**Subject: hematology Lab**

 **Semester: MLT2nd**

**NAME: Salman khan**

**ID # 16590 BS [MLT] SEC-B**

**Explain the following.**

**Leukopenia**

 Leukopenia is a decrease in the number of leukocytes. Found in the blood, they are the white blood cells, and are the body's primary defense against infection. Thus leukopenia places individuals at increased risk of infection. Symptoms may include mouth or skin sores, sore throat, cough, trouble breathing, feeling light-headed, fever, chills, or body aches.

**Lymphocytosis**

Lymphocytosis is an increase in the number or proportion of lymphocytes in the blood. Absolute lymphocytosis is the condition where there is an increase in the lymphocyte count beyond the normal range while relative lymphocytosis refers to the condition where the proportion of lymphocytes relative to white blood cell count is above the normal range. In adults, absolute lymphocytosis is present when the lymphocyte count is greater than 4000 per microliter, in older children greater than 7000 per microliter and in infants greater than 9000 per microliter. Lymphocytes normally represent 20% to 40% of circulating white blood cells. When the percentage of lymphocytes exceeds 40%, it is recognized as relative lymphocytosis.

**Lymphopenia**

 White blood cells are an important part of the body's defense system. They fight infections and play a role in inflammation, as well as in allergic reactions. Lymphocytes exist in both the blood and the lymphatic system. They are three different types:

* B lymphocytes (B cells) produce antibodies.
* T lymphocytes (T cells) recognize foreign substances and process them for removal.
* Natural killer cells (NK cells) directly attack and kill abnormal cells such as cancer cells or viruses.

Lymphopenia (also called llymphocytopenia) is a reduced amount of these cells in your blood. During an infection such as COVID-19, white blood cells attack, attach to and help induce the production and secretion of chemicals that help fight the virus.

**Basophilia**

 Basophilia is the condition of having greater than 200 basophils/μL in the venous blood. Basophils are the least numerous of the myelogenous cells, and it is rare for their numbers to be abnormally high without changes to other blood components. Rather, basophilia is most often coupled with other white blood cell conditions such as eosinophilia- high levels of eosinophils in the blood. Basophils are easily identifiable by a blue coloration of the granules within each cell, marking them as granulocytes, in addition to segmented nuclei.

**Nutrophelia**

Neutrophils are white blood cells (WBC) that move from the blood into the cells to kill invading bacteria and fungi. If neutrophil levels become too high, neutrophilia results. Neutrophilia is the most common form of leukocytosis a condition involving an increased number of leukocytes in the blood. Absolute neutrophilia refers to the increase in the total number of leukocytes in the blood as well as an increased percentage of neutrophils. This results in a neutrophil count of over 8,000.

**Thrombocytosis**

 Platelets are blood particles produced in the bone marrow that play an important role in the process of forming blood clots. Thrombocytosis (throm-boe-sie-TOE-sis) is a disorder in which your body produces too many platelets.It's called reactive thrombocytosis or secondary thrombocytosis when the cause is an underlying condition, such as an infection.Less commonly, when thrombocytosis has no apparent underlying condition as a cause, the disorder is called primary thrombocythemia or essential thrombocythemia. This is a blood and bone marrow disease.Your doctor might detect thrombocytosis in a routine blood test result that shows a high platelet level. If your blood test indicates thrombocytosis, it's important to determine whether it's reactive thrombocytosis or essential thrombocythemia to know how to manage the condition.

**Thrombocytopenia**

Thrombocytopenia is a condition in which you have a low blood platelet count. Platelets (thrombocytes) are colorless blood cells that help blood clot. Platelets stop bleeding by clumping and forming plugs in blood vessel injuries.Thrombocytopenia often occurs as a result of a separate disorder, such as leukemia or an immune system problem. Or it can be a side effect of taking certain medications. It affects both children and adults.Thrombocytopenia may be mild and cause few signs or symptoms....

**Polycythemia**

Polycythemia is a disease state in which the hematocrit and/or hemoglobin concentration are elevated in peripheral blood. It can be due to an increase in the number of red blood cells or to a decrease in the volume of plasma. Polycythemia is sometimes called erythrocytosis, but the terms are not synonymous, because polycythemia refers to any increase in red blood cells, whereas erythrocytosis only refers to a documented increase of red cell mass. The emergency treatment of polycythemia is by phl

**Anemia**

 Anemia is a decrease in the total amount of red blood cells or hemoglobin in the blood, or a lowered ability of the blood to carry oxygen. When anemia comes on slowly, the symptoms are often vague and may include feeling tired, weakness, shortness of breath, and a poor ability to exercise. When the anemia comes on quickly, symptoms may include confusion, feeling like one is going to pass out, loss of consciousness, and increased thirst. Anemia must be significant before a person becomes noticeably pale. Additional symptoms may occur depending on the underlying cause.

**Leukemia**

Leukemia, also spelled leukaemia, is a group of blood cancers that usually begin in the bone marrow and result in high numbers of abnormal blood cells. These blood cells are not fully developed and are called blasts or leukemia cells. Symptoms may include bleeding and bruising, feeling tired, fever, and an increased risk of infections. These symptoms occur due to a lack of normal blood cells. Diagnosis is typically made by blood tests or bone marrow biopsy.

**Reticolocytosis**

 A reticulocyte test measures the number of new red blood cells in your body. It’s sometimes called a reticulocyte index – or “retic count” for short. Doctors use it to help figure out whether you have certain types of illnesses that affect your blood, such as hemolytic anemia, a condition where red blood cells are destroyed faster than they can be made.Your blood includes many kinds of cells, but red blood cells are the most common. They carry oxygen from your lungs to the rest of your body. The proteins and iron in them are what give the cells -- and your blood -- their red color.Because red blood cells only live about 4 months, your body constantly makes new ones, which are known as reticulocytes. They’re made by bone marrow, a spongy tissue inside many of your bones.When doctors want to know whether your bone marrow is making the right amount of red blood cells, they take a sample of blood and calculate the number of reticulocytes in it. If you’re like most people, reticulocytes make up about 0.5% to 1.5% of your red blood cells

 **THE END**