

Effectiveness of second and third generation TKIs (Dasatinib, Nilotinib and Ponatinib) in Chronic Myeloid Leukemia Treatment

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Abstract:

Introduction - TKI therapy with Imatinib, Nilotinib, or Dasatinib results in high response rates, many of which can only be measured at a molecular level.

Material and Methods- A retrospect analysis of 114 patients in different phases of CML and their responses to TKI like Imatinib, Nilotinib, Dasatinib, and Ponatinib was done. 100 (87.7%) of 114 patients were in chronic phase (CP), 6 (5.2%) were in accelerated phase (AP) and 8 (7%) were in blast phase (BP).

Result - Use of Imatinib as first-line therapy had resulted in complete cytogenetic responses (CCyRs) in 65% to 85% of patients with CML. 12

(27.2%) cases were found positive for Imatinib resistance mutation and 33 (75%) were found negative, 16 (14%) cases of 114 were found with additional cytogenetic abnormalities (9 at the time of diagnosis and 7 during therapy).

Conclusion -Imatinib is currently used as the first choice to treat CML. While Dasatinib and Nilotinib are used as the second choice. In this study 5 patients received Ponatinib after Imatinib and Dasatinib failure. Ponatinib is significantly effective against T315I kinase domain mutation.

Keywords: TKI, Imatinib, Nilotinib, Dasatinib, Ponatinib.