Epitaph for erythroleukemia

Haematologica 2004; 89(6):e82

Erythroleukemias are acute leukemias characterized by erythroid hyperplasia with an excess of myeloblasts and/or proerythroblasts.

The criteria suggested by the French American British (FAB) revised proposal in 1985 to diagnose Acute Erythroleukemia are erythroid hyperplasia, exclusion of proerythroblasts from the blast count and enumeration of myeloid blast as percentage of the Non Erythroid Cells (NEC) marrow component. The FAB classification de facto made impossible the diagnosis of erythroleukemia in those cases in which the neoplastic proliferation involves exclusively the erythroid lineage, the Pure Erythroid leukemia. Presently those two subtypes are respectively identified as M6a and M6b.

The new WHO classification of hematological malignancies includes erythroleukemia and its two subtypes among the group named Acute myeloid leukemia not otherwise categorized, It maintains the diagnostic FAB criteria except for the blast percentage required for the diagnosis, which has been reduced to at least 20% in the marrow or in the peripheral blood. Looking at the erythroid/myeloid erythroleukemia, the M6a subtype, the WHO document indicates among the morphological differential diagnosis, the RAEB and the AML with maturation with increased erythroid precursors. Differentiation is based on the NEC blast percentage. Finally differential diagnosis from the Acute myeloid leukemia with multilineage dysplasia should be performed on the presence of dysplasia involving ≥50% of myeloid or megakaryocyte-lineage cells.

With the aim of assessing agreements and/or discrepancies among these two leukemic classifications, we have reclassified according to the WHO proposal, 13 cases of Acute Myeloid Leukemia previously classified as FAB-M6 from 1996 to 2002 in our hematological department. All patients were adult and had an aggressive clinical course, which is usually associated with erythremyeloid leukemia.

Morphological study has been carried out separately by two different hematologists, the authors, on at least two smears of bone marrow aspirates stained with May-Grünwald-Giemsa. Samples were assessed for lineage representation, blast percentage and presence or absence of dysplasia involving one or both lineages out of the erythroid one. Each lineage dysplasia was defined by ≥50% of dysplastic lineage cells. Marrow differential has been performed by the two observers on 500 cell count, while blast percentage has been detected on the NEC marrow component, because all patients had erythroid hyperplasia.

For all the 13 cases both observers reached full agreement in the final diagnosis.

According the WHO classification all cases have been classified as Acute myeloid leukemia with multilineage dysplasia. In addition to erythroid dysplasia, 9 patients showed megakaryocytic dysplasia, while 4 patients had a trilineage dysplasia.

This study suggests that the most cases of FAB-M6 leukemia, a rare leukemia of adult with a poor prognosis and usually associated to complex caryotypes with multiple structural abnormalities, are currently definitively included among the WHO group of Acute myeloid leukemia with multilineage dysplasia.

The introduction of the 1985 FAB criteria had determined an increase of M6a diagnosis. The WHO classification will probably cause its disappearance as a separate group.

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References