Lurasidone Induced Thrombocytopenia: Is it a Signal of Drug Induced Myelosuppression?

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ABSTRACT

The U.S. Food and Drug Administration (FDA) has approved a supplemental new drug application Lurasidone (Latuda, Sunovion Pharmaceuticals), an atypical antipsychotic, for the treatment of schizophrenia in adolescents 13–17 years of age. Lurasidone was previously indicated in the U.S. for the treatment of adults with schizophrenia and major depressive episodes with bipolar I disorder as monotherapy. We present a case of a 29-year-old male patient who was hospitalized with thrombocytopenia (WHO grade-3 toxicity) (unlabeled) along with extrapyramidal disorder, gastritis, and hyperprolactinemia within 2–3 months of initiation of tablet lurasidone 80 mg/day (Lurasid, Intas Pharmaceuticals) in bipolar depression. Dechallenge was found to be positive in three reactions except hyperprolactinemia (outcome unknown) during hospital stay. The terms anemia and leukopenia are well labeled/listed with the drug literatures of lurasidone. Thus, this case presents a strong probability of lurasidone to cause myelosuppression/bone marrow depression.

Key words: Bone marrow depression, lurasidone, myelosuppression, thrombocytopenia

INTRODUCTION

First approved in October 2010 for the treatment of schizophrenia in adults, lurasidone is a benz-isothiazol-derivative, second-generation (atypical) antipsychotic. Similar to other atypical antipsychotics, it antagonizes dopamine D₂ receptors, but also serotonin 5-HT₂A and 5-HT₇ receptors.[1] Several antipsychotics are now FDA approved in the management of bipolar depression including quetiapine and lurasidone.[2] Lurasidone was well-tolerated, and commonly observed adverse reactions (incidence ≥5% and at least twice the rate for placebo) were akathisia, extrapyramidal symptoms, and somnolence.[3]

CASE REPORT

A 29-year-old male patient with bipolar depression was hospitalized with chief complaints of tremors, involuntary movements of limbs and upper body, vomiting and burning sensation in stomach for 2 weeks. He was on tablet lurasidone (Lurasid) 80 mg once a day for 2½ months started by some clinical psychiatrist.
In suspect of drug-induced extrapyramidal disorder and gastritis, lurasidone was discontinued from the day of hospitalization. On the same day, blood sample for routine complete blood count and serum prolactin was collected. Hemoglobin was found to be 15.3 g% and total white blood cells were 5300/cmm whereas platelets were only 37,000. Serum prolactin level was also raised with 26.93 ng/ml. Thrombocytopenia and hyperprolactinemia too were now suspected to be drug-induced. Capsule of esomeprazole with domperidone, tablet risperidone, and tablet trihexyphenidyl was started to manage the reactions after which gastritis and extrapyramidal disorder started subsiding. After a week, again test for platelet counts was performed which showed improvement with platelet count of 1.83 lacs/cmm. The outcome of hyperprolactinemia was unknown as the patient was discharged from the hospital.

**DISCUSSION**

In our case, dechallenge was positive, and thus, the causal association of thrombocytopenia with lurasidone as per WHO-UMC causality assessment scale was found probable. Leukopenia, neutropenia, and anemia were noted in Phase 2 and 3 controlled and uncontrolled studies; however, the incidence of occurrence for these is too low to estimate frequencies.[4] When the WHO-UMC database was accessed for lurasidone, there are 52 reports under blood and lymphatic system disorders till date. Out of these, there are 6 reports of thrombocytopenia (including this only report from India), 2 reports of platelet disorder and a report of bone marrow failure.[5] Moreover, a total number of 2148 reports of adverse reactions to various system organ classes were reported from WHO-UMC member countries to Vigibase which are very less as compared to various established drugs available in the market for decades.[5]

Therefore, clinicians should also monitor hematological adverse effects at regular intervals after initiation of therapy and report the same to the nearest pharmacovigilance center established under Pharmacovigilance Programme of India. This will help in finding the actual frequency and magnitude of such serious adverse effects and thus improve patients’ safety by timely taking proper regulatory decisions by drug regulators throughout the globe.

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**Conflicts of interest**

There are no conflicts of interest.

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