

Hematologic Cancer

Introduction of Hematologic Cancer

Hematologic malignancies are tumors that affect the blood, bone marrow, lymph, and lymphatic system. It includes three kinds of cancer type, such as leukemia, lymphoma, and myeloma.

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Leukemia

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Leukemia is a common malignant tumor of the hematopoietic system. In 1845, leukemia is discovered by Bennett and Virchow. They blood from a patient with anemia and hepatosplenomegaly. After a period of time, the blood is stratified to produce yellow-white substance, all of which was white blood cells, so it was called leukemia. The cause of leukemia is that hematopoietic tissue does not work properly due to DNA mutations in hematopoietic cells. The manifestation of leukemia is that one or more blood cells in the hematopoietic system such as bone marrow and lymph nodes become cancerous, resulting in uncontrolled proliferation, differentiation disorder, and blocked apoptosis, so that hematopoietic cells stop at different stages of cell maturation. In the bone marrow and other hematopoietic tissues, the cancerous cells proliferate in a large amount and infiltrate various organ tissues in the body, resulting in inhibition of normal hematopoietic cells. It is often characterized by fever, hemorrhage, anemia and the swelling of liver, spleen and lymph follicle. There are two classification methods for leukemia in clinical practice. The first is divided into acute and chronic according to the natural disease course and the maturity of cells. The second is divided into granulocytes, lymphocytes and monocytes by cell type. Depending on the survey, acute leukemia accounts for 70% of leukemia patients. Among them, acute myeloid leukemia is the most.

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Lymphoma

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Lymphoma is a collection of blood cancers that develop from lymphocytes (a type of white blood cell). There are dozens of subtypes of lymphomas. The two main categories of lymphomas are Hodgkin's lymphomas (HL) and the non-Hodgkin

lymphomas (NHL). About 90% of lymphomas are non-Hodgkin lymphomas. Lymphomas and leukemia are part of the broader group of tumors of the hematopoietic and lymphoid tissues. Risk factors for Hodgkin lymphoma include infection with Epstein-Barr virus and a history of the disease in the family. Risk factors for common types of non-Hodgkin lymphomas include autoimmune diseases, HIV/AIDS, infection with human T-lymphotropic virus, immunosuppressant medications, and some pesticides. Eating large amounts of red meat and tobacco smoking may enhance the risk. The diagnosis of lymphoma is usually lymph node biopsy. The criterion is if enlarged lymph nodes are found. In addition, blood, urine, and bone marrow testing may be helpful in the diagnosis. Medical imaging may then be done in order to determine if and where the cancer has spread, and lymphoma most often spreads to the lungs, liver, and brain. Signs and symptoms may include enlarged lymph nodes, fever, drenching sweats, unintended weight loss, itching, and constantly feeling tired. The enlarged lymph nodes are generally painless, and the sweats are most frequent at night.

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Myeloma

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Myeloma is a cancer of plasma cells, a type of white blood cell normally responsible for producing antibodies. In general, no symptoms are seen initially. Bone pain, bleeding, frequent infections, and anemia may occur along with the condition progress, even include amyloidosis. The cause of myeloma is unknown. According to previous studies, risk factors include drinking alcohol, obesity, radiation exposure, family history, and certain chemicals. The mechanism involves abnormal plasma cells producing abnormal antibodies which can cause kidney problems and overly thick blood. The plasma cells can also form a mass in the bone marrow or soft tissue. When only one mass is present, it is known as a plasmacytoma while more than one is known as multiple myeloma. Multiple myeloma is diagnosed based on blood or urine tests finding abnormal antibodies, bone marrow biopsy finding cancerous plasma cells, and medical imaging finding bone lesions. Another common finding is high blood calcium levels.