

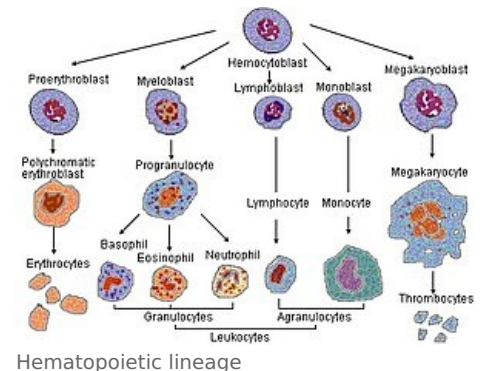
White blood cell pathology

White blood cell parameters

- leukocytosis: $> 10,000$
- leukopenia: $< 4,000$
- neutropenia: $< 1,000$ (in children 2 weeks to 1 year), $< 1,500$ (in children over 1 year)
- agranulocytosis: < 500
- lymphocytosis: $> 5,000$
- lymphopenia: $< 1,500$
- monocytosis: > 800 or $> 10\%$ in diff.,
- eosinophilia: > 600 or $> 10\%$ in diff.,
- basophilia: > 100 or $> 1\%$ in diff.

Differential diagnosis of leukocytosis and neutrophilia

- Pyogenic infections
- connective tissue disease
- glomerulonephritis
- acidosis
- uremia,
- acute bleeding
- hemolysis
- burns
- surgery
- liver necrosis
- dehydration
- corticoids
- catecholamines
- lead and mercury poisoning
- metastases in the bone marrow



Physiological causes of leukocytosis and neutrophilia

- Stress
- physical exertion
- intense crying in newborns
- smoking

Leukemoid reactions

The leukemoid reaction is a situation where we find tens of thousands of leukocytes/mm³ + a significant shift to immature forms. The determination of ALP in neutrophils can help in differential diagnosis (in leukemia, ALP is decreased, in leukemoid response in infection or systemic disease, ALP is normal or increased). When in doubt, bone marrow aspiration can be used to distinguish leukemia from leukemoid reactions.

Differential diagnosis of lymphocytosis

Absolute lymphocytosis

- infectious lymphocytosis
- infectious mononucleosis
- pertussis
- syphilis
- TB
- hyperthyroidism

relative lymphocytosis

- measles
- exanthema subitum

Differential diagnosis of neutropenia

congenital

- reticular dysgenesis
- congenital pluripotent stem cell disorder
- Kostmann syndrome
- cyclic neutropenia

- Schwachmann syndrome
- neutropenia in DMP: glycogenosis, Gaucher.

acquired

- isoimmune neonatal neutropenia
- vitamin B12 deficiency
- folic acid deficiency
- autoimmune etiology
 - SLE
 - JIA
 - SCID
 - Hyper IgM syndrome
 - Evans syndrome
 - lymphomas
 - drugs: chloramphenicol, antiepileptics, thyrostatics
 - infections: EBV, CMV, HHV 6, HIV, Parvovirus, hepatitis, varicella, mumps
- idiopathic neutropenia

Differential diagnosis of eosinophilia

- Allergic diseases
- skin diseases: eczema atopicum
- parasitic infections: toxocarosis, oxyuriasis
- m. Hodgkin
- scarlet fever

References

Source

- HAVRÁNEK, Jiří: *Hematologie - obecný úvod* . (managed)

Related Articles

- Physiological and pathophysiological notes on pediatric hematology (pediatrics) • Neutropenia in children
- Diseases of the white blood component:
 - Leukemia: Acute myeloid leukemia • Acute lymphocytic leukemia • Chronic myeloid leukemia • Chronic lymphocytic leukemia
 - Malignant lymphoma: Hodgkin's lymphoma • Non-Hodgkin's lymphoma
 - Histiocytosis
- Diseases of the red blood cells: Anemia • Polyglobulia