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Case Report

Case Report: Oxaliplatin-Induced Immune-Mediated Thrombocytopenia

Elizabeth Pan[a] Eric Hsieh[a] Caroline Piatek[b]

[a]Department of Medicine, Keck School of Medicine of USC, Los Angeles, CA, USA;
[b]Division of Hematology, Department of Medicine, Keck School of Medicine of USC, Los Angeles, CA, USA

Keywords
Adenocarcinoma · Oxaliplatin · Thrombocytopenia

Abstract
Thrombocytopenia is a frequent complication of cancer may be due to a variety of causes including malignancy itself, acute disease processes, or cancer therapy. Systemic cancer therapy is the most common cause of thrombocytopenia in cancer patients observed nearly two-thirds of patients with solid tumors. Thrombocytopenia with traditional chemotherapy agents is most frequently the result of megakaryocyte cytotoxicity. Oxaliplatin is a platinum derivative commonly used in gastrointestinal malignancies and is associated with drug-induced immune thrombocytopenia.

Case Presentation

A 36 year-old woman with Her-2 negative metastatic gastric adenocarcinoma currently on capecitabine and oxaliplatin presented for oxaliplatin infusion. Laboratory testing one day prior showed a platelet count of 237 × 10^9 and ahemoglobin of 10.9 g/dL with an MCV of 81.9 attributed to iron deficiency anemia, She had previously received 5-fluorouracil/leucovorin/oxaliplatin for 14 months and then was switched to single agent capecitabine for 2

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Eric Hsieh, MD
Department of Medicine, Keck School of Medicine of USC
1450 San Pablo Street Suite 3000
Los Angeles, CA 90033 (USA)
E-Mail ephsieh@usc.edu

months in the setting of stable disease. At progression of disease, oxaliplatin was added to capecitabine, which the patient had been on for the past 9 months.

Thirty minutes after the oxaliplatin infusion was started, the patient developed significant bleeding from her gums, epistaxis, and had 150 to 200 mL of bloody oral secretions. Laboratory testing showed a platelet count of $<5 \times 10^9$, white blood cell count of 2.6×10^9, hemoglobin 6.2 g/dL, PT 16.4, INR 1.4, total bilirubin 0.5 mg/dL, LDH 211 U/L. Peripheral smear showed few platelets and no schistocytes. The patient was admitted and received intravenous immunoglobulin 1 g/kg, dexamethasone 40 mg IV for 4 days, and oral aminocaproic acid, with resolution of bleeding after one day. No platelet transfusions were given. She received 1 unit of packed red blood cells. The platelet count improved to 77×10^9 after 4 days and normalized to 341×10^9 one month later. Oxaliplatin was definitively discontinued.

Discussion

Although myelosuppression is the most common cause of thrombocytopenia in cancer patients receiving oxaliplatin, there are several other recognized mechanisms of oxaliplatin-induced thrombocytopenia [1–5]. With myelosuppression, thrombocytopenia is usually asymptomatic and is accompanied by anemia and neutropenia [6]. Management includes observation and the occasional need for dose reductions or delays [7]. Oxaliplatin-induced ITP is a well-recognized but uncommon etiology of thrombocytopenia. The mechanism is platelet destruction mediated by oxaliplatin-dependent antibodies to platelet antigens, leading to a sudden drop in platelet count to $<10 \times 10^9$ and bleeding manifestations within several hours of oxaliplatin infusion. This typically occurs after >12 cycles of oxaliplatin and may be preceded by hypersensitivity reaction [7, 8]. Management includes platelet transfusion, corticosteroid therapy, and IV immunoglobulin therapy with resolution of thrombocytopenia within approximately 2 weeks. Definitive discontinuation of oxaliplatin is recommended [1, 9, 10].

Statement of Ethics

The authors have no ethical conflicts to disclose

Disclosure Statement

The authors have no conflicts of interest to declare.

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