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TARGETED THERAPY OF TYROSINE KINASE INHIBITOR WITH IMATINIB MESYLATE IN PHILADELPHIA chromosome(+) CHRONIC MYELOID LEUKEMIA: ANALYSIS OF HEMATOLOGIC, CYTOGENETIC AND MOLECULAR RESPONSE IN 98 PATIENTS

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BACKGROUND: Imatinib mesylate (Glivec), a selective inhibitor of BCR-ABL tyrosine kinase, is highly effective in Philadelphia-chromosome-positive chronic myeloid leukemia (Ph-CML). We analyzed the clinical response with Imatinib mesylate in our hospital.

METHODS: Between June 2001 and October 2004, Imatinib was given to 98 Ph-CML patients, including 49 in chronic phase (CP), 30 in accelerated phase (AP) and 19 in acute blastic phase (ABC). Patients were evaluated for hematologic, cytogenetic and molecular response, overall survival (OS) and rate of progression within different groups of disease status. Molecular response was measured by real-time quantitative reverse transcription polymerase chain reaction (RQ-PCR).

RESULTS: Complete hematologic response (CHR) was achieved in 98%, 70% and 32% of patients treated in CP, AP, and ABC respectively ($p<0.0001$). After a median follow-up of 19.4 months, complete cytogenetic response (CCyR) was obtained in 79%, 41% and 47% in CP, AP, and ABC respectively ($p=0.081$). The estimated progression free survival (PFS) and OS at 3 year was 93±5 % in CP, 51±10% in AP, and 5±5 % in ABC and 100% in CP, 72±10% in AP, and 13±8 % in ABC, respectively ($p<0.001$). The probability of PFS was 93±5% for patients with CCyR and 53±12% for patients without CCyR ($p=0.008$). Molecular response with more than 2-log reduction in BCR-ABL transcript was associated with better PFS and OS in CP and AP, but not in ABC patients.

CONCLUSIONS: Imatinib was highly effective in CML. Sustained response was seen in patients treated at CP disease status, achievement of CCyR, and molecular response. Imatinib should be given in early CML and monitoring of cytogenetic and molecular response is critical in preventing disease progression.

Key words: Imatinib, chronic myeloid leukemia, cytogenetic response