OLANZAPINE INDUCED HEMOTOXICITY: A CASE REPORT IN PSYCHIATRY DEPARTMENT

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ABSTRACT

Olanzapine is a second generation (atypical) anti-psychotic medication, widely used for the treatment of schizophrenia and bipolar disorder. In comparision to conventional or other medications, atypical anti psychotics have safety advantages including less sedation, cardiovascular effects, postural instability, falls and movement disorders. Olanzapine induced hemotoxicity is a rare adverse effect that is currently poorly described in literature. We present a rare case of hematotoxicity induced by Olanzapine of 10mg/day in a 40 year old female patient with the diagnosis of BPAD. In this case we have observed a gradual decrease of total WBC and Lymphocytes from first week to 6th week of treatment, in similar way observed an increase in eosinophil count. However, these haematological adverse effects were resolved by the discontinuation of olanzapine treatment. Although monitoring blood counts during antipsychotics use is not recommended, clinicians should be aware of this rare but hazardous side effect. Suspected ADR was probable ADR (Naranjo’s scale).

KEY WORDS: BPAD (Bipolar affective disorder), WBC (White blood cells), ADR( Adverse drug reaction), Hemotoxicity, Olanzapine.

INTRODUCTION

Olanzapine is a second generation antipsychotic medication under thienobenzodiazapine class majorly used for the treatment of Schizophrenia and BPAD. Due to surmised higher efficacy, less extra pyramidal side effects and fewer adverse drug reactions, anticipated to be safe and an alternative choice to clozapine in patients who develop hematotoxicities. Among anti psychotics the most common causes of drug related hemotoxicity was predominant with clozapine followed by phenothiazines.[1] Second generation antipsychotics like olanzapine first came into use in 1990’s. Both the chemical and pharmacological profile of Olanzapine was similar to Clozapine, may induce hemo toxicity.[2,3]

Although olanzapine is known to produce side effects such as weight gain and metabolic syndrome a lesser studied phenomenon associated with therapy is granulocytopenia.[4,5] Olanzapine may cause granulocytopenia by several mechanisms, among them one posit modulating granulocyte colony stimulating factor (G-CSF) levels. In Olanzapine induced granulocytopenia, G-CSF was not detectable in plasma, further studies are needed to establish the précised mechanism of granulocytopenia due to the use of Olanzapine.[2,3]

This case study provides an example and discussion of a patient with Bipolar affective disorder experiencing hematotoxicity suspected to be caused by olanzapine. Valproate does have a known risk to hematologic dysfunction and can be contemplated likely to be predominant contributor to the patients hematologic depression.

The purpose of this report is to evaluate the drug induced hematotoxicity (i.e., leucopenia, neutropenia and eosinophilia) and to inform clinicians of such possible side effects when considering use of olanzapine.

CASE REPORT

A 40 years old female patient was admitted in Psychiatry ward with the complaints of excessive talking, abusive behaviour, decreased sleep and aimless wanderings since 2 months. On examination she was found to be having manic symptoms and upon further enquiry she was found to be having depression episodes in past. On general examination she was conscious and aggressive. As the
patient had both the depression and maniac episodes she was diagnosed with “Bipolar affective disorder”. As a part of treatment plan for the first 5 days she was treated with Inj.Haloperidol 10 mg, Inj.Phenargon 25 mg, T.Olanzapine, T.Valproate and T.THP of doses 10, 500 and 2 mg respectively. On day 6 of her admission she was advised to undergo some laboratory tests for monitoring haematological parameters. Her reports showed as TC – 11000 cells/cumm, differential count as N-74%, L-25 %, E-03% and M-00%. Again on 16 th day of her admission as she was found to be resistant and still had a complaint o flight of idea an another mood stabilizer T.Lithium of dose 400 mg was added to the treatment plan. She was still maintaining with same medication and on day 29 again referred for same investigations, in which we found an increase in eosinophil [5%] and also observed decreased total wbc count [9800cells/cumm], Neutrophils[64%], Lymphocytes [20%] respectively.

Similarly on day 42 her reports revealed further decrease in total wbc count [6700cells/cumm], N[62%], L[18%] and increase in E [9%]. Suspecting this as an adverse reaction to prescribed drugs majorly T.Olanzapine, causality assessment was done and later it was withdrawn from the regimen and after 7 days of care we again advised same laboratory tests which unveiled within range parameters.

ADR analysis
As the patient was under the treatment with prescribed regimen for BPAD, we found a gradual decrease and increase in WBC, N, L and E count respectively as long as the patient complied to the regimen. Suspecting the observed haematological changes as an adverse reaction to T. Olanzapine, ADR was analysed by using Naranjo’s and WHO scale, the ADR was found to be probable.

Severity of suspected ADR was analysed by using “Modified Hartwig and siegel scale” and the ADR was mild level 2.

DISCUSSION
This is the case of drug induced hemotoxicity. In this case we suspect the drug Olanzapine. Generally hemo toxicity of antipsychotics has been well recognised. Olanzapine induced hemo toxicity can decrease the count of neutrophils and WBC and similarly can increase eosinophil count. Lab investigations reports reflected the same. We had provided patient counselling regarding disease, medication life style modifications. Although the risk of individual medicines has been documented it still not clear whether the risk of hemo toxicity is further increased when a patient is sequentially treated with antipsychotics. At first, the possibility of valproate in combination with Olanzapine as causative agents was considered, given a case report demonstrating severe neutropenia caused by valproate. As there are no predisposing factors were found to be associated with developed hemotoxicity we strongly consider this as drug induced. Although antipsychotics induced neutropenia can results in serious complications, especially in combination with agranulocytosis, only clozapine has clinical guidelines for blood monitoring with the administration. In our case, after the initial development hemo toxicity Olanzapine was discontinued as it is considered to be the cause. Later after again performing the laboratory assessment, we found the haematological parameters within the range. In this case, patient was under the suspected medication for two months and an early intervention prevented the further progression of severity as we found a progressive decline in the hematological parameters compared to base line. For these reasons we may suggest that careful monitoring of WBC count in combination with other haematological examinations is critical for patients using antipsychotics.

CONCLUSION
This case report represents evidence of hemotoxicity induced by olanzapine use. Although poorly described in literature, olanzapine-induced neutropenia is a potentially serious side effect that should be considered with the use of olanzapine. Further studies are needed to investigate the mechanism and risk factors. Additionally, currently there are no guidelines for examining WBC levels with olanzapine dosing, but this case emphasises the significance of monitoring CBC at higher dosages of Olanzapine.

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