Clinical presentations and ten-year follow-up of chronic myeloid leukemia patients receiving imatinib in Iraqi Kurdistan

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Introduction

chronic myeloid leukemia (CML) is an uncommon myeloproliferative malignancy of the bone marrow considered as an expansion of a clone of hematopoietic cells, including an increased leukocyte in the blood. It has a tendency to progress more slowly than severe form.[1] It typically affects middle-aged adults and rarely children; however, it can affect any age. CML often does not cause symptoms and might be detected incidentally during a blood test. Advances in treatment have improved the prognosis of people with CML as people can achieve remission and live for many years after diagnosis.[2]

Aim

To evaluate the long-term effectiveness, safety, and resistance pattern of imatinib therapy in patients with chronic myeloid leukemia (CML) treated in Iraqi Kurdistan.

Objectives

To evaluate the long-term effectiveness and safety of imatinib therapy in CML patients. To assess resistance development and overall survival outcomes over a 10-year period.

Methods

A retrospective cross-sectional study involved 160 patients with CML using recorded hospital data from three different hematology centers in Iraqi Kurdistan, from 2014 to 2024. Collected data included patients' sociodemographic, clinical presentation, blood parameters, blood film, bone marrow examination, response to therapy, and survival rate. Then, they were analyzed and interpreted.

Results

Most patients were females (51.25%), from Sulaimaniyah city (55%), aged 40–49 years old (27%), diagnosed between 2020 and 2024 (43%), and presented with fatigue (50%). Blood tests indicated low hemoglobin (<12 mg/dL) with extremely high leukocytes (44%), but normal platelets (66%). The blood film and bone marrow biopsy were abnormal in most patients. Furthermore, P210 expression was higher than P230 (98% vs. 2.0%). All patients received first-line treatment (only imatinib), 49 patients received a second line (mostly nilotinib), and only 7 patients received a third line(Dasatinib or Bosutinib).

Using imatinib for 1–3 years results in resistance development in (26%) of patients and leads to discontinuation of the therapy. Despite several side effects of imatinib (especially anemia), the survival rate was very high (87%). Survival and death rates among studied patients were due to CML, 9.0 (6.0%) any other causes11 (7.0%) event free survival 140 (88%).

Summary

Over 10 years, CML was more common between 2020 and 2024, especially in female's resident of Slemani city who aged 40–49 years. Although imatinib developed resistance after 1–3 years and had several side effects among treated patients, the overall survival rate was very high that lines with international data.

Discussion

Many factors directly and indirectly correlate with incidence, epidemiology, line of treatment, recovery rate, outcomes, and recurrence rate of cancers, including CML.[7] Thus, for 10 years, we followed patients with CML who received TKI inhibitors as initial therapy and we highlighted the safety and efficacy of therapy and the feasibility of discontinuation therapy. All our patients had positive BCR–ABL translocation and were diagnosed with chronic-phase CML, in which most of them were positive for P210 protein (98%) and the rest were positive for P230. No cases of p190 were recorded. Studies indicated that CML patient with P230 mutation has different clinical presentations and responses to first-line imatinib, while it has a poor response to front-line imatinib with better response to second-line nilotinib/dasatinib.[13] Furthermore, all patients in this study used imatinib as the first line of treatment, 49 used the second line (nilotinib + bosutinib + dasatinib), and 7 used the third line (bosutinib + dasatinib). The main reason for crossover imatinib was other than progression in most patients (29%). In this regard, García-Gutiérrez and Hernández-Boluda *et al.*[14] mentioned that nilotinib + dasatinib are second-generation TKI with superior efficacy and higher potency than imatinib as a first-line treatment for chronic phase CML and less cases with resistance or intolerance to prior TKI therapy were reported.

References

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