Case Report

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Neutropenia Induced by Medications Used in Psychiatric Treatment: A Case Report

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Abstract

Changes in blood parameters may occur during the use of psychiatric drugs. In such cases, the general condition of the patient and the blood parameters are closely monitored and the treatment is discontinued or the medication is changed. The purpose of this case report was to be alert to the possibility of side effects such as neutropenia due to antipsychotic drugs and to draw attention to the management of these patients.

Keywords: Antipsychotic medications, antiepileptic drugs, neutropenia

Özet

Psikiyatrik ilaçların kullanımı sırasında kan parametrelerinde değişiklikler meydana gelebilir. Bu gibi durumlarda hastanın genel durumu ve kan parametreleri yakından takip edilerek tedavi kesilir veya ilaç değiştirilir. Bu vaka raporunun amacı, antipsikotik ilaçlara bağlı nötropeni gibi yan etki olasılığına karşı uyanık olmak ve bu hastaların yönetimine dikkat çekmekti.

Anahtar Kelimeler: Antipsikotik ilaç, antiepileptik ilaç, nötropeni

Introduction

Neutropenia is defined as an absolute neutrophil count below 15000/mm^3. Absolute Neutrophil Count measures the percentage of neutrophils in your white blood count. If the neutrophil count is below 1,000-1,500/mm^3, it is classified as mild, below 500-1000/mm^3 as moderate, below 500/mm^3 as severe, and below 200/mm^3 as very severe[1]. Agranulocytosis is an acute condition involving severe and dangerous neutropenia. In Western countries, the death rate of drug-induced agranulocytosis is 5-10% [2]. In the case of agranulocytosis, due to many drugs, destruction occurs against neutrophil precursors[3].

Hematological side effects in patients using psychiatric drugs can lead to significant problems. In the literature, it has been stated that neutropenia may occur due to antipsychotics (0.13% due to chlorpromazine) and antiepileptics (0.4% due to valproic acid). Therefore caution should be exercised[2].

Case

A 57-year-old female patient presented to the emergency department with complaints of painful urination and fever that had recently started. The patient had no other diseases besides bipolar disorder and diabetes mellitus. She had been followed for 30 years for bipolar disorder but did not use regular medication. The patient had been hospitalized and treated at a psychiatric hospital 1.5 months ago due to a manic episode. The patient started using chlorpromazine 100 mg/day, clonazepam 2 mg/day, valproic acid 500 mg/day, and lithium 300 mg/day about 15 days ago.

In her examination, she was conscious, oriented-cooperative, her effect was compatible with her temperament, and she had no delusions or hallucinations. Other systemic examinations were normal. Body temperature was 37.3, respiratory rate was 18/minute, heart rate was 90/beat, and blood pressure was 120/60 mmHg. In the examinations of the patient, it was found that WBC: 2.840 /mm^3, neutrophil abso-

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lute count: 500 /mm^3, lymphocyte total count 1100 /mm^3, hemoglobin 11.5 g/dl, hematocrit 33.5%, platelet 213000/mm^3. The patient's blood lithium level was 0.276 mmol/L, and Valproic acid was 42.75 mg/dl. Renal function tests, liver function tests, and blood-electrolyte levels were normal in routine biochemistry tests. No disease thought to cause neutropenia was found in the patient's history.

Internal medicine, infectious diseases and psychiatry consultations were made. Imaging and peripheral smear were also normal. No disease related to general medical conditions was found. It was thought that the neutropenia picture was caused by the drugs used by the patient. Therefore, the psychiatric treatments used by the patient were stopped. The patient was admitted to the psychiatry service to clarify the question of which of the drugs causes neutropenia.

Discussion

It is known that hematological conditions such as leukopenia, neutropenia, agranulocytosis, thrombocytopenia, anemia, leukocytosis, thrombocytosis, eosinophilia, and platelet function changes occur to drugs used in psychiatric treatments. Leukopenia is the name for cases where the white blood cell values fall below 3000/mm^3. In neutropenia, the neutrophil count falls below 1500/mm^3. Agranulocytosis means that there are no granular type leukocytes (neutrophil, basophil, eosinophil) in the circulation[3]. Antipsychotic drugs can cause neutropenia. For example, cases of thrombocytopenia, anemia, and neutropenia have been reported approximately two weeks after using clonazepam[4]. There have been some studies evaluating the effect of valproic acid on leukocyte subtypes. It has been reported that 0.4% of patients treated with this drug develop leukopenia[5]. Similarly, in a study by Bartels et al., valproic acid reduced the absolute neutrophil count[6]. Rahman et al. investigated the incidence of hematological side effects in patients using quetiapine, valproic acid and both together between 2004 and 2007. According to the results of this research; It was observed that neutropenia developed in 6% of patients using quetiapine, 26% of patients using valproic acid, and 44% of patients using both[7]. Likewise, lithium may also change laboratory parameters in the early stages of treatment[8]. These side effects usually disappear with dose reduction or discontinuation of treatment[9]. The treatment of our case was also stopped. The patient was followed up for close psychotic status and hematological examinations. Symptomatic treatment was planned because of dysuria and fever. He was admitted to the psychiatry department. The blood parameters of the patient, whose antipsychotic and antiepileptic treatment were discontinued during the follow-ups, improved rapidly. In such cases, the drugs used by the patient should be discontinued and regular hemogram follow-up should be performed to control the development of neutropenia.

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