

## IMMUNE MEDIATED HEMOLYTIC ANEMIA (IMHA)

IMHA is red blood cell destruction by the body's own immune system, resulting in anemia or a decreased red blood cell mass and therefore decreased oxygen transport around the body. This is the most common form of hemolytic anemia in dogs and is rare in cats. Many causes have been identified or suspected, among them drugs/medications, vaccinations and infectious agents being the most common. The thought with any immune mediated disease is that something incites the immune system and causes it to turn on its own normal tissues, destroying them. In this case the red blood cells are the victim. In most cases, the underlying inciting cause is never definitively diagnosed.

Clinical signs of IMHA reflect the decreased circulating red cell mass and decreased oxygen delivery to the tissues. Clinical signs most often come on suddenly/acutely. The only signs noted may be vague, such as lethargy/depression, decreased or absent appetite or exercise intolerance. Vomiting can sometimes be seen. Pale and/or yellow mucous membranes (such as gums) and increased respiratory/breathing rate and effort are more specific signs. Some patients will collapse with no previous indications of a serious disease process going on. Additional signs of multiple organ damage/failure can be seen due to the lack of adequate oxygen supply and/or blood clots (thromboemboli) that can develop in the blood vessels supplying various organs (especially the lungs, liver and kidneys).

It is not uncommon to see dogs that have platelet destruction (immune mediated thrombocytopenia/ITP) along with the red cell destruction. This is termed Evan's Syndrome. Cocker Spaniels and Old English Sheep dogs (especially females) seem to be at an increased risk for developing this syndrome. Evan's is extremely rare in cats. Additional clinical signs seen when platelets are concurrently very low and blood clotting is abnormal include: petechia/ecchymoses (red-purple marks on the mucous membranes or skin), nose bleeds (epistaxis), blood in the stool (hematochezia) and/or blood in the urine (hematuria). Naturally, additional red blood cell loss due to bleeding in these patients compounds anemia. Blood loss in these patients can be substantial.

Diagnosis of IMHA (and ITP) is based on physical examination findings and blood work results. Routine blood work will show decreased numbers of red blood cells and platelets. Many of the red cells present will be abnormally rounded (spherocytosis). The anemia is usually strongly regenerative meaning that the bone marrow is pumping out new red blood cells, trying to keep up with the destruction. Nucleated red blood cells (immature red cells) and polychromasia (red cells with varying densities) reflect regeneration on blood work. White blood cell counts are usually somewhat elevated. A positive autoagglutination test (red blood

cells clumping together when mixed with saline) is supportive of a diagnosis of IMHA. A Direct Coomb's test for immune mediated disease is usually, but not always, positive. Generally, some combination of physical findings and blood work results above allow the veterinarian to make a diagnosis of IMHA. Attempts to diagnose the underlying inciting cause require various other diagnostics. As mentioned above, the underlying cause is not always found.

Initial treatment of IMHA (and ITP) is based on stabilizing the cardiovascular and respiratory systems of the animal and includes: intravenous fluids, oxygen supplementation and sometimes blood transfusions. Definitive treatment relies on immunosuppression. Because the immune system is destroying the red cells and platelets, we have to suppress its activity. Corticosteroids (such as Prednisone/Prednisolone) are the most commonly employed medications for this purpose. Other medications used include: Cyclophosphamide (Cytosan), Chlorambucil (Leukeran) and Azathioprine (Imuran). A lengthy course of one or a combination of these medications is often needed. Some or even many dogs require lifelong treatment.

Prognosis for IMHA is variable, depending on how severely the patient is affected when presented to the veterinarian, whether or not Evan's syndrome is occurring, whether or not an inciting cause can be identified/treated and whether or not treatment can be tapered without recurrence.

An IMHA and/or ITP event is absolutely an emergency situation. Delay in presenting the animal to a veterinarian can worsen the prognosis significantly or even be fatal. Aggressive therapy is warranted immediately. Owners must be aware that treatment can be life-long and recurrence is possible at any time.