Desidustat as a Promising Treatment for Erythropoietin-Induced Pure Red Cell Aplasia in Chronic Kidney Disease: A Case Report WCN24-AB-2158

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Introduction

Pure Red Cell Aplasia (PRCA) is a rare blood disorder characterized by a significant reduction or absence of red blood cell precursors in the bone marrow, leading to severe anemia. This condition results in a normocytic, normochromic anemia with severe reticulocytopenia.

PRCA may develop in response to antibodies against Recombinant human erythropoietin (rHuEPO) in patients with chronic kidney disease (CKD).

Current management strategies for PRCA include discontinuation of erythropoiesis-stimulating agents (ESAs) like Eryhthropoetin and the initiation of immunosuppressive agents.

Methods

This is a single center retrospective case report of 77 year old male suffering from chronic kidney disease.

The patient received erythropoetin (10000 IU/week) for treatment of CKD-Anemia.

Going forward he was diagnosed with Erythropoetin induced PRCA.

Following which he was given Desidustat (Oxemia®) and followed up for Hb response.

Results

A 77-year-old male with CKD, was initiated on erythropoietin 10,000 IU/week for anemia of CKD (Hb 6.5 g/dL). Despite initial improvement, there is a drop in Hb levels, which required packed cell transfusions.

In October 2021, hemodialysis started 3/weekly, and given packed red cell transfusion but his Hb remained unresponsive to therapy.

In November 2021, the patient was hospitalized with severe anemia (Hb 5 g/dL) and low reticulocyte count (0.2%) %), serum ferritin 800 ng/ml & transferrin saturation 34%. Patient received 8 units of Packed red Blood Cell transfusion.

On November 15th detailed investigation of Bone marrow biopsy diagnosed with pure red cell aplasia (PRCA).

Results

Erythropoietin was discontinued, and the patient was started on prednisolone (60 mg twice daily), which was tapered.

Due to inadequate response, Tacrolimus (1 mg BD, increased to 2 mg) was added.

Despite of Oral immunosuppressive interventions, the patient required weekly transfusions.

In May 2022, Desidustat a Hypoxia inducing factor prolyl hydroxylase inhibitor (100 mg every other day) was Started.

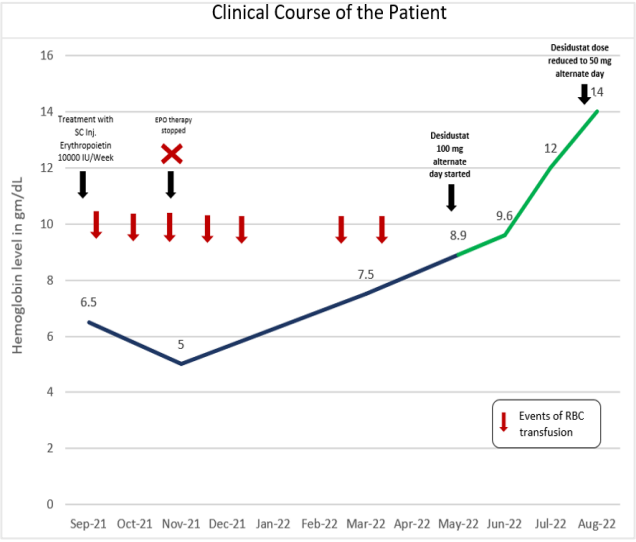

Figure.1: Clinical Course of the Patient

SC: Sub-cutaneous, RBC: Red Blood Cells.

The patient's Hb levels increased from 8.9 g/dL to 14 g/dL over three months, eliminating the need for transfusions.

The patient continues on Desidustat (50 mg every other day) and maintenance dialysis.

Pure red cell aplasia (PRCA) is caused by antibodies against recombinant human erythropoietin (rHuEPO), leading to a lack of red cell precursors.

Desidustat, an oral agent, combined with immunosuppressive therapy, shows promise in treating PRCA by avoiding immune system activation and maintaining hemoglobin levels.

Conclusions

- Desidustat may serve as an effective alternative therapy for managing EpO-induced (exogenous) PRCA in CKD patients, offering endogenous EpO production via HIF-PHI pathway.
- This shows efficacy of Desidustat in challenging cases of CKD-Anemia.