

CARBAMAZEPINE INDUCED ATRIOVENTRICULAR HEART BLOCK

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Abstract

Carbamazepine is an antiepileptic agent which rarely induces cardiac conduction abnormalities including tachyarrhythmias and bradyarrhythmias. A 60 year old female who was on carbamazepine 300mg daily for seizure disorder presented with syncope. Electrocardiography was showing Mobitz type 1 Atrioventricular block, which was reversed by stopping the drug.

Keywords:

Carbamazepine,
atrioventricular block.

INTRODUCTION

Carbamazepine is an antiepileptic agent used for treatment of focal seizures, generalised seizures, trigeminal neuralgia and painful neuropathies.

Carbamazepine induces both tachyarrhythmia's as well as bradyarrhythmias. We report a case of atrioventricular block(AV) induced by carbamazepine.

CASE DESCRIPTION

A 60 year old female who was on carbamazepine 300 mg daily for seizure disorder from last two years, presented to emergency with history of two episodes of syncope during last week. She was hypertensive from last eight years, taking telmisartan 40 mg daily. On presentation her pulse was 40 beats per minute which was regularly irregular, blood pressure 110/70 and GCS15/15. Her electrocardiography(ECG) was suggestive of Mobitz type1 AV block.(Figure 1) Her serum carbamazepine levels were within normal limits. Carbamazepine was stopped in consultation with neurologist and exchanged by levetiracetam. She was admitted and continuous ECG monitoring was done. On next day her ECG was showing a first degree heart block (Figure2) and on 4th day, a normal sinus rhythm appeared. (figure3) Her echocardiography and troponin levels were normal. Laboratory investigations including complete blood counts, kidney function and liver function tests were normal. She was discharged on 10th day with normal ECG. 3 months later, she never experienced any syncope and her seizures are well controlled.

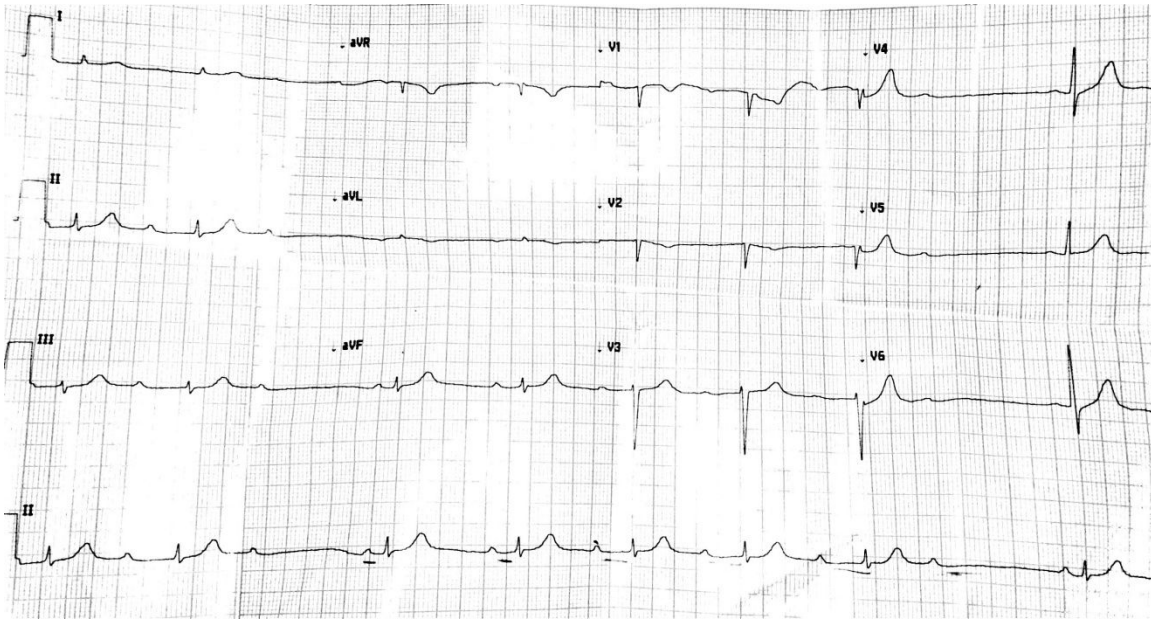


Figure 1 showing 2:1 mobitz type I AV block

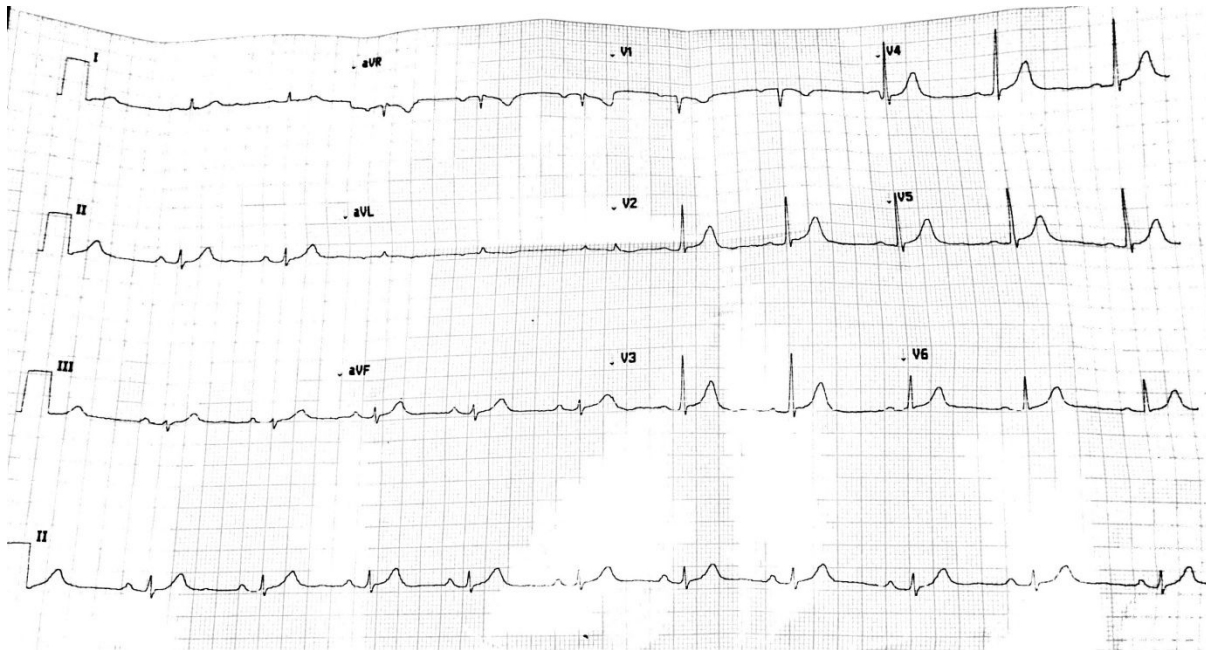


Figure 2 showing first degree heart block

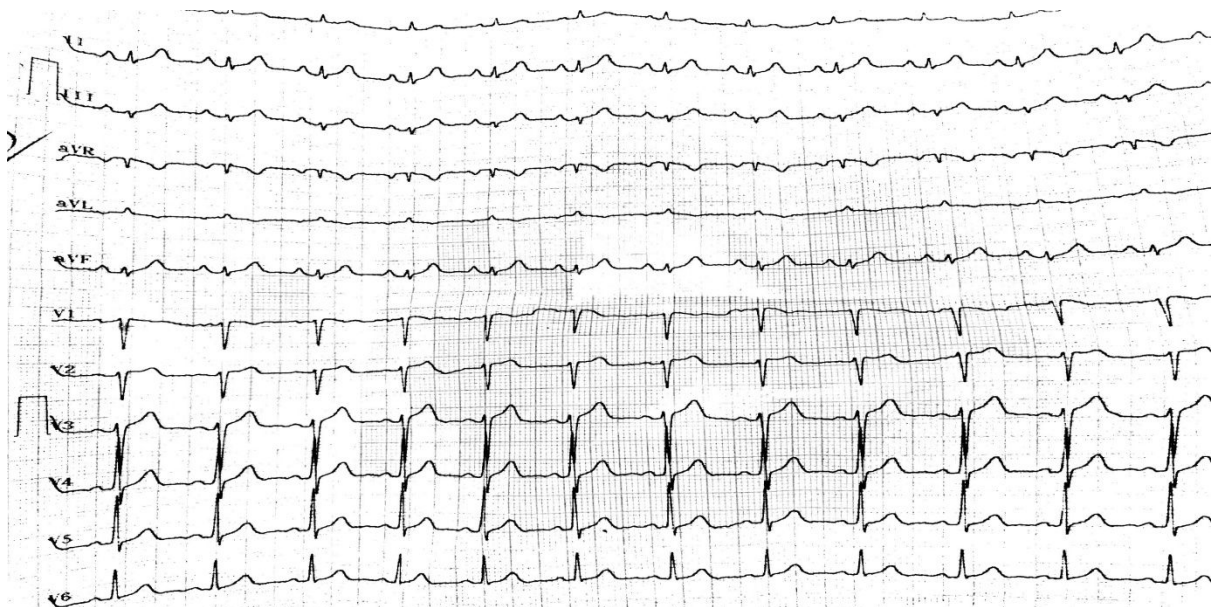


Figure 3 showing normal sinus rhythm

DISCUSSION

Carbamazepine exerts its action by binding to sodium channels and reducing phase 4 depolarization. It induces negative chronotropic and dromotropic effects on cardiac conduction system^{1,2}. Two types of cardiac arrhythmias have been reported with carbamazepine. Tachyarrhythmias which occur predominantly in young with massive overdose and bradyarrhythmias in older people with normal serum carbamazepine levels³. carbamazepine induced heart block can occur even after long duration of therapy as in our case. In case reports by Labrecque et al and Ide et al AV block occurred after 1-3 years of therapy^{4,5} and was reversed with stoppage of the drug.

Cardiac conduction abnormalities are frequently overlooked complications of carbamazepine. it may thus be emphasised that baseline ECG should be obtained in all patients before starting on carbamazepine therapy.

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