Case Report

Levofloxacin-induced Severe Thrombocytopenia

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Background: *Thrombocytopenia following drug administration is commonly found in clinical practice. Recognition of this condition is important for further management of the patients. Many drugs were reported to be the cause of drug induced thrombocytopenia but levofloxacin was rarely reported.*
Case Report: *We present a seventy-eight-year-old male patient who developed severe thrombocytopenia with hemoptysis after taking levofloxacin for 4 days due to infected bronchiectasis. His platelet count was gradually recovered to normal value after the discontinuation of levofloxacin.*
Conclusion: *Levofloxacin can cause severe thrombocytopenia. Specific antibody to platelet surface glycoproteins caused by levofloxacin should be further studied to confirm the association.*

Keywords: *Levofloxacin, Ofloxacin, Thrombocytopenia*

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Drug induced thrombocytopenia is a common and important problem because the patients can experience sudden and critical bleeding symptoms. Diagnosis is mainly based on the history of the drug taking accompanied by clinical and hematological presentation. Quinine was the first drug reported and the most common drug which induced thrombocytopenia[1]. Antibodies to specific epitope of platelet surface glycoproteins is the pathophysiological explanation of drug induced thrombocytopenia in most studies which are mainly GPIX and GPIIb/IIIa components[1]. GPIX epitope is a common site for drug dependent antibodies and usually requires previous exposure of the drug for sensitization. The clinical and severity of the two are different, in which antibody to GPIIb/IIIa epitope is more sudden and severe. It can happen immediately following initial exposure and causes severe thrombocytopenia. An example of this drug is GPIIb/IIIa blocking agent, *e.g.* abciximab[1,2]. Antibiotics-induced thrombocytopenia also reported, mostly are penicillin and cephalosporin category. Quinolone group is rarely reported[1,3].

We report a case of severe thrombocytopenia caused by first exposure of oral levofloxacin in a male patient whose clinical and hematological presentations were more likely compatible with antibody to GPIIb/IIIa epitope.

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Case Report

A 78-year-old male patient was sick with dyspnea and dry cough for 2 weeks. His lung examination showed coarse crepitation at both lower lung fields. Chest X-ray was done and showed an old scar at the left upper lung field and bronchiectatic change at the left lobe. He was diagnosed with infected bronchiectasis and levofloxacin 500 mg once daily was administered orally. No other drug or herbal medicine was taken according to the caregiver and the patient. He had taken a complete blood count check 3 weeks before and the results were: Hb 10.4 g/dL, Hct 31.8% WBC 3,500/mm^3 N 62.5%, L 28.9%, M 7.2%, E 1.1%, B 0.3% and platelet count 162,000/mm^3. After he took levofloxacin for 4 days, he was admitted due to non-massive hemoptysis. Complete blood count was done which showed the platelet count of 2,000/mm^3 and the hematocrit of 27%. Coagulogram was normal. Levofloxacin induced severe thrombocytopenia was suspected and the antibiotics was changed to cefepime 2 gm intravenously every 12 hours combined with azithromycin 500 mg per day orally. Prednisolone was given at the dose of 60 mg per day. The patient

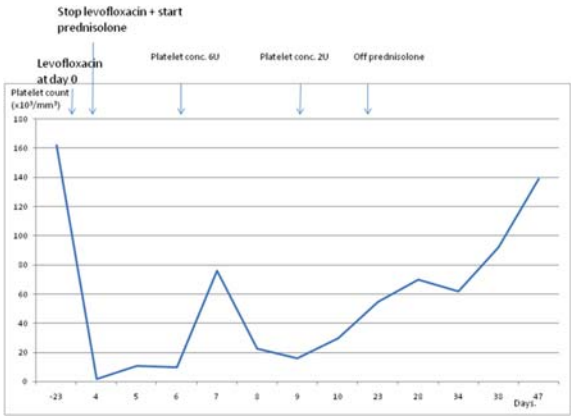

Fig. 1 Platelet counts of the patient in correlation with exposure to Levofloxacin

also received 4 units of platelet concentrates. His platelet count was found to increase to 11,000/mm^3 the following day. The results of bone marrow aspiration and biopsy were concordantly hypocellular trilineage marrow. Megakaryocytes were normal in amount and morphology. Chromosomal analysis was normal. The 6 units of platelet concentrates were given again and the platelet count was found to be 76,000/mm^3 after that. Two days later, his platelet count dropped to 16,000/mm^3 and 2 units of the platelet concentrates were transfused again. His platelet count was 30,000/mm^3 after a one-day transfusion and never dropped again until 19 days of admission when his platelet count was 55,000/mm^3 and prednisolone was stopped. His platelet count gradually increased to 139,000/mm^3 at day 47th after his exposure to levofloxacin and the patient was discharged home, (as shown in Fig. 1).

Discussion

From this patient, we have quite a firm evidence that thrombocytopenia was caused by levofloxacin because the platelet count 3 weeks prior to the administration of levofloxacin was normal and other causes of thrombocytopenia were excluded. Therefore levofloxacin induced thrombocytopenia is most possible according to the algorithm for the clinical evaluation of a patient with suspected drug-induced thrombocytopenia[4]. In this case, the time to platelet recovery was 43 days after the drug was stopped which was far longer when compared to 1-2 weeks common duration as reported in the literature [1,2]. This long recovery might be due to the infection that the patient had at that time. From the review of previous reports, levofloxacin and its category of antibiotics induced thrombocytopenia are rare[5-9]. There is one case reported from Spain, which showed that levofloxacin caused severe thrombocytopenia as in our patient[5].

We conclude that levofloxacin can cause severe thrombocytopenia and physicians should have awareness of this when prescribing it. The specific type of antibody to platelet surface glycoprotein should be demonstrated. The cross reaction within its category is still unknown, which might be an important factor in prescribing alternative drugs for the patient.

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ยา levofloxacin ทำให้เกิดเกล็ดเลือดต่ำรุนแรง

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***ภูมิหลัง**: ภาวะเกล็ดเลือดต่ำจากยา เป็นภาวะที่พบได้บ่อยในเวชปฏิบัติ ซึ่งการตระหนักถึงภาวะนี้มีความสำคัญต่อการวินิจฉัยและให้การรักษาผู้ป่วยที่ถูกต้อง ได้มีการรายงานถึงยาหลายชนิดที่ทำให้เกิดภาวะเกล็ดเลือดต่ำ แต่ภาวะเกล็ดเลือดต่ำที่เกิดจากยา levofloxacin นั้น พบว่า มีรายงานน้อยมาก*

***รายงานผู้ป่วย**: ผู้เขียนได้นำเสนอผู้ป่วยชายอายุ 78 ปีที่มาด้วยอาการไอเป็นเลือด และตรวจพบว่ามีเกล็ดเลือดต่ำมาก หลังจากที่ได้รับยา levofloxacin รักษาโรคหลอดลมโป่งพองเรื้อรังติดเชื้อ หลังจากที่หยุดยา levofloxacin เกล็ดเลือดของผู้ป่วยค่อย ๆ เพิ่มขึ้นจนถึงระดับปกติ*

***สรุป**: ยา levofloxacin ทำให้เกิดภาวะเกล็ดเลือดต่ำรุนแรงได้ ซึ่งชนิด antibody ต่อผิวของเกล็ดเลือดที่ทำให้เกิดภาวะเกล็ดเลือดต่ำจากยา levofloxacin นี้ ต้องทำการตรวจทางห้องปฏิบัติการต่อไป*