

Immune-Mediated Thrombocytopenia

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BASIC INFORMATION

Description

Platelets (also called *thrombocytes*) are tiny cell fragments that circulate in the bloodstream and participate in the formation of blood clots. Excessively low platelet counts (thrombocytopenia) can lead to bleeding tendencies, because without platelets the blood cannot clot properly. Thrombocytopenia is not a common condition, but it can occur in any breed, age, or sex of dog or cat. Pets with cancer are at higher risk.

The normal platelet count in dogs and cats ranges from 200,000 to 500,000 per microliter (μL), although there are some breed variations in dogs. About 50,000 platelets/ μL are needed to prevent spontaneous bleeding and bruising. Platelets are stored in the spleen and are removed from circulation by the spleen when they become old.

In immune-mediated thrombocytopenia (ITP), the immune system incorrectly identifies the platelets as foreign material and coats them with antibody. The spleen removes these coated platelets from the blood and destroys them. Antibody-coated platelets also do not function well while they are still circulating.

ITP occurs most commonly in middle-aged to older dogs, with poodles, cocker spaniels, and Old English sheepdogs over-represented. In cats, ITP is very uncommon and is often associated with feline leukemia virus (FeLV) infection.

Causes

Immune-mediated destruction of platelets may develop in association with other conditions such as cancer, blood parasites, drug reactions, and infections; this is known as *secondary ITP*. Immune destruction of platelets can also arise spontaneously, for no apparent reason, and this is called *primary ITP*.

Clinical Signs

Signs do not typically develop until the platelet count falls below 50,000/ μL . Signs can vary but include small bruises (petechiae and ecchymoses) on the skin, gums, and eyes; nose bleeds; blood in the urine; swollen and painful joints; and blood in the feces. Signs become more obvious with lower, more dangerous platelet counts. Life-threatening breathing difficulty and seizures may also occur. With secondary ITP, signs of the underlying illness may also be present.

Diagnostic Tests

A blood clotting problem may be suspected from the clinical signs. Thrombocytopenia is diagnosed by a blood platelet count. Other laboratory tests are needed to search for an underlying cause, to evaluate other organs, and to determine the presence of anemia. Additional procedures that may be recommended include x-rays, an ultrasound, other clotting tests, bone marrow aspiration, and certain

immune tests. If signs of bleeding are noted but the platelet count is normal, other disorders of coagulation (clotting function) must be investigated.

TREATMENT AND FOLLOW-UP

Treatment Options

For primary ITP, the main treatment is immune suppression, usually with high doses of steroids such as prednisone or dexamethasone. Treatment is often required for several months, and drug doses are slowly tapered over time. Steroids can be combined with other medications (vincristine, azathioprine, cyclosporine) to achieve a more rapid and complete immune suppression. These medications may be reserved for more seriously affected animals.

Other treatments are based on any underlying cause of the thrombocytopenia that is identified and may include antibiotics, anti-parasite therapy, withdrawal of certain drugs, and chemotherapy. If bleeding is severe enough to cause anemia, hospitalization and blood transfusions may be required. Platelet transfusions are rarely available for animals. In resistant cases, splenectomy may be recommended to slow platelet destruction, but its effectiveness in animals is controversial.

Follow-up Care

Once immune-suppressive drugs are started, platelet counts often increase in 1-7 days if the patient is going to respond to the medications. Steroids have many effects, including excessive thirst, excessive urination, panting, secondary urinary tract infections, liver enzyme alterations, and skin and hair coat changes. These side effects usually resolve slowly as the steroids are decreased. When steroids are combined with other immune-suppressive medications, the steroids can often be used at lower doses and tapered sooner.

ITP often requires several months of therapy, and repeated platelet counts are needed as medications are tapered. If medications are withdrawn too soon or too quickly, ITP may recur. Other laboratory tests are used to monitor for side effects from the medications and for the onset of secondary infections from the immune suppression.

Prognosis

Prognosis depends on the underlying cause and whether the patient responds well to therapy. Thrombocytopenia secondary to infections or drug reactions often has an excellent prognosis, whereas thrombocytopenia secondary to cancer may have a poor prognosis. Primary ITP has a variable prognosis, with some dogs responding very well and others having a minimal response.