Case history 2: The use of epoetin alfa before high-dose chemotherapy*

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A 31-year-old male Jehovah's Witness was diagnosed with non-Hodgkin's lymphoma (intermediate grade, stage IIIIB). After treatment with VACOP-B (etoposide [VP-16], adriamycin, cyclophosphamide, vincristine, prednisone and bleomycin) he achieved complete remission. Seven months later the patient relapsed and was treated with the DICE regimen (dexamethasone, ifosfamide, cisplatin and etoposide), achieving a partial remission.

High-dose chemotherapy treatment with peripheral blood stem cell support was planned, but the patient's haemoglobin was 8.2 g/dl and he refused a blood transfusion. The patient began treatment with epoetin alfa (recombinant human erythropoietin) 150 units/kg subcutaneously on alternate days and oral iron daily. After two weeks his haemoglobin was 11.7 g/dl with 6% reticulocytes. Epoetin alfa was increased to daily administration and granulocyte-colony-stimulating factor (G-CSF) 10 µg/kg/day was added. After five days leukapheresis was carried out to harvest the stem cells. The patient then received high-dose chemotherapy, comprising cyclophosphamide (6 g/m²), etoposide (2 g/m²) and carmustine (300 mg/m²), followed by transplantation of the peripheral blood stem cell product. G-CSF and epoetin alfa were continued daily, at the same dose, and aminocaproic acid 2 g (given intravenously every six hours) was added to decrease thrombocytopenic-related bleeding.

At day 8, the patient's absolute neutrophil count was > 1000 cells/µl and by day 9 his platelets were > 20,000 cells/µl. The lowest haemoglobin level, post-high-dose chemotherapy was 9.7 g/dl. The patient remains in complete remission after one year.

Discussion

The following results were obtained from a survey held during the symposium. Delegates were invited to express their views by choosing from a multiple-choice list

High-dose chemotherapy is associated with significant anaemia. However, opinions on the haemoglobin level at which it would be appropriate to offer high-dose chemotherapy were diverse. Just over one-third (35.8%) of the delegates would have considered high-dose chemotherapy at a haemoglobin level of 10 g/dl, 37.3% would have preferred a level of 12 g/dl before initiating therapy, 12.4% would have preferred a level of 14 g/dl and 14.5% of the delegates would not have offered high-dose chemotherapy in this case study.

When asked to predict the patient's response to epoetin alfa given for two weeks before high-dose chemotherapy, the majority of delegates felt that there would be a rise to between 8.1 and 10 g/dl in haemoglobin level. Few delegates predicted that the haemoglobin would rise above 10 g/dl and most were surprised by the actual increase from 8.2 to 11.7 g/dl (Figure 1).

When asked for their views on the use of epoetin alfa before bone marrow transplant, almost half (45.7%) of the delegates considered that avoiding the need for red blood cell transfusions was the main justification for the use of epoetin alfa in this setting. Over one-third (38.17%) of the audience considered that the possible synergistic effect of epoetin alfa with G-CSF on progenitor cell mobilisation was the most pertinent rationale.

* This article is accompanied by 'Case history 1: The use of epoetin alfa in delayed anaemia, pp. S11-S12 (this issue).