CASE REPORT

Carbamazepine-induced Pancytopenia: A Rare Entity

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Abstract

Carbamazepine is an anticonvulsant medication used primarily in the treatment of epilepsy, seizure disorder, neuropathic pain, some psychiatric disorders such as schizophrenia, and as a second-line agent in bipolar disorders. Generally, it is safe to use with some nonserious side effects. However, a clinician has to be alert regarding some of its uncommon but serious side effects. Here we discuss a rare case who developed carbamazepine-induced pancytopenia. The offending drug was stopped and pancytopenia recovered within a few days.

Keywords: Carbamazepine, Pancytopenia.

Journal of Mahatma Gandhi University of Medical Sciences & Technology (2018): 10.5005/jp-journals-10057-0082

Introduction

Pancytopenia is a hematological abnormality in which there is a reduction in the number of red blood cells, white blood cells, as well as platelets. There are numerous causes of pancytopenia but pancytopenia caused by carbamazepine is one of the rare cause.

Case Description

A 37-year-old female, with known case of seizure disorder on tab carbamazepine 200 mg twice a day (total dose 400 mg daily) since 1 year, presented with complains of gradually progressive generalized weakness, easy fatigability, shortness of breath, and loss of appetite since 5 months, along with slowly progressive swelling of whole body since 1 month. There was no history of chronic fever, any addiction, and chronic illness.

On examination, pallor was present with mild generalized swelling all over the body with pulse 106/minute, BP 112/76 mm Hg, and SpO_2 96% on room air. Respiratory, cardiac, GIT, and CNS examinations were normal.

On laboratory evaluation, there was severe anemia, thrombocytopenia, and decreased WBC count. Serum vitamin B_{12}, folic acid, and iron profile were normal. After excluding all common causes of pancytopenia and after reading the literature, a rare possibility of carbamazepine-induced pancytopenia was considered and carbamazepine was stopped after 5 days of treatment. Meanwhile, the patient was being treated symptomatically and conservatively.

On admission her platelet count was 35,000/µL, Hb 5.4 g/dL, and WBC count 3,960/µL. After cessation of the drug, the platelet count showed a significant improvement to 83,000/µL, Hb 9.5 g/dL, and WBC count 5,850/µL.

Patient antiepileptic drug changed to phenytoin sodium and her general condition also improved on discharge (Table 1).

Discussion

Carbamazepine was discovered in 1953 by Swiss chemist Walter Schindler and was approved as an antiepileptic drug in 1974. Its mechanism of action is through a sodium channel blocker.[1]

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How to cite this article: Mathur P, Gupta D, Moolrajani K, *et al.* Carbamazepine-induced Pancytopenia: A Rare Entity. J Mahatma Gandhi Univ Med Sci Tech 2018;3(3):97–98.

Source of support: Nil

Conflict of interest: None

Its common side effects includes ataxia, dizziness, nausea, and vomiting. Its rare but serious side effects includes agranulocytosis, thrombocytopenia, and aplastic anemia.[2]

In this case, after excluding all common possible causes of pancytopenia, carbamazepine-induced pancytopenia was thought of.

So, carbamazepine was stopped and in place of that another antiepileptic drug was started to prevent the patient from any seizure episode.

An autoimmune mechanism has been postulated as the cause of low platelet count in patients on carbamazepine who develop drug-dependent reactive platelet antibodies.[3]

So, careful monitoring of CBC becomes necessary for patients who are on carbamazepine.[4]

Conclusion

Carbamazepine is a frequently used drug in multiple conditions such as seizure disorder, trigeminal neuralgia, bipolar mania, restless leg syndrome, schizophrenia, and postherpetic neuralgia. Carbamazepine-induced pancytopenia is a preventable condition and regular monitoring of CBC is required.

Table 1: Sequential complete blood count

Lab parameter	*Day 1*	*Day 2*	*Day 3*	*Day 5*	*Day 6*	*Day 7*
Hb (g/dL)	5.4	6.1	6.7	8.4	8.6	9.5
Platelet (per µL)	35,000	31,000	24,000	18,000	31,000	83,000
WBC (per µL)	3.96	3.27	3.09	3.04	4.03	5.85

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