Anemia in Dogs and Cats

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BASIC INFORMATION

Description

Anemia is an abnormally low red blood cell (RBC) count. The primary function of the RBC is to transport oxygen to tissues, so inadequate RBC numbers cause decreased oxygenation of tissues. Anemia is not a specific disease but reflects an underlying disease process.

Causes

Anemia may be caused by decreased production of RBCs, increased destruction of RBCs (hemolysis), or loss of RBCs. Decreased RBC production arises secondary to chronic metabolic diseases, such as kidney disease, cancer, or malnutrition. RBCs are produced in the bone marrow, and infections or cancer of the marrow may also affect production.

Excessive RBC destruction is commonly immune mediated, although toxins, infections, blood parasites, cancer, drug reactions, and inherited RBC membrane defects can also cause hemolysis. Anemia secondary to blood loss may be overtly noted with trauma, but it may be hidden with other conditions, such as gastrointestinal tract bleeding, certain parasites (fleas, ticks, hookworms), and clotting disorders.

Clinical Signs

Clinical signs of anemia depend on both the severity of the anemia and the underlying cause. Clinical anemia typically causes weakness, lethargy, increased heart rate, poor appetite, and pale gums. Signs of the underlying cause may include fever, jaundice, enlarged spleen, pica (eating abnormal objects such as dirt), enlarged lymph nodes (glands), vomiting, diarrhea, weight loss, or depression.

Diagnostic Tests

Anemia is reasonably easy to diagnose, but diagnosing the underlying cause may be more difficult. Packed cell volume (PCV) is one measurement of the RBC count. Normal PCV values vary depending on the species of animal and the laboratory being used. An abnormally low PCV value confirms the diagnosis of anemia.

If anemia is diagnosed, other laboratory tests may be recommended to further characterize the cause of the anemia:

- Evaluation of a blood smear to identify potential blood parasites
- Biochemistry profile and urinalysis to evaluate organ function
- Fecal examination to identify internal parasites
- Reticulocyte count to determine whether the bone marrow is trying to replace lost RBCs
- Bone marrow aspiration and evaluation if there is no evidence that the RBCs are regenerating (low reticulocyte count)
- X-rays to evaluate for the presence of tumors, size of various organs, or evidence of trauma
- Clotting tests if excessive or persistent bleeding is present
- Other tests to screen for potential immune-mediated destruction of RBCs

TREATMENT AND FOLLOW-UP

Treatment Options

If the anemia is severe and life-threatening, hospitalization and blood transfusions may be recommended to stabilize the patient while the underlying disease is identified and potentially treated. Patients with severe anemia may also require oxygen therapy to compensate for decreased oxygen delivery to tissues. The treatment plan is then directed at the underlying cause and may include immunosuppressive drugs, antibiotics, parasite control, chemotherapy, or hormone injections. Not all underlying causes of anemia are treatable.

Follow-up Care

Follow-up depends on the underlying cause. Isolated events such as trauma may require monitoring of the PCV for a few days, whereas chronic conditions such as cancer or renal disease may require long-term monitoring. Immune-mediated anemia usually requires several months of therapy and monitoring.

Prognosis

The prognosis for anemia alone can be good with early intervention in reversible cases. Long-term prognosis depends on the severity of the underlying disease and whether the underlying disease can be treated.

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