

Thalidomide Induced Anemia in A Patient with Multiple Myeloma

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ABSTRACT:

Thalidomide has been widely used in the treatment of various hematologic malignancies and inflammatory disorders.¹ Here, we present a case of thalidomide induced anemia in a 65-year-old male patient diagnosed with multiple myeloma. This case underscores the importance of vigilance for hematological adverse effects in patients receiving thalidomide therapy and the need for close monitoring and prompt management.

KEYWORDS: Thalidomide, anemia, adverse drug reaction, hematologic malignancy.

INTRODUCTION

Thalidomide, a drug infamous for its tragic history marked by severe teratogenic effects, Originally introduced in the late 1950s as a sedative and antiemetic agent, thalidomide was withdrawn from the market in the 1960s following reports of devastating birth defects in infants.² The immunomodulatory drug (IMiD) thalidomide and its newer analogs demonstrate increased antitumor activity, and have had a positive impact on the natural history of multiple myeloma.³ The most frequent ADR were numbness, somnolence, hematological complications such as anemia, thrombocytopenia neutropenia and dermatitis.⁴ Among blood and lymphatic system disorder ADR (4% of all ADR reported globally), anemia cases were about 731, in which 41% were females and 53% were males, this is one case of anemia has been recorded in the vigiaccess database.⁵

CASE REPORT

A 65-year-old male with a history of multiple myeloma and type 2 diabetes mellitus, came with complains of fatigue, weakness and his blood hemoglobin level was about 7.5 g/dL. The patient was diagnosed with multiple myeloma, for which thalidomide therapy was started in 2023 and initiated at a dose of 50 mg

once daily . Thalidomide-induced anemia was suspected, and the drug was promptly discontinued. Following discontinuation of thalidomide, the patient's symptoms gradually improved, and hemoglobin levels began to rise. Subsequent laboratory investigations confirmed resolution of the anemia, with hemoglobin levels returning to baseline values without the need for additional interventions.

DISCUSSION

Thalidomide is a drug used in treatment of advanced leprosy and multiple myeloma, and various other solid and hematologic malignancies. Lenalidomide is a byproduct of the metabolism of thalidomide in the body. Lenalidomide has been documented to be associated with hemolytic anemia.⁶ Immunomodulatory effects of thalidomide, particularly its inhibition of tumor necrosis factor-alpha (TNF- α) and other pro-inflammatory cytokines, can impair erythropoiesis. TNF- α and other cytokines are involved in the regulation of erythropoietin (EPO) production and iron metabolism. Suppression of these cytokines can lead to decreased EPO levels and impaired iron utilization, contributing to anemia.⁷

Vigiaccess has a record of around 40269 ADR by thalidomide and its analogues, of which 4% involve blood and lymphatic system, including 730 cases of anemia, which were earlier believed to be uncommon.⁵ The assessment of causality and other attributes of the ADR was conducted using established scales and criteria to ensure comprehensive and standardized evaluation at our ADR Monitoring Centre. Upon evaluation, the causality was determined to be “probable” using the WHO-UMC causality assessment scale. The type of ADR was classified as “Type C” according to the Rawlins-Thompson classification and severity was assessed as “Level 3, severe” based on the modified Hartwig’s scale. As per the WHO criteria, the seriousness of the reaction was categorized as “hospitalization- initial/ prolonged” and the outcome of the reaction was “recovering” . According to the Schumock and Thorton scale, the ADR was deemed “not preventable”. This ADR was reported to PvPI via vigiflow with the worldwide unique id ,IN-IPC-300895363.

CONCLUSION

In conclusion, thalidomide-induced anemia represents a significant clinical challenge in patients undergoing thalidomide therapy. This case report sheds light on the occurrence of thalidomide induced anemia in a patient diagnosed with multiple myeloma, emphasizing the importance of recognizing and addressing this adverse drug reaction promptly.

DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her clinical information to be reported in the journal. The patients understand that their names and initials will not be published, and due efforts will be made to conceal their identity.

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ADR.

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