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Blood Cancers: Rare but Deadly

September is a month of change; long hazy summer days dissolve into clear, warm days followed by cool nights, and eager children return to busy classrooms. But despite the changes in weather and the resumption of any number of activities that were put on hold during the summer months, one thing remains constant: cancers of the blood have not taken a vacation. In fact, mortality and incidence rates for leukemia, the most common type of blood cancer, have not changed significantly over the past 20 years, according to the National Cancer Institute.

While there are a number of diseases that are classified as cancers of the blood, the vast majority of these cases are leukemia, lymphoma, or myeloma. Nearly 111,000 new cases of these disorders were diagnosed in 2004. Another 114,530 people are expected to be diagnosed with one of these disorders this year, and approximately 55,100 people will die from these cancers in 2005. Although blood cancers are relatively rare (accounting for only 2-3% of all cancers, according to the Leukemia and Lymphoma Society), they are responsible for 10% of all cancer deaths. Every 10 minutes, a child or adult will die from one of these diseases.

All three of these types of cancer share certain similarities. For example, although there is a genetic base for each of these conditions, they are not known to be inherited. All three often involve alterations in DNA, but the causes of these changes are unknown. Leukemia, lymphoma, and myeloma all originate in the bone marrow or lymphatic tissues, and all three are characterized by the uncontrolled growth of certain cells that interfere with the production of normal blood cells. The Leukemia and Lymphoma Society points out that these conditions result in "severe anemia, decreased ability to fight infections, and a predisposition to bleeding." All three types of blood cancers are treated with chemotherapy, radiation, stem cell transplantation, or a combination of these therapies.

About 56% of the new cases of blood cancers this year will be lymphoma, which originates in the lymphatic system. There are two main categories of lymphoma: Hodgkin lymphoma and non-Hodgkin lymphoma (which is now the 6th most common form of cancer in this country.). Of the 63,740 Americans diagnosed with lymphoma in 2005, the majority (approximately 56,390) will have a non-Hodgkin form of the disease. Both types of cancer usually manifest themselves by painless swelling of the lymph nodes in the neck, upper chest, armpit, abdomen, or groin. Additional symptoms include recurrent high fever, persistent fatigue, night sweats, weight loss, and itching. For non-Hodgkin lymphoma, there may be bone pain, indigestion, and loss of appetite.

The second largest group of blood cancers (about 30%) is leukemia, which originates in the blood-forming cells of the bone marrow. The rapid growth of the leukemic cells reduces the production of healthy cells, such as red blood cells, which carry oxygen throughout the body, platelets (required for blood clotting), and adult leukocytes, which fight infection. As the malignant cells rapidly reproduce, they enter the bloodstream and are transported to many other parts of the body, spreading the cancer.

Although there are over a dozen types of leukemia, the most common forms can be classified in 4 categories.

Two forms of leukemia are considered to be acute, progressing quickly and primarily affecting unformed, immature cells that cannot function normally. They are acute myelogenous leukemia, in which too many stem cells develop into abnormal, immature white blood cells that are unable to fight infection and crowd out other, healthy blood cells, and acute lymphocytic leukemia, in which too many mature white blood cells are formed, also preventing the healthy development of other blood cells, leading to problems with bleeding, anemia, and infection, and puts the person at risk for damage to the central nervous system.

Leukemia is also classified according to the rate of progression of the disease. If it progresses slowly and some more developed cells can be produced and are able carry out normal functions, it is labeled as chronic. So leukemia usually falls into the categories of chronic myelogenous leukemia, acute myelogenous leukemia, chronic lymphocytic leukemia, or acute lymphocytic leukemia, based on the type and location of the leukemic cells, and the rate at which the disease progresses.

The overproduction of both mature and immature white cells is not the only form of blood cancer. When bone marrow, which normally contains few plasma cells, exhibits an abnormally increased number of plasma cells, a diagnosis of myeloma is made. This disease accounts for 14% of new cases of cancer of the blood. In 2005, almost 16,000 new cases are expected to be identified.

Myeloma may be solitary, meaning there is only one affected area of the body. But the tumor that forms in the bone marrow spreads in most cases, affecting the bones in the ribs, spine, pelvis, shoulder, skull, and other locations. When many sites in the body are involved, a person is said to have multiple myeloma. Nearly 90% of the cases of this disease are multiple myeloma; approximately ½ of the cases diagnosed each year will die within 5 years of diagnosis. The symptoms of myeloma include bone pain that is usually made worse with movement, fatigue and weakness, anemia, or infections of the lung, skin, or urinary tract.

Because of the seriousness of cancers of the blood, September has been designated Leukemia and Lymphoma Month in an effort to provide information about these conditions to the public. The Leukemia & Lymphoma Society (www.leukemia-lymphoma.org, 800-955-4572) and the National Cancer Institute's Cancer Information Service (www.cancer.gov, 800-422-6237) are excellent sources of information about leukemia, lymphoma, and myeloma. Additional information about this or other public health topics is available at the Central Connecticut Health District (www.ccthd.org, 860-721-2822).