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Case Report

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Isotretinoin-Induced Thrombocytosis

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Abstract

We report a case of thrombocytosis possibly associated with isotretinoin. The patient was a 19-year-old female who had severe acne vulgaris for 5 years. Systemic oral isotretinoin treatment was used daily at a dose of 0.5 mg/kg. All of the laboratory parameters were within normal limits, and the platelet count was 282,000/µL at the beginning of the treatment (reference range: 150,000 - 400,000/µL). In the following months, thrombocytosis (630,000/µL) was found, and the treatment was ended. The platelet count was in the normal range (343,000/µL) in the next monthly visit. The patient had no other illnesses or medications. The exact mechanism by which isotretinoin caused thrombocytosis in this patient is not clearly understood. To our knowledge, this case is the second case of isotretinoin-associated thrombocytosis. Clinicians who are prescribing isotretinoin should be aware of thrombocytosis, and a complete blood cell count with platelets should be part of the monthly monitoring routine in all patients receiving isotretinoin therapy.

Keywords: Isotretinoin; Thrombocytosis; Drug

Introduction

Isotretinoin (13-cis retinoic acid) is a synthetic retinoid, and its main indication is for severe nodulocystic acne. Even though it is an effective medication, isotretinoin has various mucocutaneous and systemic side effects. Nevertheless, hematological adverse reactions were reported in few patients. Increased erythrocyte sedimentation rate, decreased erythrocyte, hemoglobin, hematocrit, leukocyte and especially neutrophil counts are among the hematological side effects of isotretinoin [1]. There are also some studies, which report increased and/or decreased platelet counts [2-4].

Thrombocytosis is a rare side effect associated with isotretinoin use. It is defined as platelet count of more than 400,000/µL [1]. The aim of this case report is to emphasize the importance of monitoring hematological parameters during the isotretinoin treatment.

Case Report

The patient was a 19-year-old female who had severe acne vulgaris for 5 years. Systemic oral isotretinoin treatment was used daily at a dose of 0.5 mg/kg. All of the laboratory parameters were within normal limits and the platelet count was 282,000/µL at the beginning of the treatment (reference range: 150,000-400,000/µL). In the following months, thrombocytosis (630,000/µL) was found, and the treatment was ended. In the same visit, the patient's hemoglobin: 13.6 g/dL, hematocrit: 40.2%, white blood cell: 5,600/UL, erythrocyte sedimentation rate: 5 mm/h, C-reactive protein: 3 mg/L. The patient did not have fever. We did not observe any change in laboratory parameters that suggest of infection. There was no history of surgery, bleeding, anemia, and no history of drug ingestion other than isotretinoin that may cause thrombocytosis. Also there was no evidence of malignancy at that time and up to now for a period of 3 months. The platelet count was in the normal range (343,000/µL) in the next monthly visit. The patient had no other illnesses or medications. The patient had no infection. The patient has not sensitivity to drugs. Other causes of thrombocytosis (infection, a recent surgery, trauma, blood loss, anemia, drugs, and so on) were excluded.

Discussion

Thrombocytosis develops in three pathophysiological mech-

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anisms; these are reactive or secondary thrombocytosis, familial thrombocytosis and clonal thrombocytosis, which is associated with essential thrombocytopenia and myeloproliferative diseases. Reactive thrombocytosis is the most common form, and it develops secondary to medications. Increased IL-6 and other cytokines and/or catecholamines were demonstrated in several reactive thrombocytosis cases [5]. However, the mechanisms are not clearly understood in the thrombocytosis associated with the medications including isotretinoin.

Several reactive thrombocytosis cases are related to the medications, such as adrenalin, vinca alkaloids and miconazole [6]. The effect of isotretinoin on platelets is unclear. Basal production of platelets depends on thrombopoietin. IL-6, which affects thrombopoietin, is raised in inflammatory thrombocytosis, and it results in an increase in the platelet count [7]. It is hypothesized that IL-6 is involved in platelet elevation in patients who are receiving isotretinoin [8]. In the case report of Kaser et al, it was suggested that the thrombocytopenic activity of oral isotretinoin might be related to a hypersensitivity reaction [7]. In another case report, it was noted that the demonstration of causative role of isotretinoin was not easy [9]. Case report of Jansen et al pointed out that isotretinoin-induced thrombocytosis might be an idiosyncratic reaction.

There are a few published studies, which evaluated the effects of isotretinoin on platelets. However, the mechanism, which leads to an increased platelet count during isotretinoin use, is yet to be discovered.

References

1. Jansen T, Altmeyer P. Thrombocytosis induced by low-dose isotretinoin. Int J Dermatol. 2000;39(12):956-957.
2. Landi FL, Gatti M, Pompili A. Leucopenia e/o thrombocytopenia in quattro casi de acne cistica trattati con isotretinoina a basso dosaggio. Chron Dermatol. 1989;20:591-594.
3. Aurousseau MH, Levacher S, Beneton C, Blaise M, Pourriat JL. [Transient dysfibrinogenemia and thrombocytopenia associated with recurrent acute pancreatitis in the course of isotretinoin therapy]. Rev Med Interne. 1995;16(8):622-625.
4. Hesdorffer CS, Weltman MD, Raftopoulos H, Mendelow B, Bezwoda WR. Thrombocytopenia caused by isotretinoin. S Afr Med J. 1986;70(11):705-706.
5. Schafer AI. Thrombocytosis and thrombocythemia. Blood Rev. 2001;15(4):159-166.
6. Frye JL, Thompson DF. Drug-induced thrombocytosis. J Clin Pharm Ther. 1993;18(1):45-48.
7. Kaser A, Brandacher G, Steurer W, Kaser S, Offner FA, Zoller H, Theurl I, et al. Interleukin-6 stimulates thrombopoiesis through thrombopoietin: role in inflammatory thrombocytosis. Blood. 2001;98(9):2720-2725.
8. Tonbul A, Uras N, Tayman C, Halici T, Polat A, Mansur Tatli M. Thrombocytosis associated with enoxaparin: A very rare cause in newborns. Platelets. 2010;21(4):300-302.
9. Chen HC, Wang CY, Wang CS. Marked thrombocytosis during treatment with ceftazidime for pulmonary infection. Pharm World Sci. 2008;30(1):70-72.