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Central Nervous System Involvement in Polymphocytic Transformation of Chronic Lymphocytic Leukemia

This is in reference to a report of a case of polymphocytic transformation of chronic lymphocytic leukemia (CLL) with meningeal involvement by Lopez Guillermo et al. [1]. We report another case, but with a very different outcome.

A 67-year-old white male with a diagnosis of CLL made 2 months earlier presented to our institution in December 1988 with increasing WBC ($119 \times 10^9/l$), fever and night sweats after having failed chlorambucil and prednisone. A review of the aspirate done at diagnosis was consistent with typical CLL with 75% mature lymphocytes. A repeat aspirate in December 1988 revealed that 30% of lymphocytes in the bone marrow were of polymphocytoid morphology. Flow cytometry revealed: 46% CD5, 19% CD3, 56% CD19, 61% CD20, 30% CD22, 85% lambda, 39% kappa, 57% IgG, 89% IgM, 63% IgA, 57% HLADr and 18% CD10. A monoclonal IgM lambda spike was noted in the serum; immunoglobulin quantitation revealed IgG of 910 mg/dl, IgM of 1,857 mg/dl and IgA of 131 mg/dl. The patient was treated with cytoclophosphamide, vincristine, adriamycin and prednisone with normalization of the WBC and disappearance of splenomegaly, hepatomegaly and lymph node enlargement. His disease recurred in June 1989, however, with a WBC of $182 \times 10^9/l$ (of which 60% were polymphocytes and 20% were mature looking lymphocytes) and weakness of the lower extremities. A myelogram revealed no evidence of a block but the cerebro-spinal fluid (CSF) analysis showed 2,600 WBCs/mm³, 0 RBC, protein 68 mg/dl and glucose 58 mg/dl; 98% of the cells were large polymphocytoid cells. A CT scan of the head was negative. A repeat bone marrow examination revealed 87% polymphocytoid cells. Flow cytometry revealed: 15% CD5, 2% CD3, 55% CD19, 83% CD20, 16%

CD22, 86% HLA Dr, 85% lambda, 9% kappa, 19% IgG, 90% IgM and 86% IgA. An IgM lambda monoclonal protein was again detected in the serum. The patient received intrathecal methotrexate and Ara-C, but without clearing of the CSF. Deep vein thrombosis, abdominal bleeding and renal failure developed and the patient expired 9 months after his diagnosis.

Meningeal involvement is a very rare complication of chronic lymphocytic leukemia [2–5] and polymphocytic leukemia [6]. Two previous case reports exist of polymphocytic transformation involving the meninges [1, 7], but with rapid clearing of the CSF. While we do not have phenotype analysis of the malignant cells in the CSF, the clinical picture and morphology strongly suggest the cells in the CSF were indeed polymphocytic cells. This case contrasts with that of Lopez Guillermo et al. [1] where clearing of the CSF occurred after 2 doses of intrathecal methotrexate and Ara-C, as well as an earlier case report. The response of our patient was poor and intrathecal therapy failed to eradicate tumor cells.

References

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