



## A Case of Sodium Valproate Induced Thrombocytopenia

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### Abstract

*Sodium valproate is an anti-epileptic medication and is commonly used drug in psychiatric practice which has many indications. Apart from its most common side effects and its teratogenic properties, its haematological side effect needs careful monitoring and evaluation. Acquired platelet function defects have been found and attributed to this drug<sup>1</sup>, and there have been reports of haemorrhages, prolonged bleeding time and thrombocytopenia in patients on sodium valproate with other anticonvulsant drugs<sup>2,3</sup>. Thrombocytopenia has been reported in 6–33% of adults receiving valproic acid<sup>4</sup>. Here we report a case who developed thrombocytopenia after sodium valproate monotherapy*

**Keywords:** valproate, thrombocytopenia.

### Introduction

Valproate is a simple branched- chain fatty acid. Sodium valproate is widely used as an antiepileptic drug (monotherapy and adjuvant therapy) in complex partial seizures, absence seizures, prophylactic for migraine headaches and in bipolar disorders for acute management and maintenance treatment. Outside of formal diagnosis, valproate appears to be effective for target symptoms of irritability, aggressiveness, mood lability and impulsivity. Common side effects include GastroIntestinal distress, tremor, sedation, benign hepatic transaminase elevation, leucopenia, thrombocytopenia, hair loss, increased appetite and weight gain. Most of the side effects are dose related. Haematological effects include

red cell hypoplasia, leucopenia and thrombocytopenia.

### Case Presentation

A case of 32year old male diagnosed as Intellectual disability with behavioural problems was admitted for evaluation and management. He was found irritable and uncooperative. He was prescribed sodium valproate 400mg in divided doses after his full blood count, LFT and RFT were found to be normal. His blood counts were within the normal range throughout the treatment. EEG was done and there was no abnormality. Sodium valproate was tapered and stopped once his irritability had decreased.

Sodium valproate was again restarted after 8months in dose of 400mg BD as monotherapy as

he developed irritability again after his baseline counts were assessed and found to be normal. After 4 months with same dose of valproate, histotal leucocyte count was reduced to 3000 per cubicmm and platelet count was reduced to 60,000 per microlitre. There were no signs of bleeding, petechiae and haemorrhage. Other causes of thrombocytopenia were ruled out.

Sodium valproate was stopped immediately and there was gradual increase in platelet count and total leucocyte count to normal range.

### Discussion

One should obtain a baseline LFT and complete blood count before starting valproate for any patient. Our patient had developed thrombocytopenia not in first administration but in subsequent administration of sodium valproate. The mechanism of valproate induced thrombocytopenia is unclear. The possibilities include dose dependent suppression of bone marrow or peripheral platelet destruction. It was associated with an increased platelet related immunoglobulin level and the platelet count was inversely correlated with the concentration of platelet related immunoglobulin<sup>5</sup>. The structural similarity between valproate and fatty acid constituents of cell membrane may lead to increased incidence of immune thrombocytolysis<sup>6</sup>. A high plasma valproate concentration is associated with in vivo and in vitro bone marrow suppression<sup>7</sup>. While the Valproate concentration-dependent thrombocytopenia could be explained by the mechanism of bone marrow suppression, the rare occurrence of pancytopenia suggests that other mechanisms must be involved that renders the platelet cell lineage more vulnerable to valproate suppression or damage<sup>8,9</sup>. Valproate induced thrombocytopenia was reversible in our patient following discontinuation, a finding consistent with the previous studies<sup>10,11,12</sup>.

### Conclusion

Here we presented a case who developed thrombocytopenia and decreased total leucocyte

count after sodium valproate monotherapy and improved after discontinuation. NICE recommends monitoring of full blood count, liver function test, body weight and BMI before treatment and every 6 months while on treatment with valproate. Lack of awareness of this side effect may lead to life threatening situation. Patients should be informed of this potential complication and advised to contact the treating physician if they have any signs of bleeding to prevent any fatal outcome.

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