

Chronic myeloid leukemia (CML) is a myeloproliferative disorder affecting hemopoietic stem cells and affect predominantly granulocyte progenitor line. Imatinibmesylate is the first molecular targeted therapy for the treatment of CML, the next one is the Nilotinib which is also a selective inhibitor of tyrosine kinase. The aim of this study was to evaluate the hematological, cytogenetic and molecular responses in patients with CML receiving Tyrosine Kinase Inhibitors attending hematological unit of Merjan hospital and to compare between Imatinib and Nilotinib drugs regarding their responses and adverse effects. Complete hematologic response (CHR) were attained in all patients in this study, cytogenetic response to Imatinib achieved in (86.3%), optimal response in (37.8%) and delayed response more than one year (48.4%) . 78.5% of Nilotinib switched patient achieved complete cytogenetic response, (35.7%) optimal response and (42.8 %) got delayed response, (21.4%) of patients showed failure of cytogenetic response. Molecular response achieved in (72.7%) and (53.5%) to Imatinib and Nilotinib switched patients respectively, others (46.5%) of Nilotinib switched patients showed molecular failure. The vast majority of adverse effects were minor for both drugs, liver function tests and amylase enzyme showed minor elevation in a minority of patients. Frequent cytogenetic and molecular monitoring are necessary to define patients with optimal responses and to switch those with suboptimal one to another drug so to achieve optimal responses.