Sistema Socio Sanitario
Regione Lombardia
ASST Sette Laghi

CHRONIC MYELOMONOCYTIC LEUKEMIA

Epidemiology and pathogenesis

The incidence rate of chronic myelomonocytic leukemia (CMML) is unknown but is estimated at 4 cases per 100.000 persons per year. The median age at CMML diagnosis is approximately 70 years. Acquisition of mutations, leading to the alteration of the hemopoietic stem cell, determine the disease.

Signs and Symptoms

Signs and symptoms of CMML are variable and may include anemia, bleeding, easy bruising, spleen, and liver enlargement (hepato-splenomegaly), recurrent infections, night sweats, weight loss and cachexia. CMML is also characterized by an increased risk of progression to acute myeloid leukemia.

Diagnosis

The approach to the diagnosis of CMML should begin with the exclusion of reactive conditions of persistent monocytosis, and the presence of peripheral blood monocytosis > 1000/mmc persistent for more than 3 months and the exclusion of other hematologic myeloid disorders (BCR-ABL1 fusion oncogene, CALR and MPL mutations, rearrangement of PDGFRA, PDGFRB, FGFR1 must be excluded). Diagnosis is based on morphologic studies of peripheral blood and bone marrow to evaluate abnormalities of peripheral blood cells and hematopoietic precursors. The bone marrow biopsy is significant to assess marrow cellularity, fibrosis, and topography. Cytogenomic testing (including banding analysis and FISH) is necessary to find out chromosome aberrations. Finally, genetic molecular analysis (small fragments of DNA with specific functions) by PCR allows identification of distinct mutations affecting epigenetic regulation and chromatin remodeling, splicing factors, transcription and signal transduction may add prognostic value. In Varese some patients with this disease are studied with high-throughput sequencing called *Next Generation Sequencing* (NGS).

Prognosis

Several clinical and molecular variables have prognostic relevance including bone marrow blasts, cytogenetic abnormalities, degree of cytopenias or cytosis, transfusion dependence, CMML FAB and WHO type, and presence of specific mutations.

Treatment

Nowadays, CMML therapy is selected based on risk and on myeloproliferative/myelodysplastic-like features. The goals of therapy are different in low-risk and high-risk patients. Our treatment approach relies on national and international guidelines, i.e. ESMO guidelines i.e. (https://www.annalsofoncology.org), SIE/SIES/GITMO guidelines (https://www.siesonline.it), NCCN (https://jnccn.org/view/journals/jnccn). In low-risk CMML, the goal is to reduce transfusion need and to increase the quality of life. Currently, available drugs for low-risk CMML include growth factor support and cytoreductive therapy. Treatment of high-risk patients is aimed to improve survival. To date, the only currently approved treatments are hypomethylating agents and allogeneic stem cell transplantation. For more information about the hematologic trials available in Varese, please visit the section “Trial Unit” of the Institutional website (https://www.asst-settelaghi.it/ematologia).