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**Controlling Red Blood Count
Vital During Cancer Treatment**

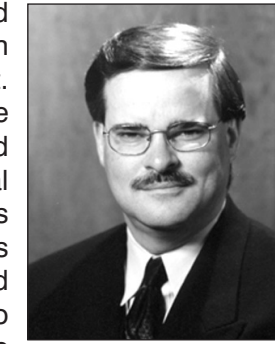
by P. Thomas Porter, M.D., F.A.C.P.

The discovery of erythropoietin was a watershed moment in the history of medicine. The identification of erythropoietin as a hormone which regulates red blood cell production forever changed the lives, for the better, of millions of people. Interestingly, the hormone was discovered in a patient who was overproducing red blood cells, a condition called Polycythemia. From that discovery the use of erythropoietin has become routine in doctors offices around the world, being used in a wide variety of anemia.

Erythropoietin stimulates red cell production and is produced in the kidney. Under normal circumstances low oxygen levels in your body promotes its production. The higher the level of erythropoietin the more red blood cells are produced and in turn the level of oxygen in the tissues of your body are improved.

With the discovery of erythropoietin a synthetic glycoprotein

was produced called Epoetin alfa or Procrit. Early on its use was restricted to chronic renal failure patients whose kidneys were impaired in their ability to produce erythropoietin. As a result of this impairment it was common for those "kidney" patients to receive transfusions on a regular basis. With the use of Procrit routine transfusions are now an uncommon event. Procrit's indications have since been expanded to include cancer patients on chemotherapy and patients with primary blood disorders called Myelodysplastic syndromes. Again, as in chronic renal failure, transfusion requirements have been greatly reduced. In addition, with the use of Procrit cancer patients have been able



continued on page 2

BIOGRAPHY

Laura A. Biernat, M.D., F.A.C.P.

Laura A. Biernat, M.D. specializes in Medical Oncology and has a specific interest in the treatment of breast cancer. She is certified by the American Board of Internal Medicine in Medical Oncology. Dr. Biernat received her undergraduate and graduate training at Wayne State University in Detroit. She completed her Internal Medicine Residency and Oncology fellowship program at the Detroit Medical Center. Dr. Biernat served as Chief Oncology Fellow in her final year of training and then joined the staff of the Wayne state University/Karmanos Cancer Institute as an Assistant Professor of Medicine in 1996. From 1996 until she joined Great Lakes Cancer Management Specialists, she was an integral member of the Comprehensive Breast Cancer team at the Karmanos Cancer Institute.



Dr. Biernat is director of the Comprehensive Breast Cancer Conference at the Van Elslander Cancer Center at St. John Hospital and Medical Center and participates in the multidisciplinary breast cancer clinic at the Liggett Breast Center. Dr. Biernat is also on the physician panel at the St. Joseph's Mercy of Macomb Hospital Breast Cancer Conference.

Dr. Biernat's professional memberships include Phi Beta Kappa, Alpha Omega Alpha, the American College of Physicians, and the Southwest Oncology Group. She is very

continued on page 2

continued on page 3

Identifying Anemia

by Julie Hilton, MT(ASCP)
Laboratory Supervisor

What is anemia? Anemia is a condition in which there is a decreased amount of hemoglobin and red blood cells (RBC's) in the blood. Hemoglobin carries oxygen from the lungs to all parts of the body via the RBC's. If there is a lowered amount of hemoglobin or RBC's then there probably is not enough oxygen being supplied to the tissues. The three main reasons for anemia are lack of RBC production, blood loss, and an increase in RBC destruction by the body.

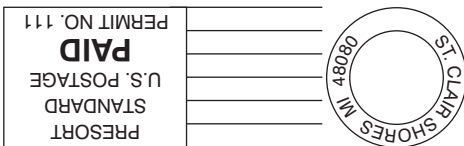
Anemia is an easy condition to detect and GLCMS' laboratory performs

several tests to assist our physicians in diagnosing and monitoring anemia. Three vital tests, all of which are incorporated in the CBC (complete blood count), for detecting anemia are the RBC count, hemoglobin, and hematocrit. The lower these three values are determines how severe a case of anemia is.

Examination, by a physician or Medical Technologist, of a stained blood smear using a microscope is another very

continued on page 2

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CONTROLLING RED BLOOD COUNT

continued from front page

to maintain better blood counts during their scheduled chemotherapy regimens, thereby improving their well being and chances for response and longer survival.

Recently a new agent has been approved called Aranesp [darbepoetin alfa]. This new agent also stimulates red blood cell production. It is similar in structure to Procrit but has been altered slightly in order to prolong the duration of effect on the bone marrow and thereby results in less frequent dosing. Instead of weekly injections

Aranesp can be given on an every 2-3 week schedule.

Great Lakes Cancer Management Specialists remain committed in providing all patients with the latest therapies available. We have implemented the use of both these agents into our supportive care programs for our patients. The use of both Procrit and Aranesp greatly enhances their chances of obtaining a positive outcome as well as helping to smooth out the bumps in the road that invariably occur during the course of therapy.

NURSES CORNER

Fatigue

Fatigue is described by cancer patients as an overwhelming feeling of exhaustion that diminishes their ability to accomplish the slightest physical or mental activity. Nutritional status is an important factor in assessing a patient's complaints because a decrease in proper nutrition leaves the body lacking the ability to respond metabolically when challenged by the tumor and the treatments. Our nursing staff can offer suggestions for supplements to provide the body with nutrition and we can also consult a dietician who can work with our patients and their families to implement changes which can increase the nutritional status.

diagnosis and treatment can cause anxiety or depression, which can lead to lack of adequate rest and disrupted sleep patterns. Patients are encouraged to speak with our nursing staff about these issues, and if necessary, social workers can be contacted to assist our patients.

Although there are no specific treatments for fatigue, our patients are encouraged to work with our nurses to determine some of the causes and implement interventions in an effort to provide them with a better quality of life.

If you would like a topic to be discussed in this column, please contact me by phone (313-884-5522) or leave a note at either office addressed to my attention. Remember, our nursing staff will always be here to help you in any way we can.

Lack of energy also occurs when the oxygen, necessary for the body to function properly, is decreased due to lower hemoglobin levels. Hemoglobin provides oxygenation of the cells, and if there are fewer red cells then there is less oxygen. The blood tests that are performed weekly and monitored by our nursing staff are a way to determine hemoglobin levels and institute medication that can increase the levels.

Emotional distress can cause psychological fatigue. The uncertainty of one's future because of a cancer



JoAnna Sheen, R.N., B.S.N., OCN

IDENTIFYING ANEMIA

continued from front page

basic and valuable tool for evaluating anemia. Review of such slides allows the lab to observe the size and different shapes of the RBC's. Examination of the slide assists in the determination of what type of anemia is present.

GLCMS' lab also routinely performs a reticulocyte count (retic) on patients with anemia.

RBC's are manufactured in the bone marrow and once they are mature they enter into the blood stream. A retic count is a reflection of the amount of RBC production that is taking place in the bone marrow. A high retic value signifies that the bone marrow is producing RBC's at an increased rate to hopefully improve an anemic condition. Whereas a low retic count means that the bone marrow is not making enough RBC's and therefore the patient probably is still anemic.

There are several other lab tests that GLCMS performs to enable or physician to diagnose various types of anemia and to differentiate between them. These tests would include ferritin, serum folate, vitamin B12, iron, total iron binding capacity (TIBC) and the RBC indices which are part of the CBC. Other lab tests that are not performed at GLCMS can also be useful tools for detecting anemia. If these tests are ordered by a doctor then they would get sent out to a reference lab for analysis.

The laboratory at GLCMS works very closely with all of the physicians to make sure that the correct lab tests get ordered and completed on our patients. We discuss laboratory findings with the doctors on a daily basis to better serve our patients. GLCMS performs the necessary tests to assist our physicians in diagnosing anemia in our patients.



Julie Hilton, MT(ASCP)

Clinical Trials Opportunities in Breast Cancer

NCCTG 40101

A 2x2 Factorial Phase III Randomized Study using Cyclophosphamide and Doxorubicin (CA 4 vs 6 cycles) versus Paclitaxel (4 vs 6 cycles) as adjuvant therapy for women with node-negative breast cancer.

NSABP B-35

A clinical trial comparing Anastrozole (Arimidex) with Tamoxifen in postmenopausal women with Ductal Carcinoma in SITU (DCIS) undergoing lumpectomy with radiation therapy.

ESTE2100

A randomized Phase III trial of Paclitaxel versus Paclitaxel plus Bevacizumab (rhuMab VEGF) as first-line therapy for locally recurrent or metastatic breast cancer.

NCCTG N9831

A Phase III trial of Doxorubicin/ Cyclophosphamide (AC) followed by weekly Paclitaxel with or without Trastuzumab (Herceptin) as adjuvant treatment for women with HER2 over-expressing or amplified node positive or high-risk node negative breast cancer.

NCCTG N0234

A Phase II study of OSI-774 (Tarceva) plus Gemcitabine (Gemzar) for patients with metastatic breast cancer.

NSABP P-2

A study of Tamoxifen and Raloxifen (STAR) for the prevention of breast cancer.

CTSU 24-02

A Phase III trial evaluating the role of ovarian function suppression and the role of Exemestane (Aromasin) as

adjuvant therapies for pre-menopausal women with endocrine responsive breast cancer

RTOG 98-04

A Phase III trial of observation +/- Tamoxifen versus Radiation therapy +/- Tamoxifen for good risk Ductal Carcinoma In-situ (DCIS) of the female breast.

NCCTG N02C1

A randomized, placebo-controlled, double-blind trial of Risedronate (Actonel) for prevention of bone loss in premenopausal women undergoing chemotherapy for primary breast cancer.

NCCTG N0032

A Phase II trial of Faslodex in women with metastatic breast cancer and failure on Aromatase inhibitor therapy.

DR. BIERNAT

continued from front page

interested in the development of more effective cancer treatments and encourages patient participation in clinical research studies when available.



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Next Issue:

- Diagnosing Colon Cancer
- Latest Antibody Treatments
- Clinical Trials - Colon Cancer Protocols