CASE STUDY

38-YEAR-OLD WOMAN WITH RECURRENT METASTATIC INFILTRATING DUCTAL BREAST CARCINOMA
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BACKGROUND

The patient is a 38-year-old woman with recurrent metastatic breast carcinoma. She was initially diagnosed with node-positive, left-sided breast cancer 8 years ago and underwent a mastectomy with adjuvant chemotherapy. The tumor was estrogen receptor-2/neu receptor.

MEDICAL HISTORY

At initial diagnosis, she received 6 months of adjuvant chemotherapy with cyclophosphamide, doxorubicin, and fluorouracil. The total doxorubicin dose was 300 mg/m². She experienced moderate emesis and was hospitalized once for a urinary tract infection. She has not experienced any medical problems since.

FAMILY HISTORY

The patient is married with 2 adolescent children. She is mildly obese. Her mother, aged 74 years, lives in an assisted living setting since having a stroke. The patient has been helping her mother on a daily basis.

PHYSICAL EXAMINATION

The patient appeared generally healthy. She reported only localized bone pain, fatigue, and anxiety. Her Karnofsky performance status was 80%. There was a nontender nodule along her old mastectomy incision line. Her breath sounds clear, heart sounds normal, and there was no edema or jugular venous pulsations. A recent baseline echocardiogram showed no ventricular dilation or hypertrophy and a 50% estimated ejection fraction (EF).

TREATMENT PLAN

The patient wished to limit clinic visits, thus an every-3-week dose of docetaxel 100 mg/m² intravenous (IV) over 1 hour was planned. Trastuzumab also was administered as a loading dose of 4 mg/kg IV over 90 minutes on day 1 of cycle 1, then 2 mg/kg IV weekly on days 8 and 15, and then resuming with each monthly cycle. RBC growth factor support was not prescribed until the patient’s response to her first cycle of therapy was evaluated; however, pegfilgrastim 6 mg subcutaneously was initiated because of the risk for severe myelosuppression with this regimen.1 Ferrous sulfate 325 mg daily was prescribed to treat borderline iron-deficiency anemia.4

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mg/dL. Erythropoietin therapy was then discontinued, and blood count monitoring did not require it be resumed.¹⁹

**DISCUSSION**

Although the patient did not have risk factors for severe anemia, she started with a slightly below average baseline Hgb, had previously received myelosuppressive therapy, and had bone marrow involvement that may have further interfered with her body’s normal mechanisms of erythropoiesis.²⁰ In this case, the patient’s ferritin level was normal and did not clearly indicate a nutritional deficiency; however, it is near the level defined by the National Comprehensive Cancer Network guidelines as potentially low enough to warrant iron replacement therapy (ie, <100 µg/dL).²¹ Ferritin levels are frequently an inadequate reflection of iron stores and are not used alone as a criteria for replacement therapy. Recognition of borderline iron deficiency anemia through the low MCV, low MCH, and low transferrin saturation was helpful and permitted definitive intervention for that nutritional problem before starting erythropoietin therapy.¹² Iron replacement therapy for this patient was an important first step toward preventing severe anemia, but use of an oral agent may have contributed to the lengthy time until positive effects of erythropoietin therapy were appreciated.¹ IV iron is recognized as a more effective and tolerable treatment for immediate management of iron deficiency in patients treated with recombinant erythropoietin.³ Recognition of a low albumin and the risk associated with declining nutrition before weight loss also may have enhanced the efficacy of erythropoietin therapy.¹³

Initially, myelosuppression did not adversely impact the patient’s QOL, but by the end of the second month, her perceived QOL was quite negative despite existing supportive therapy with WBC growth factors. Performing the FACT-An at baseline and/or at the first month’s visit may have helped determine her severity of symptoms and need for earlier erythropoietin therapy.³ The initial decision to deliver chemotherapy every 3 weeks instead of weekly was helpful in abrogating fatigue and other QOL factors.³

During the last cycle of therapy, the patient’s blood pressure was elevated, which may have been related to the erythropoietin therapy. Elevated blood pressure and an Hgb of more than 12 mg/dL supported discontinuation of erythropoietin to reduce the risk of cardiovascular adverse effects.³

This clinical situation is common for nurses working in oncology and exemplifies how anemia can impact physiologic functioning and emotional coping of patients with cancer. It reinforces why erythropoietin therapy should be implemented in conjunction with other supportive measures to limit the effects of cancer therapy on a patient’s life.

**REFERENCES**