mg twice a day for seizure prophylaxis. After 3rd dose, the patient developed diffuse, erythematous and itchy rashes over whole body without any breathing difficulties. Levetiracetam was discontinued, and tablet lacosamide 200 mg twice daily was substituted. After 1 day, the rash dissipated. Our case was classified as drug-induced urticaria with red itchy hives. The world health organization Uppsala monitoring Centre (WHO-UMC) causality assessment system suggested a probable/likely cause for levetiracetam-induced skin reaction. Levetiracetam seemingly have fewer side effects than the traditional antiepileptic medications but it is important for the healthcare providers to continuously monitor the medication for adverse effects, so that necessary modifications and required labeling may be reformed in-time.

KEYWORDS : levetiracetam, drug-induced urticaria, cutaneous reaction, case report

INTRODUCTION:

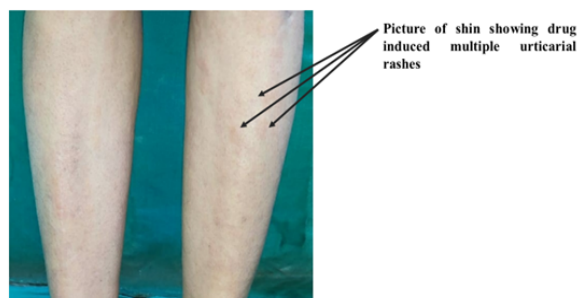
A seizure is a transitory alteration in behavior, sensation or consciousness caused by an abnormal synchronized electrical discharge in the brain.¹ Approximately 1% of the world's population has epilepsy, which is the fourth most common neurological disorder after migraine, stroke and Alzheimer's disease.¹ India has nearly one-sixth of the global epilepsy patients.² Treatment of chronic seizures, employ anti-seizure drugs that are administered orally with the objective of preventing the recurrence of seizure.¹ Levetiracetam is the newer anti-seizure drug with better pharmacokinetic profile and with the advantage of less drug interactions with wider therapeutic range.^{3,4} Levetiracetam is the S-enantiomer of α -ethyl-2-oxo-1-pyrrolidine acetamide, and exerts novel action by binding to synaptic vesicle protein 2A.⁵ Levetiracetam modify the release of glutamate and GABA through an action on vesicular function. Levetiracetam also inhibits N-type Ca^{2+} channels and calcium release from intracellular stores. Plasma half-life of levetiracetam is 6-8 hours and adult dosing is initiated at 500-1000 mg per day and increased every 2-4 weeks by 1000 mg to a maximum dose of 3000 mg per day.⁶

Frequently reported adverse effects with levetiracetam are somnolence, asthenia, ataxia, dizziness and less commonly behavioral and mood changes.⁶

Case:

In this case the patient was a female of 22 years of age and was study participant of academic thesis at Dr. R.P.G.M.C., Kangra at Tanda, Himachal Pradesh. The patient was a referred case from secondary health care institution of Kangra district to Dr. R.P.G.M.C., Kangra at Tanda with complaints of history of three episodes of abnormal body movements starting from right side of body then spreading to whole of the body with teeth clenching and loss of consciousness. Patient had history of tongue bite during seizure. The patient sustained post-ictal confusion which lasted for around 15-20 minutes. The seizure was not preceded by aura and was sudden in onset without specific diurnal rhythm of onset. No

history of similar illness in family was recorded. The patient was subjected to electroencephalography, computerized tomography scan of brain, magnetic resonance imaging of brain and blood investigations including hemoglobin, total leukocyte count, random blood sugar, serum electrolytes, liver and kidney function tests, which came out to be within normal limits. The patient was diagnosed clinically as a case of focal seizure with secondary generalization. The patient did not have any history of known drug or food allergy. The patient had random allocation into the levetiracetam study group after written informed consent as an academic thesis participant. The patient was prescribed tablet levetiracetam 500 mg twice daily (12th hourly) per-oral. Next morning the patient reported telephonically about rash, itching and swelling of the body after the 3rd dose of levetiracetam.



The patient was advised to discontinue the levetiracetam therapy and to visit the hospital for further management. Blood biochemistry parameters, revealed that serum alkaline phosphatase was raised 4-5 folds. The general physical examination revealed normal parameters.

Levetiracetam was stopped and the patient was prescribed tablet lacosamide 200 mg twice daily (12th hourly) for focal seizure management. The patient did not report any drug related adverse effect to lacosamide therapy and was advised to continue treatment and follow-up regularly.

DISCUSSION:

The literature shows very few case reports exhibiting cutaneous drug reactions due to levetiracetam use. In this case a 22 years old female having new onset focal seizure with secondary generalization had developed cutaneous reaction with rash and swelling after consuming levetiracetam tablets as prescribed. Our case was classified as drug-induced urticaria with red itchy hives after oral ingestion of levetiracetam for seizure prophylaxis. Beswick et al. in the year 2010 reported a case of reticular eruption with levetiracetam in a 46-year-old woman with malignant brain tumor.⁷ 2.8% patients out of 1890 total patients in a study had developed rash with the use of antiepileptic drugs and maculopapular cutaneous side-effects were observed in 0.6% of the patients who had used levetiracetam.⁸ A case of erythema multiforme following 2 weeks of levetiracetam therapy was reported in a 27-year-old female by Yesilova et al in the year 2013.⁹ Sonia S Mangal in the year 2014 reported a case of 11-year-old boy who developed urticarial vasculitis following 2 weeks of starting levetiracetam for seizures.¹⁰

CONCLUSION:

It is necessary to carefully monitor the adverse effects after initiating therapy with any drug. It becomes important not to ignore the possibility of cutaneous reactions with levetiracetam monotherapy. Although rare but cutaneous reactions can happen with levetiracetam warranting change of medication. Levetiracetam has been associated with fewer adverse reactions as compared to classical antiepileptics, so it still remains an alternative when it comes to adverse reactions with other antiepileptics.

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