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UNEXPECTED TURN OF EVENTS IN AN EGYPTIAN PATIENT WITH CHRONIC MYELOID LEUKEMIA (CML). CASE REPORT

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INTRODUCTION

Tyrosine kinase inhibitors (TKIs) are the standard-of-care treatment for CML. TKI-related renal adverse events (AEs) are rare and not well understood.

AIM

Here we report a patient with proteinuria and acute kidney injury after nilotinib and a series of events.

CASE PRESENTATION

This is a case report of a patient diagnosed with chronic-phase CML in late 2021 on follow-up at Dar El-Salam Oncology Center. A 22-years old male patient was diagnosed with chronic-phase CML in 2021 based on quantitative polymerase chain reaction analysis for BCR-ABL1 p210 transcript (e13/e14 a2), which was expressed in amplified RNA extract at 728.55% IS.

The patient was started on imatinib 400mg/d and after 6th months, BCR-ABL1 p210 was 12.8% IS. Consequently, the treatment was declared a failure and was shifted to nilotinib.

RESULTS

A month after treatment, he developed grade III lower limb edema, scrotal edema, and proteinuria (1350g/24h, range 42-225). Antinuclear (ANA) and antimitochondrial antibody (AMA) tests were negative and C3 (99.4 mg/dL) and C4 (30.4 mg/dL) were within normal range. The albumin/creatinine ratio was 7099.21 mg/g of creatinine (clinical albuminuria: >300).

Both of the patient's kidneys were of average size, with increased cortical echogenicity (grade I). There were no gross stones or changes in back pressure.

Renal biopsy was negative for congo red staining (no amyloid deposits). There were no kappa, lambda, C3, immunoglobulin A, or immunoglobulin G deposits. Biopsy also revealed minimal change disease, nephrotic syndrome.

Nilotinib was discontinued and the patient was commenced on corticosteroids, diuretics, statins, and apixaban.

The patient's symptoms improved, however; on re-evaluation of CML, Bone marrow aspirate showed 74% blast cells and flow cytometry was positive for CD34, CD33, HLADR, CD117, myeloperoxidase, and CD13 [figure 1]. These findings suggested a myeloblastic crisis; BCR-ABL1 was 42% IS. Serial Q RT-PCR analysis of BCR-ABL1 is summarized in [Table 1].

The patient achieved complete remission after standard induction chemotherapy (3+7) in combination with dasatinib.

CONCLUSIONS

TKI-related renal AEs are uncommon; they are usually observed in case reports and most of them have been associated with dasatinib. TKIs tend to induce fluid retention. Recently nilotinib-induced acute interstitial nephritis has been reported. TKI-induced nephropathy is a topic worthy of further investigation.

REFERENCE

Kim MJ. Nilotinib-Induced Acute Interstitial Nephritis during the Treatment of Chronic Myeloid Leukemia. *Kosin Medical Journal. 2021 Dec 31;36(2):153-60.*

Table 1. Quantitative RT-PCR Analysis for BCR-aBL1

Date	BCR-ABL/ABL1 %
15/12/2021	728.55%
1/03/2022	67.96%
17/05/2022	12.86%
24/09/2022	4.6%
28/02/2023	42.3%

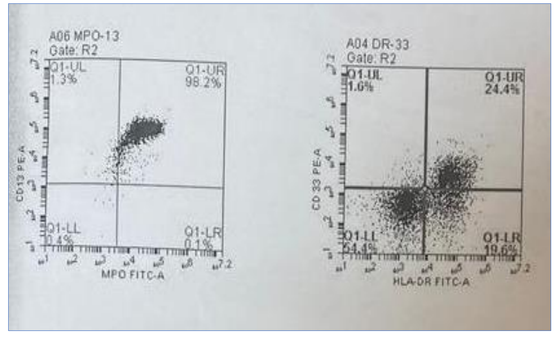


Figure 1. Immunophenotyping was done on bone marrow sample revealed a population of cells 77.2% which is: Positive for CD45"dim", CD34, CD33, HLADR, CD117, MPO and CD13"cyt" and Negative for CD5, CD19 and CD7

CONTACT INFORMATION

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