CORRESPONDENCE

MIXED-LINEAGE LEUKEMIA REVISITED: ACUTE LYMPHOCYTIC LEUKEMIA WITH MYELOPEROXIDASE-POSITIVE BLASTS BY ELECTRON MICROSCOPY

To the Editor:

In the August 15, 1990 issue of Blood, it was reported by Kantarjian et al of the existence of a previously undescribed subtype of mixed-lineage leukemia, which by morphology and immunophenotype often appears as T-cell acute lymphocytic leukemia (ALL) but exhibits myeloperoxidase (MPO)-positive blasts by electron microscopy (EM). The validity of this conclusion needs to be challenged in view of the discrepancies between the immunophenotype and the morphology of ALL in six of seven cases. These cases (patients 1, 3, and 4) with 'T cell immunophenotype', two cases (patients 6 and 7) with 'B lineage immunophenotype' and case 6 with Tdt + all coexpressed myeloid markers. It is not clear why the authors choose to give more weight to the T and B markers for lineage assignment over the presence of myeloid markers. It is questionable, therefore, whether there is any biologic basis for labeling these cases as ALL. It should also be noted that MPO positivity by EM has previously been described in a case of B/myeloid mixed-lineage leukemia (patient no. 5)1 as well as in cases of leukemia without evidence of myeloid differentiation by light microscopy and reacting with myeloid antibodies (and occasionally with Tdt), ie, MO acute myelogenous leukemia, suggesting that there is a correlation between MPO expression and the presence of myeloid markers CD13 and/or CD33.

REFERENCES


RESPONSE

To the Editor:

In our study, the seven patients were classified to have acute lymphocytic leukemia (ALL) by the classical morphologic criteria of the French-American-British (FAB) group: these patients all had (1) a lymphoid morphology by light microscopy (also confirmed by electron microscopy [EM]), and (2) less than 3% myeloperoxidase (MPO)-positive blasts as required by the FAB classification. It is with these standard criteria that the diagnosis was made, and should be made, not by immunophenotypic studies as was suggested by Drs Matutes and Chan.

While immunophenotypic studies are useful for subclassifying subtypes of ALL (eg, B vs T CALLA-positive), the significance of some markers, particularly myeloid markers in ALL, remains to be determined. About 30% to 40% of patients with a morphologic diagnosis of ALL have myeloid markers. These patients may be classified by some investigators as having "mixed-lineage" disease, but should not be recategorized to have myeloid disease. Thus, the diagnostic and prognostic significance of positive myeloid markers in classical cases of ALL is still uncertain, and these should not be used as the criteria for diagnosing acute myelogenous leukemia.

Pertinent to the studies reported to have had a similar presentation as our patients, patient 5 in the first study was reported to have ultrastructural peroxidase positivity in a footnote (reference 5, Table 5) as per a personal communication, but was not reported as to the detailed results. The second study describes patients with undifferentiated (not lymphoid) morphology. It is presently well established that many cases (almost 80%) of undifferentiated leukemias have positive myeloid markers by EM, but this does not pertain to the present study.

REFERENCES


Mixed-lineage leukemia revisited: acute lymphocytic leukemia with myeloperoxidase-positive blasts by electron microscopy [letter; comment]

E Matutes and LC Chan