

What tells complete Blood count (CBC)

Hemoglobin (Hb):-

↑: Dehydration, excess RBCs production, severe lung disease, or several other conditions.

↓: deficiency (Fe, B₁₂ & Folate), inherited (Hb & enzyme) defects, excessive bleeding & destruction of RBCs, liver cirrhosis, kidney disease, chronic illnesses, bone marrow failure/ cancer /aplastic anemia.

Total leucocytes count (TLC):-

Physiologic ↑: Strenuous exercise, convulsive seizures, excitement, fear, pain, stress, digestion, pregnancy.

Pathological ↑: infections, intoxication, inflammation, tissue necrosis (trauma, neoplasm, infarction, burns, gangrene), acute hemorrhage, acute hemolytic, neoplasia, corticosteroids (↑), splenectomy.

↓: viral infections, early stage of bacterial infection and localized severe infection, Rickettsial (Ehrlichiosis), Protozoan (Toxoplasmosis), chemotherapy, radiation therapy, affections of immune system. There are many drugs that cause both increased and decreased WBC counts.

Differential Leucocyte Count (DLC):-

Neutrophils ↑: bacterial infection or inflammatory disease, bone marrow disorders.

↓: severe infection or other conditions, as responses to various medications.

Lymphocytes: ↑ in viral infection, leukemia, cancer of the bone marrow, or radiation therapy, vaccination.

↓: Affections of the immune system, high level of glucocorticoids.

Eosinophils ↑: allergic disorders, inflammation of the skin, parasitic infections, bone marrow disorders.

↓: occur as a result of infection.

Monocyte ↑: infection of all kinds, inflammatory disorders, malignant disorders (leukemia), necrosis, and steroids.

Basophils ↑: chronic inflammation, allergy, hypersensitivity reaction to food, or radiation therapy, parasites, hyperlipemia, myeloproliferative neoplasm.

Eating, physical activity, and stress may alter white blood cell differential values. Long-term use of steroids or long-term exposure to toxic chemicals can increase the risk of an abnormal differential.

RBC:-

↓: Trauma, Burns, Pregnancy, Hemolytic anemia, Hemorrhagic infections, GI or other vascular bleed, Fe, Vit B₁₂ or folate deficiency, Bone marrow damage, Chronic inflammation, Metabolic disorders.

↑: Dehydration, Pulmonary disease, congenital heart disease, renal problems, *Polycythemia vera*, Over-transfusion of whole blood, Tissue hypoxia

PCV:-

↑: dehydration, *polycythemia vera*.

↓: anemia as by (Fe, Vit. or mineral) deficiencies, recent bleeding, liver cirrhosis, malignancies and slightly decrease (estrous and pregnancy). Chronic illness, an inherited blood disorder, or malnutrition.

MCV: - ↑: anemia caused by vitamin B₁₂ deficiency. ↓: iron deficiency anemia.

MCH: - Macrocytic RBCs have a higher MCH, while microcytic RBCs would have a lower value.

MCHC: - ↓ (iron deficiency anemia). ↑(burn and hereditary spherocytosis, a rare congenital disorder).

Platelet Count:-

↑: **Reactive thrombocytosis** (splenectomy, excitement, exercise, fracture, glucocorticoids, post blood loss, myelofibrosis, iron deficiency anemia), **primary thrombocytosis** (myeloproliferative disorder, distinctive form of platelet leukaemia).

↓: **Consumptive thrombocytopenia** (inflammation, infectious disease such as Ehrlichiosis & other tick born diseases), **sequestration thrombocytopenia** (hepato-splenomegaly), **hypoproliferative thrombocytopenia** (↓ no. of marrow precursors), **destructive thrombocytopenia** (immune mediated). In rare cases, an extremely high platelet count may indicate there is underlying bone marrow cancer.

RDW:-

↑: anisocytosis, anemia's such as pernicious anemia.