WBC Differential Lab Value

White blood cells (WBC) are a collection of cells that function as part of the body's immune system. The WBC differential analyzes the leukocyte distributions, which are the formed elements of whole blood. Each leukocyte has its own function and responds to body insults and injury. It is important to watch trends in the blood to see how the body is responding to an infection or to an intervention (chemotherapy, radiation therapy).

PLAY PICMONIC

White Blood Cells (WBC)

White-mac-man

WBCs are called leukocytes. They appear white when blood is separated (hence their name). They originate from the stem cell within the bone marrow.

5-10 (5,000-10,000)

(5) Hand to (10) Tin

An increased WBC count (greater than 10,000) is often indicative of infection, while a decreased WBC count (less than 5,000) indicates the patient is becoming immunosuppressed. Remember that steroids will elevate the WBC count even though the patient is not having an infection.

Leukocyte Differential

Neutrophils (50%-70%)

Nude-trojans with 50-cent and 70's-guy

Neutrophils are the primary acting leukocyte in the body. It is a phagocytic cell that responds to an inflammatory response.

Bands (2%-5%)

Band with (2) Tutu and (5) Hand

Bands are immature neutrophils. If there is an increase of bands in the system, it is called a "shift to the left," which is seen in patients with an acute infection.

Segs (50%-70%)

Segway with 50-cent and 70s-guy

Segs are mature neutrophils. They are the most effective at phagocytosis. An increase in Segs indicates that the body has and is responding to an infection or tissue injury.

Lymphocytes (20%-40%)

Lime-cell with 20-dollar-bill and 40-oz

Lymphocytes are primarily activated during an immune response (cellular and humoral). There are three different types of lymphocytes: Natural Killer (NK) cells, B cells, and T cells. They are increased in chronic bacterial and viral infections, but decreased in sepsis.

Monocytes (4%-8%)

Monocyte-monkey with (4) Fork and (8) Ball

Monocytes are found in the bloodstream and are effective phagocytic cells. However, when a monocyte migrates into the tissue, they are known as macrophages.

Eosinophils (2%-4%)

Eosinophil-eagle with (2) Tutu and (4) Fork

Eosinophils have a phagocytic function, but are not as effective. These cells assist in engulfing antigen-antibody complexes during an allergic response. The exact mechanism is unknown, but they also help in defending against parasitic infections.

Basophils (0.5%-1.5%)

Bass-fish with (.5) Hand and (1) Wand (.5) Hand

Basophils have a similar function as mast cells. When activated they release histamine and serotonin, which helps stimulate an immune response.