TUMOR LYSIS SYNDROME PROVIDES EVIDENCE FOR DOSE-INTENSE RESPONSE FOR CORTICOSTEROIDS IN PROLYMPHOCYTIC LEUKEMIA

To the Editor:

Tumor lysis syndrome can be observed when rapidly dividing, large-volume tumors such as high-grade lymphomas and acute leukemias are treated with cytotoxic agents. The syndrome is heralded by hyperuricemia, hyperkalemia, hyperphosphatemia, hypocalcemia, and renal failure. Two cases have been previously described of tumor lysis in prolymphocytic leukemia (PLL). Both cases were unexpected given the reported slow growing, nonchemosensitive nature of this malignancy. Chemotherapy administered to these patients consisted of dexamethasone 40 mg for 2 days alone or a combination of low-dose vincristine 0.25 mg for 4 days and high-dose prednisone 1,000 mg/m² on days 1 and 3. We report a case of PLL partially transformed to acute lymphoblastic leukemia developing tumor lysis syndrome when the prednisone and vincristine doses were doubled during the second week of treatment.

The patient was an 81-year-old man with a history of chronic lymphocytic leukemia (CLL) observed without treatment for 5 years until 1990. At this time he appeared to morphologically transform to PLL phenotypically characterized by an absence of CD5 or CD10 (CALLA) but staining positive for CD19, CD20, K light chain, and HLA-Dr. This was accompanied by a progressive lymphocytosis and splenomegaly requiring symptomatic treatment over the next 2 years, with intermittent chlorambucil and splenic radiation with reasonable control of his disease. He was doing well until August 1992, when he developed malaise, massive splenomegaly, and a white blood count (WBC) of 259 × 10⁹/L, with a disappearance of 109/L (all prolymphocytes).

This led to reinitiation of chemotherapy with doubling the doses of vincristine to 2.0 mg IV and prednisone to 60 mg twice a day. Forty-eight hours after initiation of chemotherapy, his spleen size was markedly decreased with the WBC down to 40 × 10⁹/L. There was laboratory evidence of dramatic tumor lysis, with a phosphorus level of 17.9 mg/dL, a calcium level of 6.7 mg/dL, an uric acid level of 5.6, and a creatinine level of 2.9. He went on to develop worsening renal failure and uremic obtundation and died of Klebsiella sepsis.

This case is the third report of tumor lysis in PLL and illustrates the rapidity and toxicity of cyto_reduction with high doses of prednisone and vincristine. This case illustrates a dose-response relationship in that the tumor reduction and lysis were dramatically increased by doubling the doses of his chemotherapy. Common to all three cases was the use of high-dose corticosteroids, which raises the possibility that increased dosing of these agents alone may cause dramatic cyto_reduction and lysis, although in this case the vincristine may have played a role. Conventional CLL regimens have traditionally been felt to be ineffectual in treating PLL and this possibly reflects their low corticosteroid doses. Higher doses of corticosteroids have shown efficacy in other lymphoid malignancies such as multiple myeloma. This strategy may be useful in PLL, but possibly confers a greater risk of tumor lysis.

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REFERENCES

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