DOWNLOAD PDF ACUTE LEUKEMIAS IX

Chapter 1 : Types of Leukemia: 4 Primary Types | CTCA

Acute Leukemias IX provides an extended and thorough overview of recent developments in cell biology and experimental therapy for acute leukemias. Following the tradition of the Acute Leukemias series since , this book bridges the gap between basic research and clinical studies and emphasizes that both aspects are equally necessary to achieve improvements, not only in understanding the disease but also in providing better therapy.

General classification[edit] Clinically and pathologically, leukemia is subdivided into a variety of large groups. The first division is between its acute and chronic forms: Acute leukemia is characterized by a rapid increase in the number of immature blood cells. The crowding that results from such cells makes the bone marrow unable to produce healthy blood cells. Immediate treatment is required in acute leukemia because of the rapid progression and accumulation of the malignant cells , which then spill over into the bloodstream and spread to other organs of the body. Acute forms of leukemia are the most common forms of leukemia in children. Chronic leukemia is characterized by the excessive buildup of relatively mature, but still abnormal, white blood cells. Typically taking months or years to progress, the cells are produced at a much higher rate than normal, resulting in many abnormal white blood cells. Whereas acute leukemia must be treated immediately, chronic forms are sometimes monitored for some time before treatment to ensure maximum effectiveness of therapy. Chronic leukemia mostly occurs in older people, but can occur in any age group. Additionally, the diseases are subdivided according to which kind of blood cell is affected. This divides leukemias into lymphoblastic or lymphocytic leukemias and myeloid or myelogenous leukemias: In lymphoblastic or lymphocytic leukemias , the cancerous change takes place in a type of marrow cell that normally goes on to form lymphocytes , which are infection-fighting immune system cells. In myeloid or myelogenous leukemias , the cancerous change takes place in a type of marrow cell that normally goes on to form red blood cells , some other types of white cells, and platelets. Combining these two classifications provides a total of four main categories. Within each of these main categories, there are typically several subcategories. Finally, some rarer types are usually considered to be outside of this classification scheme. Acute lymphoblastic leukemia ALL is the most common type of leukemia in young children. It also affects adults, especially those 65 and older. Standard treatments involve chemotherapy and radiotherapy. The survival rates vary by age: Chronic lymphocytic leukemia CLL most often affects adults over the age of It sometimes occurs in younger adults, but it almost never affects children. Two-thirds of affected people are men. One subtype is B-cell prolymphocytic leukemia , a more aggressive disease. Acute myelogenous leukemia AML occurs more commonly in adults than in children, and more commonly in men than women. It is treated with chemotherapy. Chronic myelogenous leukemia CML occurs mainly in adults; a very small number of children also develop this disease. Hairy cell leukemia HCL is sometimes considered a subset of chronic lymphocytic leukemia, but does not fit neatly into this category. No cases in children have been reported. HCL is incurable but easily treatable. It is difficult to treat, and the median survival is measured in months. Large granular lymphocytic leukemia may involve either T-cells or NK cells ; like hairy cell leukemia, which involves solely B cells, it is a rare and indolent not aggressive leukemia. Instead, HTLV "immortalizes" the infected T-cells, giving them the ability to proliferate abnormally. They may be pre-cancerous or cancerous. Clonal eosinophilias involve a "clone" of eosinophils, i. Transient myeloid leukemia is a pre-leukemic condition. This means people with leukemia may easily become bruised , bleed excessively, or develop pinprick bleeds petechiae. White blood cells , which are involved in fighting pathogens , may be suppressed or dysfunctional. Because leukemia prevents the immune system from working normally, some patients experience frequent infection , ranging from infected tonsils , sores in the mouth , or diarrhea to life-threatening pneumonia or opportunistic infections. Finally, the red blood cell deficiency leads to anemia , which may cause dyspnea and pallor. Some patients experience other symptoms, such as feeling sick , having fevers, chills, night sweats, feeling fatigued and other flu-like symptoms. Some patients experience nausea or a feeling of fullness due to an enlarged liver and spleen ; this can result in unintentional weight loss. Blasts affected by the disease may come together and become swollen in the liver or in the lymph

nodes causing pain and leading to nausea. Uncommon neurological symptoms like migraines , seizures , or coma can occur as a result of brain stem pressure. All symptoms associated with leukemia can be attributed to other diseases. Consequently, leukemia is always diagnosed through medical tests. The high number of white blood cells is apparent when a blood sample is viewed under a microscope , with the extra white blood cells frequently being immature or dysfunctional. The excessive number of cells can also interfere with the level of other cells, causing further harmful imbalance in the blood count. Some leukemia patients do not have high white blood cell counts visible during a regular blood count. This less-common condition is called aleukemia. The bone marrow still contains cancerous white blood cells which disrupt the normal production of blood cells, but they remain in the marrow instead of entering the bloodstream, where they would be visible in a blood test. For an aleukemic patient, the white blood cell counts in the bloodstream can be normal or low. Aleukemia can occur in any of the four major types of leukemia, and is particularly common in hairy cell leukemia. The few known causes, which are not generally factors within the control of the average person, account for relatively few cases. The different leukemias likely have different causes. Leukemia, like other cancers, results from mutations in the DNA. Certain mutations can trigger leukemia by activating oncogenes or deactivating tumor suppressor genes , and thereby disrupting the regulation of cell death, differentiation or division. These mutations may occur spontaneously or as a result of exposure to radiation or carcinogenic substances. Diet has very limited or no effect, although eating more vegetables may confer a small protective benefit. This predisposition is demonstrated by family histories and twin studies. In some cases, families tend to develop the same kinds of leukemia as other members; in other families, affected people may develop different forms of leukemia or related blood cancers. The International Agency for Research on Cancer expert working group undertook a detailed review of all data on static and extremely low frequency electromagnetic energy, which occurs naturally and in association with the generation, transmission, and use of electrical power. Diagnosis is usually based on repeated complete blood counts and a bone marrow examination following observations of the symptoms. Sometimes, blood tests may not show that a person has leukemia, especially in the early stages of the disease or during remission. A lymph node biopsy can be performed to diagnose certain types of leukemia in certain situations. Following diagnosis, blood chemistry tests can be used to determine the degree of liver and kidney damage or the effects of chemotherapy on the patient. When concerns arise about other damage due to leukemia, doctors may use an X-ray , MRI , or ultrasound. CT scans can be used to check lymph nodes in the chest, though this is uncommon. Despite the use of these methods to diagnose whether or not a patient has leukemia, many people have not been diagnosed because many of the symptoms are vague, non-specific , and can refer to other diseases. For this reason, the American Cancer Society estimates that at least one-fifth of the people with leukemia have not yet been diagnosed. Some are also treated with radiation therapy. In some cases, a bone marrow transplant is effective. Additionally, treatment must prevent leukemic cells from spreading to other sites, particularly the central nervous system CNS e. In general, ALL treatment is divided into several phases: Induction chemotherapy to bring about bone marrow remission. For adults, standard induction plans include prednisone , vincristine , and an anthracycline drug; other drug plans may include L-asparaginase or cyclophosphamide. For children with low-risk ALL, standard therapy usually consists of three drugs prednisone, L-asparaginase, and vincristine for the first month of treatment. Consolidation therapy or intensification therapy to eliminate any remaining leukemia cells. There are many different approaches to consolidation, but it is typically a high-dose, multi-drug treatment that is undertaken for a few months. Patients with low- to average-risk ALL receive therapy with antimetabolite drugs such as methotrexate and 6-mercaptopurine 6-MP. High-risk patients receive higher drug doses of these drugs, plus additional drugs. CNS prophylaxis preventive therapy to stop the cancer from spreading to the brain and nervous system in high-risk patients. Maintenance treatments with chemotherapeutic drugs to prevent disease recurrence once remission has been achieved. Maintenance therapy usually involves lower drug doses, and may continue for up to three years.

Chapter 2 : GENERAL INFORMATION - ACUTE LEUKEMIAS XVII

Acute Leukemias IX provides an extended and thorough overview of recent developments in cell biology and experimental therapy for acute leukemias. Following the tradition of the Acute Leukemias series since , this book bridges the gap between basic research and clinical studies and emphasizes.

Cancer starts when cells in a part of the body begin to grow out of control. There are many kinds of cancer. Cells in nearly any part of the body can become cancer. To learn more about cancer and how it starts and grows, see What Is Cancer? Leukemias are cancers that start in cells that would normally develop into different types of blood cells. Most often, leukemia starts in early forms of white blood cells, but some leukemias start in other blood cell types. There are several types of leukemia, which are divided based mainly on whether the leukemia is acute fast growing or chronic slower growing , and whether it starts in myeloid cells or lymphoid cells. Acute myeloid leukemia AML starts in the bone marrow the soft inner part of certain bones, where new blood cells are made , but most often it quickly moves into the blood, as well. It can sometimes spread to other parts of the body including the lymph nodes, liver, spleen, central nervous system brain and spinal cord , and testicles. Most often, AML develops from cells that would turn into white blood cells other than lymphocytes , but sometimes AML develops in other types of blood-forming cells. Acute myeloid leukemia AML has many other names, including acute myelocytic leukemia, acute myelogenous leukemia, acute granulocytic leukemia, and acute non-lymphocytic leukemia. Normal bone marrow, blood, and lymph tissue To understand leukemia, it helps to know about the blood and lymph systems. Bone marrow Bone marrow is the soft inner part of certain bones. It is made up of blood-forming cells, fat cells, and supporting tissues. A small fraction of the blood-forming cells are blood stem cells. Inside the bone marrow, blood stem cells develop into new blood cells. During this process, the cells become either lymphocytes a kind of white blood cell or other blood-forming cells, which are types of myeloid cells. Myeloid cells can develop into red blood cells, white blood cells other than lymphocytes , or platelets. These myeloid cells are the ones that are abnormal in AML. Types of blood cells There are 3 main types of blood cells: Red blood cells RBCs carry oxygen from the lungs to all other tissues in the body, and take carbon dioxide back to the lungs to be removed. Platelets are actually cell fragments made by a type of bone marrow cell called the megakaryocyte. Platelets are important in stopping bleeding. They help plug up holes in blood vessels caused by cuts or bruises. White blood cells WBCs help the body fight infections. There are different types of WBCs: Granulocytes are mature WBCs that develop from myeloblasts, a type of blood-forming cell in the bone marrow. Granulocytes have granules that show up as spots under the microscope. These granules contain enzymes and other substances that can destroy germs, such as bacteria. The 3 types of granulocytes â€” neutrophils, basophils, and eosinophils â€” are distinguished by the size and color of their granules. Monocytes are WBCs that develop from blood-forming monoblasts in the bone marrow. After circulating in the bloodstream for about a day, monocytes enter body tissues to become macrophages, which can destroy some germs by surrounding and digesting them. Macrophages also help lymphocytes recognize germs and make antibodies to fight them. Lymphocytes are mature WBCs that develop from lymphoblasts in the bone marrow. Lymphocytes are the main cells that make up lymph tissue, a major part of the immune system. Lymph tissue is found in lymph nodes, the thymus a small organ behind the breast bone , the spleen, the tonsils and adenoids, and is scattered throughout the digestive and respiratory systems and the bone marrow. The 2 main types of lymphocytes are B cell and T cells.

Chapter 3 : Diagnostic value of CD in differential diagnosis of acute leukemias. - PDF Download Free

Acute myeloid leukemia (AML) is a cancer of the myeloid line of blood cells, characterized by the rapid growth of abnormal cells that build up in the bone marrow and blood and interfere with normal blood cells.

Certain signs and symptoms can suggest that a person might have acute lymphocytic leukemia ALL , but tests are needed to confirm the diagnosis. Medical history and physical exam If you have signs and symptoms that suggest you might have leukemia, the doctor will want to get a thorough medical history, including how long you have had symptoms and if you have possibly been exposed to anything considered a risk factor. During the physical exam, the doctor will probably focus on any enlarged lymph nodes, areas of bleeding or bruising, or possible signs of infection. The eyes, mouth, and skin will be looked at carefully, and a thorough nervous system exam may be done. Your abdomen will be felt for spleen or liver enlargement. If there is reason to think low levels of blood cells might be causing your symptoms anemia, infections, bleeding or bruising, etc. You might also be referred to a hematologist, a doctor who specializes in diseases of the blood including leukemia. Tests used to diagnose and classify ALL If your doctor thinks you might have leukemia, he or she will need to check samples of cells from your blood and bone marrow to be sure. Other tissue and cell samples may also be taken to help guide treatment. Blood tests Blood samples for ALL tests are generally taken from a vein in the arm. Complete blood count CBC and peripheral blood smear: The CBC measures the numbers of red blood cells, white blood cells, and platelets. This test is often done along with a differential or diff which looks at the numbers of the different types of white blood cells. These tests are often the first ones done on patients with a suspected blood problem. For the peripheral blood smear sometimes just called a smear , a drop of blood is smeared across a slide and then looked at under a microscope to see how the cells look. Changes in the numbers and the appearance of the cells often help diagnose leukemia. Most patients with ALL have too many immature white cells called lymphoblasts or just blasts in their blood, and not enough red blood cells or platelets. Even though these findings may suggest leukemia, the disease usually is not diagnosed without looking at a sample of bone marrow cells. Blood chemistry tests measure the amounts of certain chemicals in the blood, but they are not used to diagnose leukemia. In patients already known to have ALL, these tests can help detect liver or kidney problems caused by spreading leukemia cells or the side effects of certain chemotherapy drugs. These tests also help determine if treatment is needed to correct low or high blood levels of certain minerals. Blood coagulation tests may be done to make sure the blood is clotting properly. Bone marrow tests Leukemia starts in the bone marrow, so checking the bone marrow for leukemia cells is a key part of testing for it. Bone marrow aspiration and biopsy: Bone marrow samples are obtained by bone marrow aspiration and biopsy â€" tests usually done at the same time. The samples are usually taken from the back of the pelvic hip bone, although in some cases they may be taken from the sternum breastbone or other bones. In bone marrow aspiration, you lie on a table either on your side or on your belly. After cleaning the skin over the hip, the doctor numbs the skin and the surface of the bone by injecting a local anesthetic, which may cause a brief stinging or burning sensation. A thin, hollow needle is then inserted into the bone and a syringe is used to suck out a small amount of liquid bone marrow. Even with the anesthetic, most patients still have some brief pain when the marrow is removed. A bone marrow biopsy is usually done just after the aspiration. A small piece of bone and marrow is removed with a slightly larger needle that is pushed down into the bone. With local anesthetic, most patients just feel some pressure and tugging from the biopsy, but some may feel a brief pain. Once the biopsy is done, pressure will be applied to the site to help prevent bleeding. These bone marrow tests are used to help diagnose leukemia. They may also be done again later to tell if the leukemia is responding to treatment. Routine exams with a microscope: The doctors will look at the size, shape, and other traits of the white blood cells in the samples to classify them into specific types. A key factor is whether the cells look mature like normal blood cells , or immature lacking features of normal blood cells. The most immature cells are called lymphoblasts or just blasts. Determining what percentage of cells in the bone marrow are blasts is particularly important. In cytochemistry tests, cells are put on a slide and exposed to chemical stains dyes that react only with some types of leukemia cells. These stains cause color changes that

can be seen under a microscope, which can help the doctor determine what types of cells are present. Flow cytometry and immunohistochemistry: For immunohistochemistry, the cells are examined under a microscope to see if the antibodies stuck to them meaning they have those proteins , while for flow cytometry a special machine is used. These tests are used for immunophenotyping â€" classifying leukemia cells according to proteins on or in the cells. This kind of testing is very helpful in determining the exact type of leukemia. For diagnosing leukemia, it is most often done on cells from bone marrow, but it can also be done on cells from the blood, lymph nodes, and other body fluids. For ALL, these tests are most often used to help determine the exact subtype of in someone already thought to have ALL based on other tests. Chromosome tests These tests look at the chromosomes long strands of DNA inside the cells. Normal human cells contain 23 pairs of chromosomes bundles of DNA. In ALL, the cells sometimes have chromosome changes. For this reason, chromosome testing is a standard part of the work-up for ALL. The most common chromosome change in ALL is a translocation, in which, 2 chromosomes swap some of their DNA, so that part of one chromosome becomes attached to part of a different chromosome. The most common chromosome change in adult ALL is a translocation that results in a shortened chromosome 22 called the Philadelphia chromosome. About 1 out of 4 adults with ALL have this abnormality in their leukemia cells. This change is especially important because it can be targeted with certain drugs. For this test, the cells are grown in lab dishes until they start dividing. Then the chromosomes are looked at under a microscope to detect any changes. Because it takes time for the cells to start dividing, cytogenetic testing often takes about 2 to 3 weeks. Not all chromosome changes can be seen under a microscope. Other lab tests can often help find these changes. Fluorescent in situ hybridization FISH: This is another way to look at chromosomes and genes. It uses special fluorescent dyes that only attach to specific genes or parts of particular chromosomes. FISH can find most chromosome changes such as translocations that are visible under a microscope in standard cytogenetic tests, as well as some changes too small to be seen with usual cytogenetic testing. FISH can be used on regular blood or bone marrow samples. It is very accurate and can usually provide results within a couple of days. Polymerase chain reaction PCR: This is a very sensitive DNA test that can also find certain gene and chromosome changes too small to be seen with a microscope, even if very few leukemia cells are present in a sample. Like FISH, it is used to find particular gene changes and not to look at the chromosomes overall. If the leukemia cells have a particular gene or chromosome change, PCR can be used after treatment to try to find small numbers of leukemia cells that may not be visible with a microscope. Other molecular and genetic tests Other, newer types of lab tests can also be done on the samples to look for specific gene or other changes in the leukemia cells. Lumbar puncture spinal tap ALL can spread to the area around the brain and spinal cord. To check for this spread, doctors remove a sample of the fluid from that area cerebrospinal fluid or CSF for testing. You may lay on your side or sit up for this test. The doctor first numbs an area in the lower part of the back over the spine. A small, hollow needle is then placed between the bones of the spine and into the area around the spinal cord to collect some fluid. A lumbar puncture can also be used to put chemotherapy drugs into the CSF to try to prevent or treat the spread of leukemia to the spinal cord and brain. Lymph node biopsy A lymph node or part of a lymph node is often removed to help diagnose lymphomas, but this is only rarely needed with leukemia because the diagnosis is usually made looking at blood and bone marrow. In this procedure, a surgeon cuts through the skin to remove all or part of a lymph node. If the node is just under the skin, this is a simple operation that can often be done with local anesthesia, but if the node is inside the chest or abdomen, general anesthesia is used to keep you asleep during the biopsy. When the entire lymph node is removed, it is called an excisional lymph node biopsy. If only part of the lymph node is removed, it is called an incisional lymph node biopsy. Imaging tests Imaging tests use x-rays, sound waves, magnetic fields, or radioactive particles to create pictures of the inside of the body. Imaging tests might be done in people with ALL to help determine the extent of the disease, if it is thought to have spread beyond the bone marrow and blood. They might also be done to look for infections or other problems. X-rays Chest x-rays may be done if the doctor suspects a lung infection. They may also be done to look for enlarged lymph nodes in the chest. Computed tomography CT scan The CT scan uses x-rays to make detailed, cross-sectional images of your body. This test can show if any lymph nodes or organs in your body are enlarged. This is not often needed for patients with ALL. Magnetic resonance imaging MRI

scan MRI scans make detailed images of the body using radio waves and strong magnets instead of x-rays. They are very helpful in looking at the brain and spinal cord. This test might be done if a lumbar puncture finds leukemia cells in the CSF, or if a person is having symptoms that could mean the ALL has spread to the area around the brain. Ultrasound Ultrasound can be used to look at lymph nodes near the surface of the body or to look for enlarged organs inside the abdomen such as the kidneys, liver, and spleen. It can also be used to look at the testicles, if needed. This is an easy test to have, and it uses no radiation.

Chapter 4 : Leukemia - Wikipedia

Acute lymphocytic leukemia is also known as acute lymphoblastic leukemia. Acute lymphocytic leukemia is the most common type of cancer in children, and treatments result in a good chance for a cure. Acute lymphocytic leukemia can also occur in adults, though the chance of a cure is greatly reduced.

Signs and symptoms[edit] Diffusely swollen gums due to infiltration by leukemic cells in a person with acute myelomonocytic leukemia Most signs and symptoms of AML are caused by the replacement of normal blood cells with leukemic cells. A lack of normal white blood cell production makes people more susceptible to infections; while the leukemic cells themselves are derived from white blood cell precursors, they have no infection-fighting capacity. A lack of platelets can lead to easy bruising or bleeding with minor trauma. The early signs of AML are often vague and nonspecific, and may be similar to those of influenza or other common illnesses. Some generalized symptoms include fever , fatigue , weight loss or loss of appetite , shortness of breath , anemia, easy bruising or bleeding, petechiae flat, pin-head sized spots under the skin caused by bleeding , bone and joint pain, and persistent or frequent infections. Lymph node swelling is rare in AML, in contrast to acute lymphoblastic leukemia. Rarely, the first sign of leukemia may be the development of a solid leukemic mass or tumor outside of the bone marrow , called a chloroma. Occasionally, a person may show no symptoms , and the leukemia may be discovered incidentally during a routine blood test. The risk is highest about three to five years after chemotherapy. Benzene and many of its derivatives are known to be carcinogenic in vitro. While some studies have suggested a link between occupational exposure to benzene and increased risk of AML, [13] others have suggested the attributable risk, if any, is slight. Survivors of the atomic bombings of Hiroshima and Nagasaki had an increased rate of AML, [15] as did radiologists exposed to high levels of X-rays prior to the adoption of modern radiation safety practices. Multiple cases of AML developing in a family at a rate higher than predicted by chance alone have been reported. This disease is associated with a highly variable set of disorders including an exceedingly high risk of developing AML. While an excess of abnormal white blood cells leukocytosis is a common finding with the leukemia, and leukemic blasts are sometimes seen, AML can also present with isolated decreases in platelets , red blood cells , or even with a low white blood cell count leukopenia. A sample of marrow or blood is typically also tested for chromosomal abnormalities by routine cytogenetics or fluorescent in situ hybridization. Genetic studies may also be performed to look for specific mutations in genes such as FLT3 , nucleophosmin , and KIT , which may influence the outcome of the disease. The combination of a myeloperoxidase or Sudan black stain and a nonspecific esterase stain will provide the desired information in most cases. The nonspecific esterase stain is used to identify a monocytic component in AMLs and to distinguish a poorly differentiated monoblastic leukemia from ALL. In straightforward cases, the presence of certain morphologic features such as Auer rods or specific flow cytometry results can distinguish AML from other leukemias; however, in the absence of such features, diagnosis may be more difficult. Because acute promyelocytic leukemia APL has the highest curability and requires a unique form of treatment, it is important to quickly establish or exclude the diagnosis of this subtype of leukemia. Fluorescent in situ hybridization performed on blood or bone marrow is often used for this purpose, as it readily identifies the chromosomal translocation [t 15;17 q22;q12 ;] that characterizes APL. Each of the WHO categories contains numerous descriptive subcategories of interest to the hematopathologist and oncologist ; however, most of the clinically significant information in the WHO schema is communicated via categorization into one of the subtypes listed below.

Chapter 5 : Tests for Acute Lymphocytic Leukemia (ALL)

Biphenotypic acute leukemias probably represent % of all acute leukemias [20]. The bilineal acute leukemias are less frequent. The bilineal acute leukemias are less frequent. They occur at any age, but are more frequent in adults.

Immediate access to this article To see the full article, log in or purchase access. At the time the manuscript was written, Dr. No relevant financial affiliations. Address correspondence to Amanda S. Reprints are not available from the authors. SEER cancer statistics review â€" Accessed January 9, Bhatia S, Robison LL. Epidemiology of leukemia and lymphoma. Cancer risks among radiologists and radiologic technologists: Computed tomographyâ€"an increasing source of radiation exposure. N Engl J Med. Exposure to benzene at work and the risk of leukemia: Environmental and genetic risk factors for childhood leukemia: Obesity and the risk for a hematological malignancy: Adult primary care after childhood acute lymphoblastic leukemia. Musculoskeletal manifestations in pediatric acute leukemia. Clinical presentation, hematologic features and treatment outcome of childhood acute lymphoblastic leukemia: Orthopaedic manifestations of leukemia in children. J Bone Joint Surg Am. Cornell RF, Palmer J. Clinical features at diagnosis in patients with chronic myeloid leukaemia seen at a referral centre over a year period. National Comprehensive Cancer Network. Clinical practice guidelines in oncology: Guidelines for the diagnosis and treatment of chronic lymphocytic leukemia: SEER fast stats â€" Accessed January 22, Guidelines for the management of pediatric and adult tumor lysis syndrome: Subsequent neoplasms in 5-year survivors of childhood cancer: J Natl Cancer Inst. Establishing and enhancing services for childhood cancer survivors: Osteonecrosis in adult survivors of childhood cancer: Recommended screening and preventive practices for long-term survivors after hematopoietic cell transplantation: Biol Blood Marrow Transplant. Guidelines for cardiac monitoring of children during and after anthracycline therapy: Cardiotoxicity of anthracycline agents for the treatment of cancer: Vaccination against infections in chronic lymphocytic leukemia. Guest editor of the series is Anthony J.

Chapter 6 : acute leukemias ix | Download eBook PDF/EPUB

Leukemia Jump to A Wright's stained bone marrow aspirate smear from a person with precursor B-cell acute lymphoblastic leukemia.

However, differences in reagents, gating, and staining techniques, and thresholds for positivity may account for the discrepancies between groups working in this field. A normalization and standardization procedure such as EGIL recommendations and related consensus represent a step forward in the accurate classification of these disorders [15, 16]. Demonstration of CD expression in acute leukemia is thought to be a reliable marker in identifying myeloid differentiation [1, 5, 6]. Accordingly, we analyzed cases with de novo acute leukemia referred to our immunophenotyping centers for expression of four myeloid related markers CD13, CD33, CD15, and CD and compared the sensitivity, specificity, PPV, and NPV of them to detect myeloid involvement. This finding is in contrast to some previous reports and could be due to different antibody specificities or to differences in the sensitivity of the detection methods employed [1, 4, 5, 17, 18]. Furthermore, the expression of Cd was detected in all FAB subtypes, except for M5b, while in other investigations no clear correlation was found between CD and FAB subtypes [6, 19, 20]. Scilicet, CD expression is not restricted to any particular, undifferentiated phenotype as previously proposed [18, 19]. The frequent expression of CD in AML and lack in ALL emphasizes its diagnostic value in recognizing myeloid differentiation in acute leukemia as demonstrated by the present study [1, 5, 7, 17, 20]. Nevertheless, in at least one third of patients with AML, determination of CD expression fail to prove myeloid differentiation [12]. In these instances, a broader diagnostic approach will still be necessary. Our findings clearly establish the high specificity of c-kit for leukemic cells committed to the myeloid lineage and thus, support its value as a diagnostic reagent in the characterization of acute leukemias. Although the sensitivity of c-kit for detection of AML seems to be slightly lower than CD13, particularly in cases with a monocytic component, its specificity is higher because this marker and CD33 are expressed in a significantly larger proportion of ALL cases. Although CD antigen is irrespective of FAB classification and may be retained in more advanced maturation levels of the granulocytic lineage in acute monocytic leukemia M5 , it is strictly restricted to earlier stages M5a. This interesting finding is in agreement with those of Josep FN et al. There are very few published clinical studies about the value of myeloid-related markers in differential diagnosis of acute leukemias. Hoehn D et al. We showed that measurement of CD or CD33 combined with CD13 is a very useful marker for differentiation of acute leukemias because of its high specificity. The specificity for CD in BM aspirates is the highest values that have been reported for this test to date. In summary, flow cytometric analysis of CD is a useful and reliable marker in the differential diagnosis of acute leukemias. Because it is a myeloid lineage related and strongly specific marker, it should be included in the primary panel of markers and routinely tested in all new diagnosed cases. In addition, we could not find any association between CD expression and morphological FAB subtypes, except for M5. Its expression in acute monocytic leukemia was restricted to immature morphology M5a. It can be concluded that determination of CD, CD13, and CD33 in BM aspiration might be an accurate diagnostic tool for screening and monitoring acute leukemias. However, further studies with a larger sample size are recommended. Acknowledgments The authors wish to thank all the patients for participating in the study. Conflicts of interest None References 1. The diagnostic and predictive role of kit cd Mutation of flt3 is not a general phenomenon in cdpositive t-all. Wozniak J, Kopec-Szlezak J. C-kit receptor cd expression on myeloblasts and white blood cell counts in acute myeloid leukemia. Cytometry Part B, Clin Cytom. Expression of the c-kit cd molecule in normal and malignant hematopoiesis. Bone marrow cells and cdpositive haematopoietic stem cells promote corneal wound healing. Am J Clin Pathol. Cdcd15 in acute myeloid leukemia: Critical role for c-kit cd in t cell lineage commitment and early thymocyte development in vitro. Expression of the c-kit receptor cd is a feature of almost all subtypes of de novo acute myeloblastic leukemia aml , including cytogenetically good-risk aml, and lacks prognostic significance. Usefulness of anti-cd in the flow cytometric analysis of acute leukemia. Annales De Biologie Clinique. Routine use of immunophenotype by flow cytometry in tissues with suspected hematological malignancies. The reliability

and specificity of c-kit for the diagnosis of acute myeloid leukemias and undifferentiated leukemias. Proposals for the immunological classification of acute leukemias. European Group for the Immunological Characterization of Leukemias egil. Expression of c-kit receptor cd and cd34 in leukemic cells. Expression of a kd cell surface antigen identified by monoclonal antibody yb5. B8 is associated with poor prognosis in acute nonlymphoblastic leukaemia. Cd expression in diffuse large b-cell lymphomas: C-kit receptor cd expression in acute leukemia. Enhanced myeloid specificity of cd compared with cd13 and cd

Chapter 7 : Acute leukemia in French, translation, English-French Dictionary

Acute myeloid leukemia starts in the bone marrow. This is the soft inner parts of bones. With acute types of leukemia such as AML, bone marrow cells don't mature the way they're supposed to.

Chapter 8 : What Is Acute Myeloid Leukemia (AML)? | What Is AML?

Acute myeloid leukemia (AML) starts in the bone marrow (the soft inner part of certain bones, where new blood cells are made), but most often it quickly moves into the blood, as well. It can sometimes spread to other parts of the body including the lymph nodes, liver, spleen, central nervous system (brain and spinal cord), and testicles.

Chapter 9 : Acute leukemia (video) | Leukemia | Khan Academy

Adult acute myeloid leukemia (AML) is a type of cancer in which the bone marrow makes abnormal myeloblasts (a type of white blood cell), red blood cells, or platelets. Adult acute myeloid leukemia (AML) is a cancer of the blood and bone marrow. This type of cancer usually gets worse quickly if it is not treated.