Differences in the Chromosomal Profile of AML-M0 Versus AML-M1: Response

To the Editor:

In our study published in Blood in 1995, 26 patients with minimally differentiated acute myeloid leukemia (AML-M0) were shown to have a different cytogenetic profile with respect to 42 patients with AML-M1. The observed high incidence of complex karyotypes and of unfavorable chromosome changes such as −5/5q−, −7/7q−, and +13 in AML-M0 may provide a biologic argument partially explaining the poor prognosis of this newly recognized entity of leukemia. The study by Venditti et al in the January 1, 1996 issue of Blood confirms that AML-M0 has an unfavorable prognosis. However, these investigators describe similar cytogenetic features in AML-M0 and AML-M1, which is at variance with our results. We wish to analyze three possible factors, concerning (1) patient selection, (2) influence of environmental exposure to myelotoxic agents, and (3) statistical analysis, that may account for the discrepant cytogenetic findings in these studies.

Twenty-six patients were selected in our analysis from approximately 700 newly diagnosed patients seen in Ferrara, Italy and in 4 Belgian Institutions. Fifteen additional patients with presumptive diagnosis of AML-M0 were excluded at centralized cytoimmuno logic review. Thus, the incidence of AML-M0 in our multicenter study is 3.7%. There is a very high incidence of AML-M0 and AML-M1 in the study by Venditti et al (8.9% and 19.5%, respectively, in 256 AMLs), as compared with previous studies. The incidence of AML-M0 in 2 large series, totalling over 1,300 AML cases, ranged between 0.1% and 4%; likewise, a 16.4% and 10% incidence of AML-M1 was recorded in the large GIMEMA/EORTC trial and in the GIMEMA study of 355 AML patients submitted to centralized cytologic review. The patients of Venditti et al with AML-M1 also have a higher incidence of chromosome changes (75%) than was previously reported in 97 cases of de novo AML-M1 studied at the Fourth International Workshop on Chromosomes in Leukemia (40.2%). It is worth noting that comparative analyses of original French-American-British (FAB) diagnoses and reviewers’ diagnoses in the GIMEMA/EORTC group showed that the most frequent disagreement (30% of total) was confined to those cases classified as AML-M1 by referring centers and recognized either as AML-M2 or AML with monocytic features at centralized review. The incidence of chromosome changes varies according to the FAB type and, therefore, homogeneous application of the FAB scheme is of critical importance for studies comparing cytogenetic and cytologic features.

Exposure to myelotoxic agents may also influence the rate of chromosome abnormalities in leukemia. For instance, professional exposure to organic solvents, petroleum products, or pesticides was recorded frequently in our cases with complex karyotypes and with +13.

In the study by Venditti et al, data from only 28 of 50 observed AML-M1 are used for cytogenetic comparison with AML-M0 and criteria for patient selection are not mentioned. The number of observed cases in the different cytogenetic groups (−5−7, +13, +8, +4, others, and normal) do not add up to the total number of patients studied. The difference of patient distribution in three cytogenetic categories (complex karyotype, abnormal with 1 or 2 changes, and normal karyotype) in AML-M0 versus AML-M1 approaches statistical significance (P = .09). We agree with Venditti et al that reagents detecting myeloperoxidase are useful in the immunologic recognition of AML-M0; however, the importance and the exact role of this and other markers (CD117 and antilysozyme) in the diagnosis of acute leukemia is currently being tested in a prospective European study.

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REFERENCES


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