To the Editor:

Granulocyte colony-stimulating factor (G-CSF) stimulates in vitro proliferation of leukemic cells from patients with acute promyelocytic leukemia (APL) without induction of terminal differentiation. In their recent review article published in Blood, Löwenberg and Toud suggested that CSFs have the potential of stimulating rapid leukemic cell proliferation in vivo, at least in those patients in whom leukemic cell growth is limited by a supply of growth factors. A case of reversible leukemic regrowth under granulocyte-macrophage–CSF (GM-CSF) treatment after chemotherapy for acute myelogenous leukemia have been reported. However, there had been no direct evidence that leukemic cells could be stimulated to proliferate in vivo by administration of G-CSF in APL.

We treated a 42-year-old man with sepsis associated with ecchyma gangrenosum of the scrotum caused by *Pseudomonas aeruginosa* that developed after remission induction chemotherapy for APL with G-CSF in combination with antibiotics. At the initiation of G-CSF therapy, the white blood cell count (WBC) was 200/μL, with 100% lymphocytes. APL-associated coagulopathy had resolved by that time. G-CSF (filgrastim) was administered intravenously at a dose of 200 μg/m²/d. Five days later, the WBC count increased to 2,800/μL with 22% granulocytes and ecchyma gangrenosum improved (Fig 1). However, the increase in granulocytes accompanied an increase in the number of leukemic cells with Auer rods (50% of the whole leukocytes) and recurrence of coagulopathy. G-CSF was discontinued at this time and the patient was followed-up without antileukemic therapy because of persistent ulcerative skin lesions of the scrotum. After cessation of the G-CSF therapy,
the number of leukemic cells spontaneously decreased, with improvement of coagulopathy. Two months later, the WBC count was 3,600/µL, with 59% granulocytes, 31% lymphocytes, and 10% monocytes. Bone marrow examination showed no leukemic cells, indicating complete remission.

In the patient presented here, leukemic cell proliferation was apparently dependent on G-CSF. The clinical course indicates that, in some patients with APL, G-CSF could stimulate proliferation of leukemic cells in vivo as well as in vitro. Even though leukemic regrowth was completely reversible and the gross effect of G-CSF on the patient's clinical course was beneficial, it seems that G-CSF should be used in patients with APL with great caution; the clinical use of G-CSF should be limited to life-threatening infections in severely neutropenic states.

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REFERENCES


Granulocyte colony-stimulating factor-dependent leukemic cell proliferation in vivo in acute promyelocytic leukemia [letter]

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