has relied mostly on cytogenetics for a long time. In recent years, many gene mutations have emerged as prognostic relevant, initially in patients with normal karyotype and then regardless of cytogenetics. The most relevant cytogenetic and molecular abnormalities are included within the current European LeukemiaNet (ELN) guidelines. The approach to AML in 2023 differs greatly from that of 10 years ago. Improved pathophysiological and genomic understanding has led to newly approved therapies. This study evaluated outcomes between the 2010, 2017 and 2022 ELN criteria in twelve patients aged ≥18 years with newly diagnosed AML. The age patients ranged from 18 to 76 years (median, 33 years). Our data set included results of karyotype analyses and next-generation sequencing (NGS) assays targeting recurrently mutated genes in myeloid malignancies and gene fusions. Karyotype analysis identified abnormalities in five patients (41.7%) and normal karyotype in two patients (16.6%). Five patients did not have a karyotype result, due to culture failure or lack of medical request. Molecular abnormalities occurred in 100% of patients (mutations in 16 genes, fusions involving *RUNX1* and *KMT2A*). Overall survival ranged from 0.2 to 28.3 months (mean, 10.6 ± 8.4 months). ELN 2010 categorized as adverse three patients (25.0%). ELN 2017 and ELN 2022 categorized as risk adverse seven (58.3%) and five (41.7%) patients, respectively. Most patients with ELN 2022 adverse-risk disease were older 60 years. Compared with ELN 2017 criteria, the ELN 2022 changed the assigned risk in 16.7% of patients from adverse to intermediate risk. Updates to the ELN 2022 guidelines include removal of *FLT3-ITD* allelic ratio and *NPM1* comutation status with subsequent allocation of *FLT3-ITD* into the intermediate-risk group. These changes were responsible for these risk reclassifications. There was consensus on the favorable risk classification for the three versions of the ELN. The ELN 2010, 2017 and 2022 guidelines categorized as risk intermediate 50%, 16.7% and 33.3% of patients, respectively. Patients with ELN 2022 adverse–risk AML had genetic abnormalities associated to poor prognosis, as complex karyotype, -7, *KMT2A* rearranged and, mutations in *RUNX1*, *EZH2* and *U2AF1*. Advances in AML biology have led to an increasing complexity in prognostic estimation. This study showed the contribution of genetic abnormalities to risk stratification in AML. Consistent with prior analyses, certain ELN defining mutations and cytogenetic abnormalities were correlated with adverse prognosis.

https://doi.org/10.1016/j.htct.2023.09.492

ACUTE MYELOID LEUKEMIA IN COMPLETE RESPONSE FOR 2 YEARS WITH AZACYTIDINE ASSOCIATED WITH HIGH-DOSE VITAMINS

VM Sthel, VLP Figueiredo

Serviço de Hematologia, Hospital do Servidor Público do Estado de São Paulo (HSPE), Instituto de Assistência Médica ao Servidor Público Estadual (IAMSPE), São Paulo, Brazil

Acute Myeloid Leukemia (AML) is an uncommon neoplasia, and its treatment is challenging. The AZAVIT-ABCEF protocol (Plataforma Brasil-CAAE: 53015421.0.0000.5463) is of low intensity and reasonably well-tolerated. **Objective:** To report a clinical case of a patient with AML in complete remission (CR) with the protocol, cycles of 7 days every 28 days. **Materials and methods:** Descriptive work carried out through data collection from medical records. **Clinical case:** A 62-year-old woman, whose mother died from AML and did not wish to undergo intensive chemotherapy. Hb was 6.5 g/dL, leukocytes 33,800/mm^3 with 43% blasts, and platelets 107,000/mm^3. Myelogram was refused, and peripheral blood immunophenotyping was positive for: CD11b, CD13, partial CD14, CD15, CD33, CD36, CD64, partial CD117, weak CD123, HLA-DR, and MPO. Diagnostic AML with monocytic component in December 2020. In the first cycle, she presented non-pruritic hyperemic lesions on her face and upper limbs, and vespertine fever. Skin biopsy showed neutrophilic infiltrate, sweet syndrome. The patient left the hospital and returned 1 month later with anemia and thrombocytopenia. She complained of significant pain in the hip joint, and MRI showed soft tissue edema with moderate joint effusion. Corticosteroid therapy was initiated, resolving the inflammatory condition. Marrow examination in March 2021 and April 2022 showed CR. In April 2023, she decided to stop the protocol, and 3 months later she presented with pancytopenia, marrow with dysplastic changes and 15% blasts (CD13, CD123, CD33, CD38, CD117, TdT, and MPO). **Discussion:** The possible mechanism of action: Azacitidine - reactivation of tumor suppressor genes, transcription of differentiating genes, action on protein metabolism and microRNA inhibition, increased VDR (vitamin D receptor) expression in primitive hematopoietic cells promoting differentiation, transcription of genes related to autoimmunity, making leukemic cells visible to the immune system, reactivation of antiviral activity, and differentiation of mesenchymal cells. Vitamin B1 - cofactor in the pyruvate dehydrogenase enzyme complex, as thiamine triphosphate, which prevents the transformation of pyruvate into lactate and favors respiration through the Krebs cycle, cofactor in the metabolism of alpha-ketoglutarate, and decreases the formation of 2-hydroxyglutarate (DNA methylation), activation of the immune system, and increased neoplastic cell death via P53 (non-canonical pathway, PUMA and NOXA). Vitamin C - cofactor in the Krebs cycle reaction involving the TET2 and IDH2 genes, promoting DNA demethylation, immunomodulatory effects activating antiretroviral reactions, and increased VDR expression in primitive hematopoietic cells. Vitamin D - decreases the function of myeloid suppressor cells, increases T cell immune response, modifies the tumor microenvironment, and favors autoimmunity. It promotes differentiation by binding to VDR, which interacts with nuclear proteins that bind to vitamin A. Erythropoietin and filgrastim are differentiating agents for the erythroid and granulocytic lineages, respectively. **Conclusion:** The patient achieved CR with the treatment, and its discontinuation may have favored the appearance of previously unreported dysplasia, as well as an increase in the number of blasts. Prospective studies are needed to assess the effectiveness of the protocol.

https://doi.org/10.1016/j.htct.2023.09.493