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.

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**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
  o Lymphocytic leukemia
  o Leukemic phase of lymphoma

Related Findings

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

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


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