

Acute erythroid leukemia (AML-M6) - Is it rare?

Akut eritroid lösemi (AML-M6) - Nadir mi görülür?

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Acute erythroid leukemia (FAB M6), previously described as di Guglielmo's syndrome, is a rare form of acute myeloid leukemia (AML) [1,2]. In the recent World Health Organization (WHO) classification, AML-M6 is included under AML not otherwise categorized with two subtypes: erythroleukemia (M6a) and pure erythroid leukemia (M6b) [1].

Seventeen cases of AML-M6 were reviewed retrospectively with available clinical and follow-up data and were analyzed with regard to peripheral smear, bone marrow aspiration and cytochemistry findings. The male:female ratio was 8:7 in the adults, with a wide age range (5-81 years). The common clinical features were weakness, pallor and fever. Fourteen patients met the WHO criteria of M6a, and three adults were classified as having M6b. The most common features in blood smears were: polychromatophils, macrocytes, nucleated red blood cells, teardrop cells, hypogranulation and hypo/hypersegmentation in leukocytes and giant platelets. In bone marrow, megaloblastoid changes, multinuclearity, nuclear budding and bridging in erythroblasts, hypogranulation in granulocytic series, micro-megakaryocytes, uninucleated and binucleated forms, and cytoplasmic vacuolation in megakaryocytes were the common dysplastic features. A positive periodic acid-Schiff reaction in erythroblasts and positive myeloperoxidase in myeloblasts were seen. Trephine biopsy showed hypercellular marrow with erythroid prominence. Previous association with myelodysplastic syndrome was documented in four adult cases. One case, with a known incidence of papillary carcinoma of

the thyroid treated with radioiodine, later developed erythroleukemia. Clinical follow-up data was available in only six cases, as the rest refused treatment. The patients were treated with chemotherapy and the median survival was three months. Cytogenetic analysis was done in six adult cases, which showed normal karyotypes.

Erythroleukemia is a disease of adults and accounts for approximately 5% to 6% of cases of AML [1,3]. Pure erythroid leukemia is extremely rare (3% of AML-M6 cases) [4]. It can occur at any age and is characterized by the presence of medium to large erythroblasts with deeply basophilic cytoplasm with poorly demarcated vacuoles, round nuclei, fine chromatin, and one or more nucleoli. Immunophenotypic features of AML-M6b are dependent on the differential stage of the erythroblasts [1,5]. In the most differentiated forms, expression of glycophorin A and hemoglobin A and the absence of myeloperoxidase and other myeloid markers (CD13, CD33) can be detected. Antigens associated with megakaryocytes (CD41 and CD61) are typically negative [1]. Cytogenetically complex karyotypes with multiple structural abnormalities are common, with chromosomes 5 and 7 being affected most frequently [1,6].

One of the important differential diagnoses is erythroid hyperplasia due to vitamin B12 or folate deficiency, in which patients respond to vitamin supplementation. Other differential diagnoses may include other types of AML, particularly megakaryoblastic, acute lymphoblastic leukemia and lymphoma. Cytochemical and immunophenotypic analyses can be helpful in distinguishing

from M6b, which is usually associated with a more aggressive clinical course and higher relapse rate.

De novo acute erythroid leukemia was more frequent than secondary cases in our series, the majority being M6a type. We thus conclude that acute erythroid leukemia is indeed rare and morphologic aspects remain one of the important tools in the diagnosis.

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