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LETTER TO THE EDITOR

Treatment of Acute Myeloid Leukemia M3 in a Patient with Crohn's Disease

A 49-year-old man diagnosed with Crohn's disease at age 26, subsequently requiring multiple small bowel resections and colostomy, presented with a 2-week history of fevers, chills, and night sweats. A small bowel x-ray showed only 3–4 feet of remaining small bowel with diffuse Crohn's disease involvement of this portion. Abdominal computed tomography showed loops of thickened small bowel but no fluid collection.

Fat malabsorption was confirmed by serum carotene level of 23 μg/dl (normal, 48–200); a prothrombin time of 1.6, which normalized with intramuscular vitamin K; and a low 25-hydroxy-vitamin D (13 ng/ml; normal, 14–42 ng/ml). Complete blood count (CBC) on admission showed pancytopenia (hemoglobin, 11.0 g/dl; white cell count, 600/mm^3; platelets, 33,000/mm^3). CBC 2 months before admission had been normal. Bone marrow biopsy revealed acute myeloid leukemia (AML), M3 subtype (acute promyelocytic leukemia), confirmed on cytogenetic studies. The patient was commenced on all-*trans*-retinoic acid (ATRA) chemotherapy, 40 mg orally twice a day.

ATRA, a retinoid derived from naturally occurring vitamin A1, is highly effective in producing remission in patients with acute promyelocytic leukemia (1). The major mechanism of action of ATRA is to effect maturation of leukemic promyelocytes (2,3). After administration of ATRA, the pattern of blood counts changed (Table 1).

Within the next few days, the patient had cleared undifferentiated blasts and promyelocytes from his circulation. The rapid drop in undifferentiated blasts and progranulocytes in the setting of an increasing neutrophil count indicates a convincing response to ATRA despite presence of only 3 to 4 feet of diffusely diseased small bowel and documented fat malabsorption. As a derivative of fat-soluble vitamin A, ATRA requires an intact small bowel for oral absorption. This case suggests that either inadequate amounts of ATRA can be absorbed in portions of the gut other than the small bowel or that very low concentrations of ATRA can still induce maturations of leukemic blasts in AML M3.

Table 1

Day number	1	3	5	7	9	11
Total Leukocyte count (10^9/L)	0.5	1.5	3.1	6.0	5.0	2.2
Promyelocytes (%)	22.0	20.0	4.0	5.0	0.0	0.0
Undifferentiated blasts (%)	28.0	5.0	8.0	12.0	7.3	3.0
Neutrophils (%)	26.0	17.0	30.0	34.0	59.0	61.0

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