

Carbamazepine and Hyperpigmentation in a Young Woman:

A Case Report

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ABSTRACT

Carbamazepine (CBZ) is an effective and first-line treatment for trigeminal neuralgia and has a key place in the management of epilepsy and bipolar disorder. There is the possibility of clinically important drug interactions because CBZ may induce the hepatic metabolism of other drugs or, conversely, other drugs may induce or inhibit CBZ metabolism. The drug is a member of a big group of antiepileptic drugs that are widely used to prevent and control seizures. It has been associated with several cutaneous side effects. In this case, we report a young woman who presented with dyspnea, weight loss, pancytopenia, abdominal pain, oligomenorrhea, and two weeks history of hyperpigmented lesions over her face, neck, and two hands. She had a history of seizures and did well on carbamazepine for the last 7 months. Carbamazepine was discontinued and she was treated with local emollients. The lesions were partially improved in 2 weeks.

Introduction:

Carbamazepine (CBZ) is an effective and first-line treatment for trigeminal neuralgia and has a crucial role in the management of epilepsy and bipolar disorder. However, there is a possibility of clinically important

drug interactions because CBZ may induce the hepatic metabolism of other drugs or, conversely, other drugs may induce or inhibit the metabolism of CBZ. Research showed that pyrimidine may increase hepatic CBZ metabolism. The CBZ metabolism may be inhibited by triacetyloleandomycin, erythromycin, propoxyphene, isoniazid, and cimetidine [1-8].

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Figure 1. Extensive facial and hands hyperpigmentation due to the side effect of CBZ in a patient with seizure

Left: hyperpigmentation in patient's face; Right: hyperpigmentation in patient's hands.

A study concluded that anticonvulsant drugs and the aromatic compounds like phenytoin, phenobarbital, and CBZ were associated with a relatively higher incidence of cutaneous reactions [2]. It is already recognized that drug-induced skin reactions, in general, are more frequent in women because of sex steroids. In general, female sex steroids enhance immune responses in both physiological and pathological states, whereas androgens dampen inflammatory responses even more than endogenous glucocorticoids [3]. Also, CBZ hypersensitivity reactions may mimic viral infections, glandular fever, or pseudo-lymphoma. Eosinophilia may occur as a part of carbamazepine hypersensitivity but a leukemoid reaction secondary to carbamazepine therapy is very rare [8].

Case Presentation

A 32-year-old woman presented with a history of seizures for 7 years, as well as depression, and hyperpigmented lesions over her face, neck, and two hands (Figure 1). She had a weight loss of about 30 kg for the last 8 months. She also had dyspnea, pancytopenia, abdominal pain, and oligomenorrhea since two weeks ago. She had been treated with carbamazepine and chlordiazepoxide for 7 months.

Laboratory investigations, including white blood cells (3800), hemoglobin (12), platelet (214000), ANA, TSH, cortisol level, adrenocorticotrophic hormone, venous blood gas, electrolytes, calcium, albumin, phosphorus, liver enzymes, peripheral blood smear were normal. Because carbamazepine was incriminated in many cutaneous side effects, it was withdrawn and she was treated with local emollients. The lesions were partially improved in 2 weeks.

Discussion

The studied case showed skin complications caused by anticonvulsant medications as one of the most common medical problems. The main primary treatment in controlling complications of the skin resulting from anti-seizures is recognition and discontinuation of the responsible drug [7]. In this case, as carbamazepine was incriminated in many cutaneous side effects, it was discontinued and she was treated with local emollients. The lesions were partially improved in 2 weeks. In a long-term study on the side effect of treatment by carbamazepine, it was found that about 69% of patients showed signs of drug's side effects between 2 months and 10 years after commencing treatment, and required alternative measures. CBZ-induced water intoxication with hyponatremia in the patients appeared after taking CBZ for 4 months and 7 years [4].

Another research in 2008 on patients diagnosed as AHS (Anticonvulsant hypersensitivity syndrome) showed that the carbamazepine and phenytoin are still the major causes of AHS and the skin rashes like maculopapular, erythrodermic, bullous, and erythematopustular that appeared between 2-86 days after ingestion of the offending agent. An Iranian study in 8 years period concluded that the drug's skin side effects occur more in females. In the majority of patients with skin problems, they used antiepileptic drugs due to seizure. In this study, 48% of patients were impaired. The liver enzymes have been shown but they are all without a complication that has improved [6].

Ethical Considerations

Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed about the purpose of the research and its implementation stages; they were also assured about the confidentiality of their information; moreover, they were free to leave the study whenever they wished, and if desired, the research results would be available to them.

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Conflict of interest

The authors declared no conflict of interest.

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