Correspondence

Bone marrow biopsy specimens in assessment of remission in acute leukaemias

We found the paper on the value of bone marrow biopsy in acute leukaemias interesting.1 We have found that biopsy specimens are more informative regarding cellularity, blast cell percentages and their response to chemotherapy. We have also attempted to determine the usefulness of trephine biopsy specimens for assessing remission in acute leukaemias: one third of the marrow aspirates have been inconclusive in our hands.

We carried out marrow trephine biopsies and aspirates in 15 patients with acute myeloid leukaemia (AML) and 20 patients with acute lymphoblastic leukaemia seven days after completion of chemotherapy in cases of AML, and at the end of four or six cycles of induction chemotherapy in cases of ALL.2 Twelve (34.3%) of the aspirates were "unsatisfactory"; all the biopsy specimens were satisfactory for comment. Based on the histomorphology of the biopsy specimens, 15 cases were in remission, 19 cases had blast cell transformation and one case displayed myelocytes.

Fifteen cases in remission showed pronounced hypocellularity, marrow oedema, serous atrophy with evidence of fat, erythroid, and megacaryocytic regeneration in four cases. Nine of 12 (75%) of the "unsatisfactory" aspirates came from these cases because induction chemotherapy depletes the marrow of leukemic cells, resulting in hypocellularity and oedema; the core biopsy specimens showed evidence of remission.

Nineteen cases showed the presence of blast cells in the marrow trephine specimen with normal to hypercellularity in 15 and hypocellularity in four cases. Sixteen of 19 (84.2%) of the aspirates in this group were "unsatisfactory" because of good marrow cellularity. This varied in the biopsy specimens in different marrow spaces and blast cell distribution was not uniform. Because blast cells are present only in some marrow spaces, the aspirate may not include such a focus resulting in overdiagnosis of remissions. This was true of three cases which were reported as being "in remission" according to the marrow aspirate, but trephine biopsy specimens showed patchy clustering of blasts. Core marrow biopsy seems, therefore, to be essential for precise assessment of remission after induction chemotherapy.


Dr Winfield comments:

The comments of Dr Singh and his colleagues on the value of bone marrow core biopsy specimens in assessing remission in acute leukaemia reinforce the observations in our paper that core biopsy specimens provide a more accurate assessment of total marrow cellularity and of blast cell numbers. Their letter also raises the question of when marrow samples should be taken after chemotherapy to assess remission and whether bone marrow and trephine core biopsy samples are required.

For the current Medical Research Council AML 10 Trial, the policy is that marrow aspirate should be taken two weeks after the completion of chemotherapy. If the aspirate is normocellular, contains less than 5% leukemic blast cells, and shows evidence of normal maturation of other marrow elements then the patient is in complete remission. If the marrow fragments and tri- als are hypoplastic then an aspiration should be repeated in one week. Only if the marrow is diluted with peripheral blood and contains no fragments is a trephine biopsy indicated.

The current MRC Acute Lymphoblastic Leukaemia Trial (UKALL XII) operates a similar policy, using day 22 after the start of remission induction as the time for assessment. The use of these protocols will usually enable the haematologist to provide a reasonably accurate assessment of remis- sion, and I cannot therefore agree with Dr Singh’s conclusion that marrow core biopsy is essential for assessing remission in all cases of acute leukaemia. Selective use of trephine biopsies has the additional advan- tage for many patients of avoiding the dis- comfort and haemorrhagic problems which may be associated with this procedure.

Histopathology EQAs: the definition and identification of poor performance

Dr Furness and Professor Lauder must be complimented on the development of a scoring system for histopathology EQAs.3 Schemes based on this sort of assessment should provide valuable educational feed- back and are likely to become an essential element in continuing medical education for histopathologists. The authors admit, however, that the programme does not attempt to define what is an unacceptable or dangerous level of performance, but state that this is a problem that the profession as a whole must address. The question of what to do about poor performance may be decided by a dialogue between the profes- 1 Winfield DA, Polacarz SV. Bone marrow histology and value of bone marrow core biopsy in acute leukaemia myelodysplastic syn- drome and chronic myeloid leukaemia. J Clin Pathol 1992;45:855–9.

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