4. Chronic myeloid leukemia

In the United States, there are nearly 5,000 new cases of chronic myeloid leukemia (CML) per year (113). Chronic myeloid leukemia is a potentially fatal stem cell cancer that accounts for about 14% of all leukemias (114). More than 80% of patients complain of fatigue, regardless of the phase of CML. About 40% of these patients go to their primary care physicians for something unrelated, and in the process it is determined that their blood cell count is abnormally high. Jamieson et al. (115) outlined the events leading to the immortalization of cancer cells in the myeloid leukemias, including CML.

Imatinib is used to treat newly diagnosed cases of CML. Where imatinib does not work, nilotinib or dasatinib, which are also tyrosine kinase inhibitors, can be used (116,117,118). As mentioned above, imatinib inhibits BCR-ABL tyrosine kinase.

The criteria for determining response to treatment include hematologic assessments and bone marrow cytogenetics (119) as well as time to treatment failure and PFS (120). Talpaz et al. (121) provide details on measuring hematologic and bone marrow cytogenetic responses during treatment of CML. Hughes and Branford (122) and Baccarani et al. (123) provide further information on using cytogenetics to measure response rates during treatment of CML.

An organization in Europe, European Leukemia Net (124) recommends that response to treatments for CML includes measuring cytology at various intervals, that is, at 3, 6, 12, and 18 months (125). Cytogenic response at the time point of 12 months has been used

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