# **LETTER TO THE EDITOR**

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# Hair Re-Pigmentation After Nilotinib

Nilotinib Sonrası Saç Repigmentasyonu

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## To the Editor,

Hair pigmentation in humans is caused by melanin, a pigment produced by melanocytes in the hair follicle. The type and amount of melanin, including eumelanin (black/brown) or pheomelanin (red/yellow), determine hair color. As we age, melanin production decreases, leading to gray or white hair. While hair graying is commonly associated with aging, genetic factors, stress, drugs, and nutritional deficiencies can also accelerate the process [1]. Drugs usually cause hypopigmentation of the hair, but in rare cases, some medications can induce re-pigmentation or hyperpigmentation. We present a case of chronic myeloid leukemia (CML) where the patient's hair returned to its original color after treatment, as it is a rare occurrence.

A 62-year-old male patient was diagnosed with CML in December 2020. The patient also had a history of hypertension and chronic obstructive pulmonary disease. Initially, the patient was treated with imatinib for CML. The patient achieved molecular response with 400 mg of imatinib; however, due to frequent hospitalizations for shortness of breath and edema, and based on the recommendation of the pulmonology department, imatinib treatment was discontinued in August 2022. Bosutinib was started, but due to lack of response after approximately 1 year, bosutinib was discontinued. In September 2023 nilotinib was initiated. After 6 months of nilotinib therapy, in March 2024, the patient noticed a change in hair color with gradual reversal from gray to the original shade (Figures 1 and 2). Drug-induced hyperpigmentation or re-pigmentation of the original hair color may occur with minoxidil, oral retinoids, hormonal therapies, targeted immunotherapies, or immunomodulatory drugs. A systematic review of these drugs reported more than 130 cases of drug-induced re-pigmentation of gray hair [2]. That study noted that although many of these drugs have been used by millions of patients, only a small minority are known to experience hair re-pigmentation. The study also pointed out that this might be due to the lack of reported cases or the unclear mechanisms involved [2].

Hair color changes related to nilotinib and imatinib have been rarely reported in the literature [3,4]. In a retrospective study of patients with CML treated with imatinib, 7% of the 133 patients experienced re-pigmentation of gray hair between the 2<sup>nd</sup> and 14<sup>th</sup> months of treatment [4]. The exact mechanism through which tyrosine kinase inhibitors affect hair pigmentation remains unknown. In our case, the patient had a history of using both imatinib and nilotinib. Since hair re-pigmentation occurred after the initiation of nilotinib, it was considered to be associated with nilotinib. However, given that most of the data on this topic come from case reports with limited numbers of patients, the overall level of evidence remains low. More meaningful data may be obtained as additional cases are reported over time.



Figure 1. Patient's hair color before nilotinib.



Figure 2. Patient's hair color after nilotinib.

Keywords: Chronic myeloid leukemia, Hair re-pigmentation, Nilotinib

Anahtar Sözcükler: Kronik miyeloid lösemi, Saç repigmentasyonu, Nilotinib

#### Ethics

**Informed Consent:** Written informed consent was obtained from the patient for the publication of this case report.

#### Footnotes

#### **Authorship Contributions**

Surgical and Medical Practices: M.T.; Concept: M.T.; Design: Ö.A.; Data Collection or Processing: Ö.A.; Analysis or Interpretation: Ö.A.; Literature Search: Ö.A.; Writing: Ö.A. **Conflict of Interest:** No conflict of interest was declared by the authors.

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