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ESMO Minimum Clinical Recommendations for the diagnosis, treatment and follow-up of chronic myelogenous leukemia (CML)

Incidence

- The incidence according to the SEER data is 1.38/100 000 per year. The mortality is 0.74/100 000 per year. The median age at diagnosis is around 60 years.

Diagnosis

- Myeloid hyperplasia associated with splenomegaly and neutrophil leukocytosis, thrombocytosis and basophilia are typical features of CML in its initial chronic phase.
- In almost all patients, blood and marrow cells carry the specific chromosomal translocation t(9;22), the Philadelphia chromosome, or its variants.

Staging and risk assessment

- The major risk is the transformation of the initial chronic into the blastic phase of the disease characterized by ≥30% blasts in blood or marrow, or ≥50% blasts and promyelocytes in marrow, or extra-medullar blastic infiltration. An accelerated phase (transitional from chronic to blastic phase) is defined as 15–29% blasts in marrow or blood, or 30–49% blasts plus promyelocytes in marrow.
- Prognostic scores based on age, spleen size, and blood cell counts have been developed that allow the discrimination of patient subgroups with different prognosis on cytoreductive chemotherapy and on interferon, respectively.

Treatment

- The only curative treatment available is allogeneic stem cell transplantation. Younger patients, especially those with unfavorable risk factors, should be considered for this treatment at diagnosis. The patient should be involved in the decision process, which must balance the chance of cure against the risk of transplant-related mortality.
- The tyrosine kinase inhibitor imatinib is highly effective in inducing hematologic and cytogenetic remissions *[I, A]*. Imatinib (400 mg p.o. daily) is first-line standard therapy because of better tolerance, a much higher cytogenetic response rate, and a lower progression rate to accelerated or blastic phase compared with interferon-/ara-C-based therapy. However, its long term efficacy is not yet known *[I, A]*.
- In good prognosis patients, interferon-α at doses of 3–5 MU/m^2 daily may be considered as an alternative treatment.
- The clinical benefit of intensive chemotherapy with or without autologous stem cell transplantation is not proven.
- If the treatment goal is only to relieve symptoms, hydroxyurea may be considered *[II, A]*.

Follow-up

- Patients are followed by blood cell counts once weekly during the first weeks of therapy and every 1–2 months later on. Bone marrow cytogenetics (and/or quantitative PCR of bcr/abl) should be performed in imatinib-treated or interferon-treated patients every 6 months. Patients relapsing after allotransplant may still have curative options, *e.g.* donor lymphocyte transfusions, and require more frequent controls.

Note

Levels of Evidence *[I–V]* and Grades of Recommendation *[A–D]* as used by the American Society of Clinical Oncology are given in square brackets. Statements without grading were considered justified standard clinical practice by the experts and the ESMO faculty.

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Coordinating authors for the ESMO Guidelines Task Force: B. Simonsson[1], O. Kloke[2] & R. A. Stahel[3]

[1]Invited author, Dept. Hematology, University Hospital, Uppsala, Sweden; [2]Assigned task force member, Elisabeth Krankenhaus GmbH, Abt. Onkologie/Hämatologie, Röntgenstrasse 10, 45 661 Recklinghausen, Germany; [3]Assigned task force member, Div. of Oncology, University Hospital, Rämistr. 100, CH-8091 Zürich, Switzerland

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Correspondence to:
ESMO Guidelines Task Force
ESMO Head Office
Via La Santa 7
CH-6962 Lugano
Switzerland