Basophils

Interpretive Summary

Description: Basophils are white blood cells that are associated with parasitic, neoplastic, and allergic conditions.

Decreased Basophils

Common Causes

- Normal (some reference intervals include zero)

Increased Basophils

Common Causes

- Parasitic infections: ectoparasites and endoparasites
- Hypersensitivity responses
  - Asthma
  - Eosinophilic granuloma complex
  - Allergic dermatitis/atopy
  - Food allergies
  - Eosinophilic gastroenteritis
  - Allergic rhinitis/sinusitis

Uncommon Causes

- Infectious: viral, bacterial, fungal, protozoal
- Neoplasia
  - Mast cell neoplasia
  - Lymphoma
  - Carcinoma
  - Basophilic leukemia
  - Lymphomatoid granulomatosis
  - Polycythemia vera

Related Findings

- Parasitic infections
  - Positive skin scrapings for ectoparasites
  - Positive fecal tests (fecal ova & parasites, Baermann test, or fecal sedimentation) for parasite eggs or larvae
  - Positive heartworm testing (serology for antigen or antibody, microfilaria testing)
- Hypersensitivity responses
  - Asthma
    - Bronchial pattern on thoracic radiographs
    - Eosinophilic and neutrophilic inflammation found on transtracheal or endotracheal wash
  - Eosinophilic granuloma complex
    - Histopathology supportive of eosinophilic granuloma complex
  - Allergic dermatitis/atopy
    - Abnormalities on skin allergy testing
    - Histopathology supportive of allergic dermatitis
  - Food allergies/eosinophilic gastroenteritis
    - Gastrointestinal biopsies showing eosinophilic inflammation
    - Gastric and/or intestinal wall thickening found on abdominal ultrasound
- Abnormal serum folate and cobalamin
  - Allergic rhinitis/sinusitis
    - Lymphoplasmacytic or eosinophilic inflammation on nasal biopsies

**Additional Information**

**Physiology**

- Basophils are typically present in low numbers in mammals
- The granules of basophils are round and stain metachromatically (purple) although the intensity varies by species.
- Mature basophils in cats have very lightly staining granules.
- Granules are abundant in most species except for the dog.
- The most prominent constituents of basophil granules are histamine and heparin.

**Diagnostic Methodology**

- The basophil percentage (or relative basophil count) is the number of basophils (typically per 100 to 200 white blood cells) and is reported as a percentage.

**References**


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