

Lymphocytes

Interpretive Summary

Description: Lymphocytes are WBCs, which are derived from lymphoid tissues such as lymph nodes, spleen, and thymus. Lymphocytes play a role in the cell-mediated and humoral immune response.

Decreased Lymphocytes

Common Causes

- Corticosteroid-induced stress leukogram
 - Physiologic stress
 - Cushing's disease
 - Glucocorticoid therapy
- Acute systemic inflammation
 - Acute viral or bacterial infections
 - Endotoxemia
- Lymphangiectasia/protein-losing enteropathy/gastrointestinal lymphoma
- Chylous effusions

Uncommon Causes

- Immunosuppressive therapy
- Hereditary immunodeficiency

Related Findings

- Corticosteroid-induced stress leukogram
 - Decreased eosinophils
 - Increased neutrophils, monocytes
 - Adrenal function tests consistent with Cushing's disease
- Acute systemic inflammation
 - Positive serology or PCR testing for infectious agents
- Lymphangiectasia/protein-losing enteropathy/gastrointestinal lymphoma
 - Decreased albumin and globulin
 - Low serum cobalamin
- Chylous effusions
 - Effusion visible on radiographs
 - Cytology of effusion consistent with chylothorax or chyloabdomen
 - Fluid triglycerides higher than serum triglycerides
 - Effusion cholesterol:triglyceride ratio <1

Increased Lymphocytes

Common Causes

- Epinephrine effect
 - Common in puppies, kittens, and horses <1 year of age
 - May be seen in adult cats, particularly with hyperthyroidism
- Chronic antigenic stimulation
 - Chronic bacterial (esp rickettsial) or viral infections
 - Post-vaccination
- Addison's disease

- Lymphocytic neoplasia
 - Lymphocytic leukemia
 - Leukemic phase of lymphoma

Related Findings

- Epinephrine effect
 - Increased neutrophils
 - Chronic antigenic stimulation
 - Larger and/or reactive lymphocytes due to antigenic stimulation
 - Increased globulins
 - Positive serology or PCR testing
 - Addison's disease
 - Often have decreased sodium and increased potassium
 - Lack of a stress leukogram
 - ACTH stimulation test consistent with Addison's disease
 - Lymphocytic neoplasia
 - Cytology consistent with leukemia/lymphoma
 - PCR for clonal rearrangement/immunophenotyping by flow cytometry, consistent with leukemia
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Additional Information

Physiology

- Mature lymphocytes are approximately 1-1.5 times the size of a red blood cell, with scant bluish cytoplasm, round to oval nuclei, and aggregated or clumped chromatin.
- Lymphocytes differ from other leukocytes in that after leaving the vascular system, they can recirculate and have a relatively long half-life (months to years).
- Their primary function is humoral and cell-mediated immunity.

References

- Latimer KS, Mahaffey EA, Prasse KW, eds. *Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology*, 4th ed. Ames, IA: Blackwell; 2003.
- Stockham SL, Scott MA. *Fundamentals of Veterinary Clinical Pathology*, 2nd ed. Ames, IA: Blackwell; 2008.

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