To the Editor:

Fruehauf et al recently reported that the peripheral blood progenitor cell (PBPC) counts during steady-state hematopoiesis predicted the yield of PBPC after mobilization by chemotherapy and filgrastim. They showed significant correlations between steady-state PB CD34⁺ cell (and also colony-forming cell [CFC]) numbers and peak PB CD34⁺ cell numbers in 15 patients and indicated that the correlations were sufficiently strong to enable prediction of the number of leukaphereses required.

Filgrastim alone is also an effective agent for mobilizing PBPC for autologous and allogeneic transplantation. However, there is broad interindividual variation in the PBPC mobilization response to filgrastim, with some patients requiring three or more leukaphereses and others only a single collection. If, as for mobilization induced by chemotherapy plus filgrastim, steady-state PBPC counts predicted yields of filgrastim mobilized PBPC at leukapheresis, then the number of scheduled leukaphereses could be reduced for high responders.

We tested this hypothesis by analyzing results from 25 subjects who received 10 or 12 µg/kg/day filgrastim for 5 days. The subjects were either normal adults (n = 15) or chemotherapy-naïve newly diagnosed stage II breast cancer patients (n = 10). Correlations were performed on paired results of steady-state PBPC counts and either PBPC counts on day 6. The baseline granulocyte-macrophage (GM)-CFC number did not correlate with measured leukapheresis yield (see Fig 1) or with day 6 PBPC numbers (n = 23, r = -0.06; P = .98). Fewer paired data were available for CD34⁺ cell numbers but were consistent with the GM-CFC results; no correlation was observed for steady-state and day 6 PB CD34⁺ cell numbers (n = 14, r = .135; P = .64). Similar results were obtained for each of the above analyses if PBPC data from the peak day of mobilization were used.

Previous marrow-damaging treatment reduces the number of PBPC mobilized by filgrastim. In the study by Fruehauf et al., 12 of 15 patients studied had previously received chemotherapy of varying intensity and duration; 4 had also received radiation therapy. We therefore also tested the hypothesis in a population of patients with varying degrees of prior marrow damage in which interindividual differences may be greater. Review of our previously published data on filgrastim mobilization (12 µg/kg/day for 4 days) in cancer patients previously treated with chemotherapy (with or without irradiation) again showed no correlation between baseline GM-CFC levels and mobilized GM-CFC levels in the blood (n = 13, r = .06; P = .85). We conclude that, in contrast to the filgrastim-supported chemotherapy situation, steady-state PBPC counts do not predict the yield of PBPC mobilized by filgrastim alone.

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REFERENCES

Do steady-state peripheral blood progenitor cell (PBPC) counts predict the yield of PBPC mobilized by filgrastim alone? [letter; comment]

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