

Leukocytosis

Leukocytosis : is defined as a state in which there is increased leukocytes count in the blood above the normal range with respect to age and sex. These leukocytes are vital part of the immune system, enabling the individuals to fight infections. Leukocytes are being produced in the bone marrow, and after its production, it circulates in the blood for some time and leaves the blood for the functions to be carried out.

Classification :

Leukocytosis can be subcategorized by the type of white blood cell that is increased in number.

Leukocytosis in which neutrophils are elevated is neutrophilia;
Leukocytosis in which lymphocyte count is elevated is lymphocytosis;
Leukocytosis in which monocyte count is elevated is monocytosis;
Leukocytosis in which eosinophil count is elevated is eosinophilia. and
Leukocytosis in which basophil count is elevated is Basophilia .

Leukocytosis Causes:

Infection : It can be caused by virus, bacteria or parasite .

e.g. : – Chicken pox, pneumonia, tuberculosis, bladder infections and sinusitis.

Inflammation : It can be due to pain, swelling and redness in joints.

e.g. : – Arthritis

Diseases : Like inflammatory bowel disease.

Tissue damage : It can be caused in case the body tissues get damaged.

e.g. : – Burns, heart disease and cancer.

Immune reactions : the immune system reacts strongly

e.g. : – Asthma or allergies

Bone marrow problems : Here, bone marrow makes many WBCs than needed, but does not function like normal WBCs.

e.g. : – Leukemia or blood cancer, myelofibrosis, polycythemia vera, thrombocytopenia

Medications : Certain medicines used for treating mental health disorder, inflammation, breathing problems and cancer cause leukocytosis.

e.g. : – corticosteroids, epinephrine (beta agonist) and lithium (psychotic drug)

Stress : Both emotional and physical (exercise) .

Surgeries : Like splenectomy.

Hemolytic anemia :

Pregnancy : e.g. : – Thyrotoxicosis, Urinary tract infection, trauma,
Worm infestation, Malignancy, Medication

Causes of leukocytosis	
Neutrophilic leukocytosis (neutrophilia)	<ul style="list-style-type: none"> • Acute bacterial infections, especially pyogenic infections • Sterile inflammation <ul style="list-style-type: none"> ◦ Tissue necrosis <ul style="list-style-type: none"> ▪ Myocardial infarction^[8] , Burns
Eosinophilic leukocytosis (eosinophilia)	<ul style="list-style-type: none"> • Allergic disorders <ul style="list-style-type: none"> ◦ Asthma ◦ Hay fever ◦ Drug allergies ◦ Allergic skin diseases <ul style="list-style-type: none"> ▪ Pemphigus^[8] ▪ Dermatitis herpetiformis • Parasitic infections • Some forms of malignancy <ul style="list-style-type: none"> ◦ Hodgkin's lymphoma ◦ Some forms of Non-Hodgkin lymphoma • Systemic autoimmune diseases (e.g. SLE) • Some forms of vasculitis Cholesterol embolism (transiently)
Basophilic leukocytosis Basophilia	<p>(rare)</p> <p>Myeloproliferative disease, e.g. Chronic myelogenous leukemia</p>
Monocytosis	<ul style="list-style-type: none"> • Chronic infections <ul style="list-style-type: none"> ◦ Tuberculosis ◦ Bacterial endocarditis ◦ Rickettsiosis ◦ Malaria • Systemic autoimmune diseases, e.g. SLE <p>Inflammatory bowel diseases, e.g. ulcerative colitis</p>
Lymphocytosis	<ul style="list-style-type: none"> • Chronic infections <ul style="list-style-type: none"> ◦ Tuberculosis ◦ Brucellosis • Viral infections <ul style="list-style-type: none"> ◦ Hepatitis ◦ Cytomegalovirus infection ◦ Infectious mononucleosis , Pertussis

Leukocytosis Diagnosis :

1. Complete blood count (CBC) .
2. Peripheral blood smear (PBS) .
3. PBS shows the form and shape of WBCs .
4. PBS shows the elevated WBC type .
5. Bone marrow biopsy .
6. History taking – To figure out the cause for leukocytosis .