significant differences among the trabeculae used for the control study. Some 20 mg I 3CRA, while a substantial proportion of patients with refractory anemia had a 1-year survival in patients with refractory anemia. These results clearly require confirmation by a larger study. The patient data demonstrated that the concentration of MEHP causing a 50% decrease in developed force in the isolated atrial preparation was only 20- to 30-fold higher than the circulating levels measured in patients on CPB. Since the target organ for the significant toxic effect of MEHP is the heart, which is already compromised in patients undergoing CPB, we suggest that exposure to MEHP might be another risk that should be considered in infants and in adult patients with multisystem failure, in whom the highest circulating levels of MEHP were measured.

REFERENCES


To the Editor:

The paper by Koeffler et al on the effects of 13-cis-retinoic acid (13CRA) versus placebo in myelodysplasia (MDS) raises several interesting points. There is little conflict between their data and those in our report presented last year.22 We found no clinical improvement or lengthening of survival in patients with refractory anemia with an excess of blasts (RAEB) or those with sideroblastic anemia treated with 13CRA,2 and these constituted over half of the patients in the study of Koeffler et al. We found little toxicity at a daily dose of some 20 mg 13CRA, while a substantial proportion of patients treated by Koeffler et al with high doses of the drug stopped treatment and we do not know how complete compliance was in the remainder. The positive result in our study was that at a 13CRA dose of 20 mg daily, patients with refractory anemia had a 1-year survival rate of 77% as compared with 36% in the control group.23 These results clearly require confirmation by a larger study.

When considering MDS either in terms of clinical state or response to therapy, it is no longer satisfactory to amalgamate all patients into a single group and expect them to behave in a uniform manner. The different behavior of the various French-American-British subtypes has been well demonstrated, and we have suggested...
that the clinically observed subgroups of MDS may represent stages in the progression of the gradually evolving preleukemic process. We interpreted our therapeutic results as suggesting that 13CRA may be effective at one stage of the disease but not at others. Criteria for the diagnosis of refractory anemia may be interpreted differently in different centers, and indeed it has been suggested that they may sometimes be difficult to interpret at all. This is reflected by the threefold difference in median survival seen in various series. The criteria used in the Cardiff series, including a strict interpretation of criteria, were categorized into the five French-American-British subtypes; analysis of the response for each subtype of myelodysplasia showed no statistical difference when compared with the response of the placebo group.

Despite the difficulties in standardizing diagnostic criteria, we would like to suggest that therapeutic trials in patients with MDS take care, as far as possible, to consider responses in relation to the stage of the disease. The inclusion in the same analysis of good-prognosis patients, such as those with sideroblastic anemia, together with refractory anemia and RAEB can only weaken the significance of the results.

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REFERENCES

RESPONSE

To the Editor:

Our patients with the myelodysplastic syndrome were categorized into the five French-American-British subtypes; analysis of the response for each subtype of myelodysplasia showed no statistical difference when compared with the response of the placebo group.

REFERENCES

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THE MURINE ERYTHROPOIETIN GENE IS LOCALIZED ON CHROMOSOME 5

To the Editor:

Erythropoietin (Epo) is a plasma glycoprotein hormone which controls RBC production through oxygen tension mechanisms. Both human and mouse Epo genes were recently cloned. The human gene has been localized to the q21-22 region of chromosome 7. We report the mapping of the mouse Epo gene to the distal region of chromosome 5 by in situ hybridization and by genetic analysis, using restriction fragment length polymorphisms (RFLPs) in interspecific mouse backcross DNAs.

For these interspecific backcross analyses, C57B1/6, BALB/c, WMP/Pas, SPE/Pas (Mus spretus) and the interspecific backcross progeny (C57B1/6 x SPE) F\textsubscript{1} x C57B1/6 or (BALB/c x SPE) F\textsubscript{1} x BALB/c, raised at the Institut Pasteur, Paris, were used.

Male backcross animals were also characterized by F. Bonhomme and colleagues (CNRS UA 327, Montpellier, France) for the segregation of 15 biochemical markers already localized on the mouse genetic map. High-mol-wt DNA was extracted from frozen spleen as previously described and was digested with appropriate restriction enzymes. Agarose gel electrophoresis, Southern blot transfers, and hybridizations were performed as described. The Epo probe used for the Southern blot analysis was a 1-kb Pst I restriction fragment of the mouse Epo gene, encompassing part of exon IV and V.

In situ hybridization experiments were performed using metaphase spreads from a male mouse of the WMP/Pas inbred strain, in which all autosomes except autosome 19 are involved in Robertsonian translocations. Concanavalin A-stimulated lymphocytes were cultured at 37°C for 72 hours; 5-bromodeoxyuridine was added for the final six hours of culture (60 μg/ml medium) to ensure a good quality chromosomal R-banding. The entire pUC19 plasmid containing the 1-kb Epo fragment was tritium labeled by nick-translation to a specific activity of 1 x 10\textsuperscript{6} dpm μg\textsuperscript{-1}. The radiolabeled probe was then hybridized to metaphase spreads at a final concentration of 25 ng/ml hybridization solution, as previously described. After being coated with nuclear track emulsion (Kodak NT\textsubscript{B}2), the slides were exposed for 13 days at 4°C, then developed.
13-cis-retinoic acid v placebo in myelodysplasia [letter]

A Jacobs and RE Clark