International Journal of Medicine Sciences
www.medicinejournal.in
Online ISSN: 2664-889X, Print ISSN: 2664-8881
Received Date: 02-11-2018 Accepted Date: 04-12-2018; Published: 04-01-2019
Volume 1; Issue 1; 2019; Page No. 08-09

Phenytoin induced cerebellar toxicity: A case report

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Abstract
Phenytoin is commonly used antiepileptic drug having variety of side effects. It should be used cautiously as it has narrow therapeutic index. This case report includes a case of phenytion induced cerebellar toxicity. Patient recovered completely after discontinuation and replacement of the drug. Lack of awareness about this entity among health care givers often leads to misdiagnosis. This article is focused to highlight this entity.

Keywords: cerebellar toxicity, phenytoin, therapeutic index

Introduction

Epilepsy is a common neurological disorder and phentyoin is commonly used antiepileptic drug to control and prevent seizure as it is cheaper and easily available. It has narrow therapeutic index with wide range of side effects. Common side effects of phenytoin are often defined as '5 H' which denotes Hyperglycemia, Hyperplasia of gums, Hypersensitivity, Hirsutism, Hydontoin syndrome. Phenytoin intoxication may present as generalized weakness, headache, nausea, vomiting, abdominal pain, tremor, nystagmus, slurred speech, diplopia, blurred vision, incordination, chorioathetosis, orofacial dyskinesia, unsteady gait, dizziness, drowsiness, confusion [1, 2]. This article includes a case report of phenytoin induced cerebellar toxicity in an epileptic patient. This article also underlines the fact that there is lack of knowledge about phenytoin induced cerebellar toxicity among health care givers. Correct diagnosis and management can recover patient completely.

Case history

The case was 42 years old Hindu male patient resident of Udaipur, Rajasthan, India reported to health care facility in 2017. He was business man. He came with complaint of insidious onset gradually progressive swaying of body with difficulty in standing and walking for last one and a half months. Initially patient had low amplitude swaying of body and he was able to stand and walk with some difficulty. Later, after ten days he was unable to walk and able to stand only by difficulty with large amplitude swaying of body. He needed assistance and support for using wash room and other ambulatory activities. He took multiple consultations at various health care centers but he did not get any relief. There was no difficulty in holding objects, buttoning-unbuttoning of shirt and combing of hair. There was no history of slippage of footwear but he had difficulty in climbing upstairs and standing up from squatting position.

There was no history of fever, chills and rigor, evening rise of temperature, chest pain, palpitation, excessive sweating, loss of consciousness, altered behavior, vomiting, diarrhea, abdominal pain, blood loss, trauma, involuntary bladder bowel evacuation, constipation, urinary retention, vision loss, hearing impairment, skin lesions, recent weight gain or weight loss, difficulty in breathing or swallowing, hoarseness of voice, loss of sensations, recent vaccination, poisoning or binge alcohol intake.

Patient had past history of seizure disorder and he was on medication for last twelve years. Initially he took irregular treatment and had four to five episodes of generalized tonic clonic type of seizure in initial two years. Afterward patient was taking regular medication from past ten years in form of phenytoin 100 mg thrice a day. He had no episode of seizure after taking regular treatment. No past history of diabetes, hypertension, coronary heart disease, tuberculosis, trauma, psychiatric illness, operative procedure or similar illness was there. Patient was vegetarian and had history of occasional smoking (one cigarette pack in a month) with no alcoholism. Patient had normal bowel and bladder habits. Hypertension, diabetes, coronary artery disease or similar illness was not present in any of family members. No history of drug addiction and drug allergy was there. On general physical examination intentional tremors and nystagmus were present with no other physical abnormality. Vitals were within normal limits.

On systemic examination of nervous system higher mental functions were normal. No abnormality was found during cranial nerve examination. On motor examination bilateral bulk, tone, power of muscles was normal. Bilaterally deep and superficial reflexes were also found normal. No abnormality was found on sensory examination. Signs of meningitis were absent. On examination of cerebellar signs intentional tremor, horizontal nystagmus, swaying of body were present. Romberg's sign was absent. Coordination was impaired. No significant abnormality was found on examination of other systems. Clinical diagnosis of

cerebellar disorder was made.

Patient was admitted for further evaluation. On routine investigation hemoglobin, total leucocytes count, platelet count were within normal limits. Patient also had peripheral blood film, ESR, blood sugar, renal-liver function test, serum electrolyte within normal limits. No significant abnormality was found in ECG, chest X-ray, ultrasonography of abdomen. Malaria antigen detection test, Dengue NS1 antigen, Dengue IgG, IgM antibodies, VDRL test, Widal titre, typhoid IgM/IgG antibodies, HIV immunochromatographic assay, Hepatitis B surface antigen, anti HCV antibodies, anti-nuclear antibodies (ANA) were found with in normal values. CSF examination, EEG and contrast enhanced MRI brain were also found normal. As patient was taking phenytoin from last ten years, drug induced cerebellar toxicity was suspected. On investigation serum phenytoin level was found 34 mcg/ml (reference range= 10 to 20 mcg/ml). Phenytoin was stopped and replaced by valproic acid 500 mg twice a day. After four days of admission patient was discharged. On follow up, after two months of hospital admission there was significant improvement in swaying of body. Patient was able to stand, walk and can use washroom without any support. Only very low amplitude swaying of body was there. On further follow up of three months patient was completely recovered. Patient was advised to take same medication with regular follow up.

Discussion

Knowledge about side effects and toxicity of commonly used drugs is important as it may mimic systemic disorders. This case report included a case of phenytoin induced cerebellar toxicity. In current case report patient took multiple consultations at various centers before, but serum phenytoin level was not advised in any of the consultation probably due to lack of awareness about this entity among health care givers. Previously some studies and case reports had also mentioned phenytoin induced cerebellar toxicity [1-7]. Complete recovery may possible by correct diagnosis and replacement of the drug. Monitoring of serum level is needed to avoid toxicity of the drug which has narrow therapeutic index. This case report highlighted the need of general awareness about this entity.

Conclusion

Phenytoin should be used cautiously as it has narrow therapeutic index. Serum phenytoin level should be monitored to avoid toxicity. There is lack of awareness about phenytoin induced cerebellar toxicity among health care givers. Early diagnosis with replacement of the drug can recover patient completely.

Source of support- nil

Conflict of interest- The authors declare that there is no conflict of interests.

Ethical statement: Consent was obtained from the patient for publication.

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